Business Economics

DEECO113

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Unit 01: Business and Economics

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Objectives

After this lecture, you would be able to

- understand the concept of business economics.
- identify the difference between traditional economics and business economics.
- distinguish between various forms of economic analysis
- define the term economics.
- understand the basic concepts involved in economics.
- discuss basic problems faced by an economy.
- explain the concept of the production possibilities curve and understand the implications of its downward slope and bowed-out shape.
- signify the scarce resources and the need to use it judiciously.

Introduction

Business in common parlanceis the activity of making one's living or making money by producing or buying and selling products. It is defined as an organization or enterprising entity engaged in commercial, industrial, or professional activities. The term "business" also refers to the organized efforts and activities of individuals to produce and sell goods and services for profit.

Economics is a social science concerned with the production, distribution, and consumption of goods and services. It studies how individuals, businesses, governments, and nations make choices about how to allocate resources. Economics is considered as one of the oldest disciplines among the humanities and is considered as social science. Thus, Economics is the study of how people allocate scarce resources for production, distribution, and consumption, both individually and collectively.

An Inquiry into the Nature and Causes of Wealth of Nations'- Adam Smith

Economics is the study of mankind in the ordinary business of life. - Alfred Marshall

Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses. - Lionel Robbins

In the broadest sense, economics refers to the study of the components and functions of a particular marketplace or economy such as supply and demand and the impact of the concept of scarcity. Within economics, production factors, distribution methods, and consumption are important subjects of study. Business economics focuses on the elements and factors within business operations and how they relate to the economy as a whole. Economics consists of both Microeconomics and Macroeconomics. Microeconomics maximizes the use of demand and maximizes the profit over minimum input of supply. On the other hand, the main motto of macroeconomics is purposeful employment, fixed pricing, rise on economic condition and favorable payment balance. The base of microeconomics is pricing which works with the help of supply and demand. This power helps to equalize the pricing in market. On the other hand, the base of macroeconomics is national income, productivity, employment and general pricing which defines by total demand and total supply. Microeconomics is based on prudent behaviour of humans. "All things are equal" used in it to define various economical laws. On the other hand, the recognition of macroeconomics deals with the total volume of economical condition and its range, graph of national income and normal life.

Did you know?

Micro' word is derived from the word 'Micros' and 'Macro' word is derived from the Greek word 'Macros'.

1.1 Business Economics

The field of business economics addresses economic principles, strategies, standard business practices, the acquisition of necessary capital, profit generation, the efficiency of production, and overall management strategy. Business economics also includes the study of external economic factors and their influence on business decisions such as a change in industry regulation or a sudden price shift in raw materials.

Business Economics, also called Managerial Economics, is the application of economic theory and methodology to business.

Business Economics consists of the use of economic models of thought to analyse business situations- Mc Nair and Meriam

Business Economics is the integration of economic theory with business practice for the purpose of facilitating decision-making and forward planning by management- Siegelman

Features of Business Economics

1. Business economics is concerned with those aspects of traditional economics which are relevant for business decision making in real life. These are adapted or modified with a view to enable the manager take better decisions. Thus, business economic accomplishes the objective of building a suitable tool kit from traditional economics. Therefore, Business economics is of new discipline and of recent origin

2. It also incorporates useful ideas from other disciplines such as psychology, sociology, etc. If they are found relevant to decision making. In fact, business economics takes the help of other disciplines having a bearing on the business decisions in relation various explicit and implicit constraints subject to which resource allocation is to be optimised. So, it is highly specialized and deals with separate branch of economics:
3. Business economics helps in reaching a variety of business decisions in a complicated environment. Certain examples are:

(i) What products and services should be produced?
(ii) What input and production technique should be used?
(iii) How much output should be produced and at what prices it should be sold?

Thus, the business economics deals with the study of allocation of resources

4. It is also known as study of decision making because business economics makes a manger a more competent person to think rationally.
5. Normative economics is concerned with describing what should be the things. Business economics is a normative science which is prescriptive in nature.

1.2 Roles of Business Economist

Decision making is an integral part of today's business management. Making a decision is one of the most difficult tasks faced by a business economist. Business Economist performs various roles as follows:

1. Identifying various business problems
2. Providing a quantitative base for decision making and forward planning.
3. Act as a thinker.
4. Act as an economic advisor to the firm.
5. Respond to the dynamic changes taking place in market situation.

Managerial Economics deals with allocating the scarce resources in a manner that minimizes the cost. As we have already discussed, Managerial Economics is different from microeconomics and macroeconomics. Managerial Economics has a more narrow scope it is actually solving managerial issues using microeconomics. Wherever there are scarce resources, managerial economics ensures that managers make effective and efficient decisions concerning customers, suppliers, competitors as well as within an organization. The fact of scarcity of resources gives rise to three fundamental questions

1. What to produce?
2. How to produce?
3. For whom to produce?

Difference between Traditional Economics and Business Economics

1. Economics is more comprehensive and wider in scope whereas business economics is too narrow and has limited scope.
2. Economics is concerned with body of principles whereas business economics deals with the application of economic principles to the problems faced.
3. Micro and Macroeconomics are included in Economics whereas business economics is only micro in nature.

4. Economics is based on no of assumption whereas the scope of assumptions are limited as it is concerned with application of theories
5. Economics is both positive and normative science but business economics is mainly a normative science
6. General economic problems are covered under Economics whereas problem of a firm is studied under Business Economics
7. Model building is the main function of the economist whereas decision making and forward planning is the main function of the business economist

1.3 Forms of Economic Analysis

(a) Microeconomics versus Macroeconomics: Microeconomics is the study of individuals and business decisions, while **macroeconomics** looks at the decisions of countries and governments. The principles of microeconomics can be usefully applied to decision-making in everyday life—for example, when you rent an apartment. Most people, after all, have a limited amount of time and money.

Macroeconomic factors tend to impact wide swaths of populations, rather than just a few select individuals. **Examples of macroeconomic** factors include economic outputs, unemployment rates, and inflation. These indicators of economic performance are closely monitored by governments, businesses and consumers alike. Though these two branches of economics appear different, they are actually interdependent and complement one another.

(b) Partial Equilibrium Analysis versus General Equilibrium Analysis: Partial equilibrium studies the equilibrium of a consumer, a firm, an industry or a market whereas General equilibrium deals with Microeconomics uses partial equilibrium analysis based on the assumption, other things remaining constant.

(c) **Static Analysis versus Dynamic Analysis**: **Static economic** analysis is also known as a timeless **economy**. **Stationary state** is an economy in which the tastes, resources and technology do not change through time. **Dynamic state** refers to a state where there is a change. The **economic** variables like consumption function, income and investment in a **dynamic** state.

(d**) Positive Economics versus Normative Economics**: **Positive economics: "***what is***"** in economic matters. It analyzes problems on the basis of facts. **Normative economics: "***what ought to be***"** in economic matters. It incorporates value judgments about what the economy **should be** like.

(e)**Short Run versus Long Run: Short run**: Time period not enough for consumers and producers to adjust completely to any new situation is referred as short period Some inputs are fixed and others are variable whereas in Long run time period long enough for consumers and producers to adjust to any new situation. All inputs are variable.

Whether Economics is a Science or an Art?

There exists considerable debate as to whether economics is a science or an art. It has a theoretical aspect and is also an applied science in its practical aspect. We cannot regard economics as an exact science. Economics is an "art" as well as it is a systematic body of knowledge; unlike science, it lays down percepts or specific solutions for specific problems.

Economics as a Science: Science is a systematic study of knowledge and fact which develops the relationship between cause and effect. Economics is regarded as a social science because it uses scientific methods to build theories that can help explain the behaviour of individuals, groups and organisations. Economics is a **social science** because it deals with one aspect of human behaviour, viz., how men deal with problems of scarcity. Samuelson says that Economics is"the queen of the social sciences".

Characteristics of Any Science

Based on systematic study of knowledge or Facts;

- Economics deals with the relationship between cause and effect.
- All the laws are universally accepted
- All the laws in economics are also universally accepted, like, law of demand, law of supply, law of diminishing marginal utility etc.
- All the laws are tested and based on experiments
- Theories and laws of economics are based on experiments, like, mixed economy to is an experimental outcome between capitalist and socialist economies.
- It can make future predictions;
- Forecasting is the process of making predictions about the economy.
- Forecasts can be carried out at a high level of aggregation—for example for GDP, inflation, unemployment or the fiscal deficit—or at a more disaggregated level, for specific sectors of the economy or even specific firms

1.4 Economics as an Art

Art is a branch of study that deals with expressing or applying the creative skills and imagination of humans to perform a certain activity. Similarly, economics also requires human imagination for the practical application of scientific laws, principles, and theories to perform a particular activity. Art is a system of rules for the achievement of a given end. We know that in practice, economics is used for achieving a variety of goals.

Every individual economic unit has an economic goal to achieve. It decides its course of action by keeping in mind the end to be achieved and the situation faced by it. Therefore, economic laws are widely used and relied upon at all levels of our economic activities. And that makes economics an art. According to Pigou, Marshall etc., economics is also considered as an art. Art is the practical application of knowledge for achieving particular goals.

Art tells us how to do the thing i.e. to achieve an objective. Economics is also used for achieving a variety of goals.

Example: All policies etc made in economics has the ultimate objective of solving economic problems.

Art is the practical application of theoretical knowledge Like Art, Economics also practices its theoretical laws.

 **Example:** The various policies are made only after having theoretical knowledge of the society and country as a whole. Hence, economics is also an art. Science gives us principles of any discipline however, art turns all these principles into reality.

It is thus science in its methodology and art in its application. Thus, we consider economics as social science as it deals with society as a whole and human behaviour in particular, and studies the production, distribution and consumption of goods and services.

Basic Assumptions in Economics

Economic theories are based on certain simplifying assumptions and economic laws which are as follows:

1. **Ceteris Paribus**: Ceteris Paribus is a Latin Phrase, literally translated in English as "with other things (being) the same" or "all other things being equal."

   This assumption is applied to all economic analysis to create an environment where causal relationship between two variables is to be studied.

2. **Rationality**: Rationality implies that consumers and producers measure and compare the costs and benefits of a decision before going ahead. Thus the economists make the assumption that people act rationally

   All the conventional economic theory rests on the assumption that both consumers and producers behave rationally while firms aims at maximizing profits and minimizing costs consumers aims at maximizing utility and minimizing sacrifice. So, we can say that rationality in decision making is a precondition for attaining optimality under the given constraints.

1.5 Basic Economic Concepts

We live in a world where wants are unlimited and resources are scarce in nature. People want and need wide variety of goods and services. But it is a matter of fact that only a limited amount of goods and services can be produced. This is because the existing supplies of resources are extremely inadequate. These resources are land, labour, capital and entrepreneurship. As, human wants are unlimited and the resources available to satisfy these wants are limited, therefore, there arises economic problems such as

- Scarcity
- Choice and
- Opportunity cost

(a) **Scarcity:** One of the important concepts in economics is scarcity. ***Scarcity*** is defined as ***wants*** always exceed ***limited resources*** to satisfy them. Scarcity refers to the basic economic problem, the gap between limited – that is, scarce – resources and theoretically limitless wants. This situation requires people to make decisions about how to allocate resources efficiently, in order to satisfy basic needs and as many additional wants as possible. Any resource that has a non-zero cost to consume is scarce to some degree, but what matters in practice is relative scarcity. Scarcity is also referred to as "paucity."

Thus, Scarcity is a universal problem faced by poor as well as rich nations in order to fulfil their needs. It give rise to the problem of resource allocation. In technical terms, scarcity implies excess demand. Whenever, demand for a commodity exceeds the supply of the same commodity, then, there is a scarcity of that particular commodity. Thus, *scarcity* is the root

problem which requires the managerial attention. Thus, *scarcity* is the root problem which requires the managerial attention.

(b) **Choice:**Scarcity of resources gives rise to the fundamental economic problem of choice. As a society cannot produce enough goods and services to satisfy all the wants of its people, it has to make choices.

A decision to produce one good requires a decision to produce less of some other good. So choice involves sacrifice. Thus, every society is faced with the basic problem of deciding what it is willing to sacrifice to produce the goods it wants the most. For instance, the more roads a country decided to construct the fewer resources will there be for building schools. So, the problem of choice arises when there are alternative ways of producing other goods. The sacrifice of the alternative (school buildings) in the production of a good (roads) is called the opportunity cost.

There are a number of problems that can arise from choices that are made by people, whether they are individuals, firms or government. Choices or alternatives (or opportunity cost) can be explained in terms of a production possibility curve.

(c) **Opportunity Cost**: Opportunity cost is the value of something when a particular course of action is chosen. Simply put, the opportunity cost is what you must forgo in order to get something. The benefit or value that was given up can refer to decisions in your personal life, in a company, in the economy, in the environment, or on a governmental level. The managerial economist has to make rational choices in all aspects of business by sacrificing some of the alternatives, since resources are scarce and wants are unlimited. Whenever a manager takes or makes a decision, he chooses one course of action, sacrificing the other alternative courses. For every decision that a manager takes, he gives away something. This is called a trade-off. When we assign a value to this, it is known as opportunity cost. E.g. Suppose a student has an hour of disposal which can be either utilized to read a book, which would fetch him higher score in the exams, or to watch cricket match which would give him pleasure. So, the opportunity cost of watching a match is the score in the test foregone by not reading the text book.

Did you know?

Reliance followed aggressive penetration strategy and came out with a low-cost model for its hand-set and services for rapid diffusion of its cellular services. Easy installment and low cost hand-set and penetration pricing strategy of Reliance and Tata Indicom have given needed boost to the cell phone industry.

1.6 Kinds of Economic Decisions

An economic system is any system of allocating scarce resources. Production, distribution and disposition of goods and services are the basic economic activities of life. In the course of these activities, every society has to face scarcity of resources. Because of this scarcity, every society has to decide how to allocate the scarce resources.

It leads to following Central Problems that are faced by every economy:

1. **What to produce?**

This problem involves selection of goods and services to be produced and the quantity to be produced of each selected commodity. Every economy has limited resources and thus, cannot

produce all the goods. More of one good or service usually means less of others. For example, production of more sugar is possible only by reducing the production of other goods. Production of more war goods is possible only by reducing the production of civil goods. So, on the basis of the importance of various goods, an economy has to decide which goods should be produced and in what quantities. This is a problem of allocation of resources among different goods.

2. **How to produce?**

This problem refers to selection of technique to be used for production of goods and services. A good can be produced using different techniques of production. By 'technique', we mean which particular combination of inputs to be used. Generally, techniques are classified as: Labour intensive techniques (LIT) and Capital-intensive techniques (CIT).

(1) In Labour intensive technique, more labour and less capital (in the form of machines, etc.) is used.

(2) In Capital intensive technique, there is more capital and less labour utilization.

Example: textiles can be produced either with a lot of labour and a little capital or with less labour and more capital. Availability of factors and their relative prices helps in determining the technique to be used. The selection of technique is made with a view to achieve the objective of raising the standard of living of people and to provide employment to everyone.

3. **For whom to produce?**

This problem refers to selection of the category of people who will ultimately consume the goods, i.e. whether to produce goods for more poor and less rich or more rich and less poor. Since resources are scarce in every economy, no society can satisfy all the wants of its people. Thus, a problem of choice arises.These problems are called central problems because these are the most basic problems of an economy and all other problems revolve around them.

Task: Give your opinion on why basic problem of a developed country varies from a developing country.

1.7 Production Possibility Curve

Since human wants are unlimited and the means to satisfy them are limited, every society is faced with the fundamental problem of choosing and allocating its scarce resources among alternative uses. The production possibility curve or frontier is an analytical tool which is used to illustrate and explain this problem of choice.

Another name of PPC is:

1. Production possibility Frontier
2. Production possibility boundary
3. Transformation curve

The PPC shows the ***various possible combinations*** of goods and services producedwithin a specified time period with all its resources fully and efficiently employed. The production possibility frontier (PPF) is a curve that illustrates the variations in the amounts that can be produced of two products if both depend upon the same finite resource for their

manufacture. PPF also plays a crucial role in economics. It can be used to demonstrate the point that any nation's economy reaches its greatest level of efficiency when it produces only what it is best qualified to produce and trades with other nations for the rest of what it needs. The PPF is also referred to as the production possibility curve or the transformation curve. The production possibility frontier demonstrates that there are, or should be, limits on production. An economy, to achieve efficiency, must decide what combination of goods and services can and should be produced.

A Production Possibility Frontier illustrates several concepts of economics such as:

a. Allocative efficiency
b. Economies of scale
c. Opportunity cost
d. Productive efficiency
e. Scarcity of resources

Assumptions of PPC

(1) Only two goods X (consumer goods) and Y (capital goods) are produced in different proportions in the economy.

(2) The same resources can be used to produce either or both of the two goods and can be shifted freely between them.

(3) The supplies of factors are fixed. But they can be re-allocated for the production of the two goods within limits.

(4) The production techniques are given and constant.

(5) The economy's resources are fully employed and technically efficient.

(6) The time period is short.

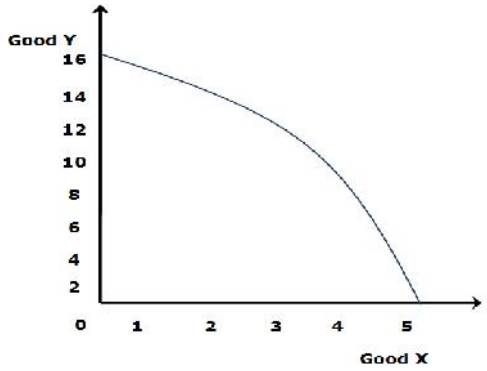
Given these assumptions, we construct a hypothetical production possibility schedule of such an economy

Good X	Good Y
0	15
1	14
2	12
3	9
4	5
5	0

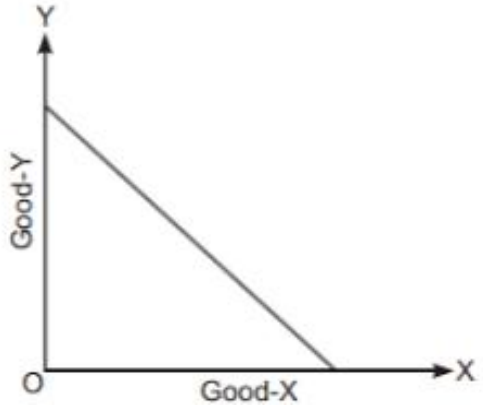
PPC is concave to the origin because of increasing Marginal opportunity cost. This is because in order to increase the production of one good by 1 unit more and more units of the other good have to be sacrificed since the resources are limited and are not equally efficient in the production of both the goods.

Different Shapes of PPC:

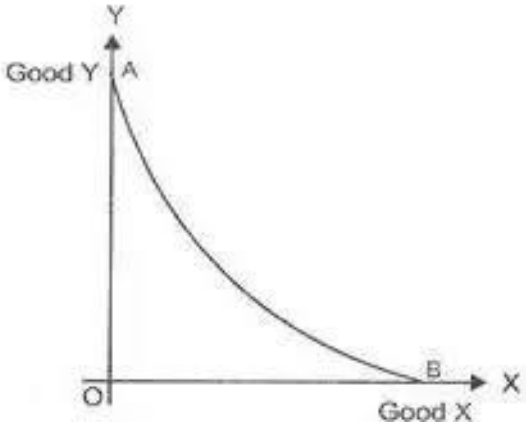
1. Concave PPC: **PPC is concave to the origin** because of increasing Marginal opportunity cost. Increasing opportunity cost is a case when more of a special good is made, the cost in terms of other goods or services grows.



2. **Linear PPC:** A PPC curve can be a straight line only if the marginal rate of transformation (MRT) is constant throughout the curve. A MRT can remain constant only if both the commodities are equally constant and the marginal utility derived from their production is also constant.



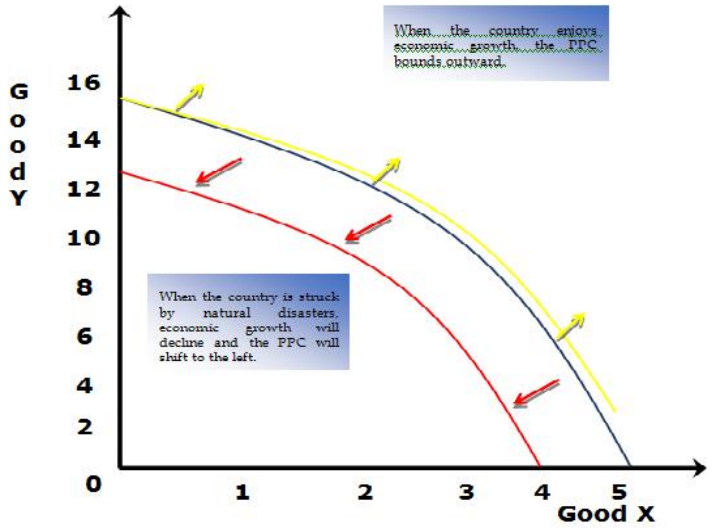
3. **Convex PPC**: **PPC** curve can be **convex to the origin** when the opportunity cost decreases. This can happen only when less and less units are forgone of first commodity for the introduction of additional unit of another commodity.



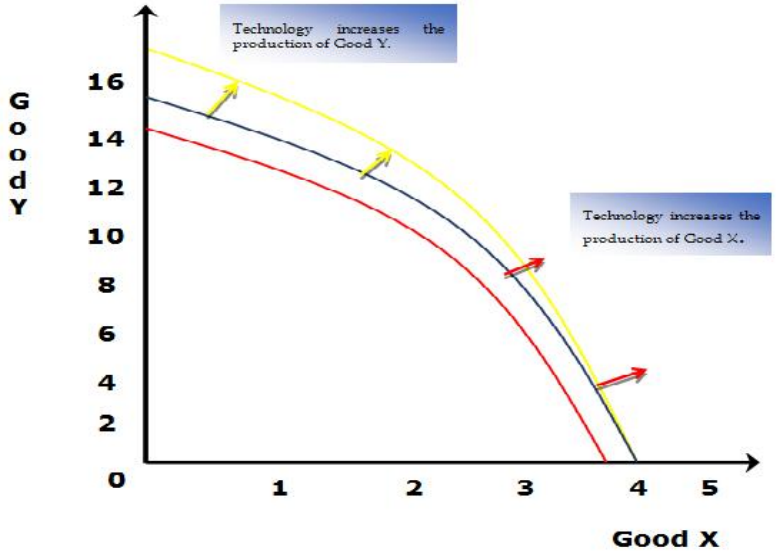
Factors that influence shift in PPC:

Outward or inward shifts in the PPF can be caused mainly by changes in the total amount of available production factors or by advancements in technology. If the total amount of production factors like **labor** or **capital** increases, then the economy is able to produce more goods at any point along the frontier.

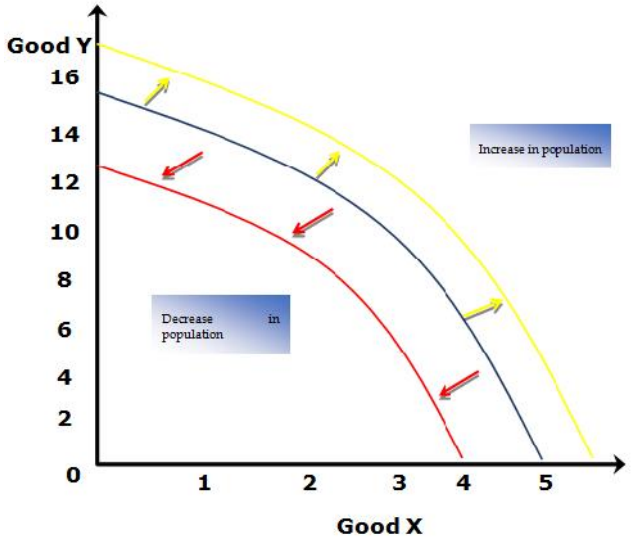
1. **Economic growth**: When the production possibility curve shifts outward i.e right side then we can say that there is growth in an economy.



2. **Improvement in Technology**: Updated and new technology will lead to outward shift in production possibility curve for the good which has used updated technology to produce the product.



3. **Population**: An increase in population would also bring about an increase in the resource of labor and would shift the PPF upward or increasing overall production whereas the decrease in population would bring decrease in the resource of labour and capital thereby leading to downward shift in PPC.



Task: Suppose you are a manager of a restaurant and you are under pressure of increasing monthly profits from the owner of a restaurant. Suggest a rational decision model.

Summary

- Economics is the social science that examines how people choose to use limited or scarce resources in attempting to satisfy their unlimited wants.
- Economics is a science which studies human behavior as a relationship between ends and scarce means which have alternative uses.
- Economics is concerned with the application of economic concepts and analysis to the problem of formulating rational economic decisions.
- Business Economics, also called Managerial Economics, is the application of economic theory and methodology to business.
- Micro-economics is the study of decisions that people and businesses make regarding the allocation of resources and prices of goods and services
- Macro-economics is the field of economics that studies the behavior of the economy as a whole and not just on specific companies, but entire industries and economies.
- What to produce depends on the types of goods and services to produce
- How to produce deals with thee cheapest methods of production
- For whom to produce depends on the distribution of income.
- PPC shows the various possible combinations of goods and services produced within a specified time period with given technology and resources.
- Opportunity cost is defined as the second best alternative that has to be foregone for another choice which gives more satisfaction.
- Shifts in PPC happens when there are improvements in technology, increased resources and growth in the economy.

Keywords

Economics: It is a study of how people use their limited resources to satisfy their unlimited needs and desires.

Business Economics: It is the integration of economic theory with business practice for the purpose of facilitating decision-making and forward planning by management

Production Possibility Curve: PPC shows the various possible combinations of goods and services produced within a specified time period with given technology and resources

Scarcity: It refers to the deficiency of goods and services available.

SelfAssessment

1. The subject of Economics is:
A. A physical science
B. A natural science
C. An exact science
D. A social science

2. Which of the following statements is not related to economic problems?
A. What to produce?
B. For whom to produce?
C. Where to produce?
D. How to produce?

3. According to the economists, a good is in a scarce state when
A. There is less supply of that good at the existing price
B. There is difficulty to increase the availability of that good
C. The demand for that good is increasing regardless of price
D. The demand for that good has exceeded its supply from available resources

4. Which of the following statements is a positive analysis?
A. Public demand for an increase in minimum wage rates.
B. Income tax should be increased to reduce the inflation problem.
C. An increase in tobacco prices will reduce the demand for tobacco
D. Sales tax on sports items should be reduced.

5. A movement along the production possibilities curve implies
A. Labor force has increased
B. Productivity has increased
C. Society has chosen a different set of output
D. Improvement in technological know-how

6. Managerial economics generally refers to the integration of economic theory with business
A. Ethics
B. Management
C. Practice
D. All of the above

7. The state in which all the industries in an economy are in equilibrium is termed as:
A. Partial equilibrium
B. General equilibrium
C. Production Possibility Curve
D. Opportunity cost

8. Long period is the period
A. Long enough for consumers and producers to adjust to any new situation.
B. In which industrial capacity is assumed to be given
C. All factors are fixed.
D. Technology is given

9. The study of unemployment is a part of
A. Normative economics
B. Microeconomics
C. Macroeconomics
D. Descriptive economics

10. State whether economics is
A. A positive science only
B. Neither a positive nor normative science
C. A science but not an art
D. A science or an art depending on who uses economics and for what purpose.

Answers forSelf Assessment

1.	D	2.	C	3.	D	4.	C	5.	C
6.	C	7.	B	8.	A	9.	C	10.	D

Review Questions

1. What do you mean by the term 'microeconomics'?
2. What do you mean by business economics?
3. How microeconomics is different from business economics?
4. What role does a business economist play in decision making of the firm? Explain.
5. Following are the examples of typical economic decisions made by managers of a firm. Determine whether each is an example of what, how, or for whom to produce.

(a) Should the company make its own spare parts or buy them from an outside vendor?

(b) Should the company continue to service the equipment it sells or ask the customers to use independent repair companies?

(c) Should a company expand its business to international markets or concentric in domestic markets?

(d) Should the company replace its telephone operators with a computerized voice messaging system?

(e) Should the company buy or lease the fleet of trucks that it uses to translate its products to markets?

5. What does an 'economic problem' mean? What central problems are faced by an economy? Explain.
6. Explain the concept of opportunity cost with examples. Discuss the relationship between opportunity cost and the shape of the PPC.
7. Define PPC. Explain the factors that can shift the PPC outwards.

Further Readings

1. Atma nand, Managerial Economics, Excel Books
2. G.S. Maddala, Microeconomics: Theory and Application, Tata McGraw-Hill
3. Samuel Bowles, Microeconomics: Behavior, Institutions, and Evolution, Oxford
4. Jeffrey M. Perloff, Microeconomics, Pearson Education

Web Links

http://www.swlearning.com/economics/hirschey/managerial_econ pdf
http://www.referenceforbusiness.com/encyclopedia/Man-Mix/Ma Economics.html

http://bilder.buecher.de/zusatz/14/14727/14727814_vorw_1.pdf

Unit 02: Economic System

CONTENTS

Objectives

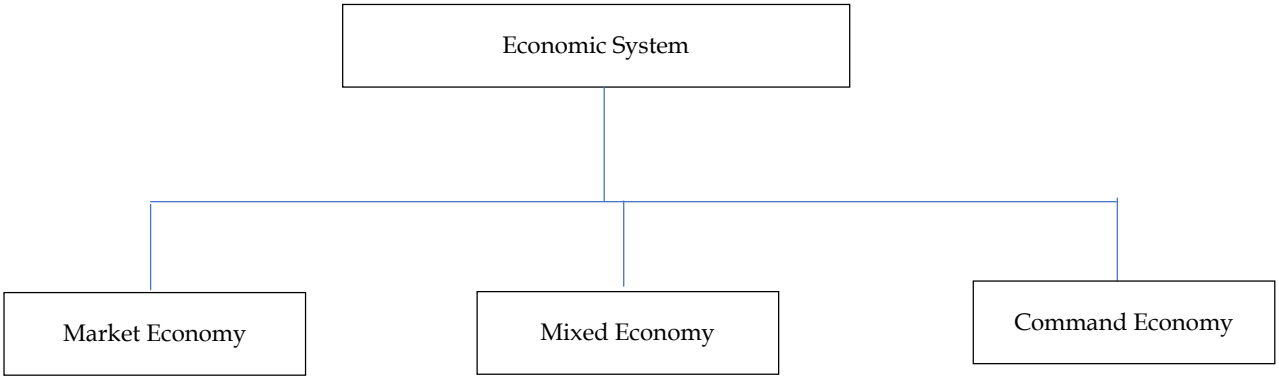
After this lecture, you would be able to

- discuss the concept of scarcity
- understand the concept of economic system.
- identify how economic system deals with the problem of scarcity
- understand different types of economic system.
- differentiate between free market, command market and mixed economic system.

Introduction

An economic system is a way of organizing the relationship among individuals, firms and government agencies on how to make choices when confronted with basic economic questions i.e what to produce, how to produce and for whom to produce. Thus, we can say that an economic system is the decision-making structure of a nation's economy, characterized by the entities and policies that shape it.

An economic system is a means by which societies or governments organize and distribute available resources, services, and goods across a geographic region or country. Economic systems regulate factors of production, including capital, labour.



2.1 Scarcity and Economic System:

Scarcity refers to the limited availability of a resource in comparison to the limitless wants. Scarcity may be with respect to any natural resources or with respect to any scarce commodity. Scarcity may also be referred to as paucity of resources.

A situation of scarcity requires people to judiciously or efficiently allocate the scarce resources to meet the needs of society.

Economic resources are in short supply. We must decide how to divide our resources in the face of shortage. The study of how societies choose to do so is known as economics. Microeconomics is the study of how people, households, and businesses make decisions.

People need to explore new resources or create replacements for existing resources. An example of this is exploring and using alternative methods of energy generation for clean energy and reducing air pollution. Another example is recycling of water to enable efficient use of water resource.

Economic System

A way in which an economy is organized to answer basic economic questions.

Scarcity is an economic problem. It calls for the economic allocation of scarce resources to fulfil unlimited wants or needs.

The problem of allocation of resources arises due to the scarcity of resources, and refers to the question of which wants should be satisfied and which should be left unsatisfied. In other words, what to produce and how much to produce. More production of a good implies more resources required to produce that good, and resources are scarce. Now, these two facts together mean that, if a society decides to increase the production of some good, it must withdraw some resources from the production of other goods. In other words, more production of a desired commodity can be made possible only by reducing the quantity of resources used in the production of other goods.

The problem of allocation deals with the question of whether to produce capital goods or consumer goods. If the community decides to produce capital goods, resources must be withdrawn from the production of consumer goods. In the long run, however, [investment] in capital goods augments the production of consumer goods. Thus, both capital and consumer goods are important. The problem is determining the optimal production ratio between the two.

Resources are scarce and it is important to use them as efficiently as possible. Thus, it is essential to know if the production and distribution of national product made by an economy is maximally efficient. The production becomes efficient only if the productive resources are utilized in such a way that any reallocation does not produce more of one good without reducing the output of any other good.

Another important question which needs consideration is that whether all available resources are fully utilized or not. A community should achieve maximum satisfaction by using the scarce resources in the best possible manner and not wasting any resources.

So, Economic systems as a type of social system which must confront and solve the three fundamental economic problems which are:

1. What kinds and quantities of goods shall be produced which further necessitates how much and which of alternative goods and services shall be produced?
2. How shall goods be produced which states that by whom and with what resources the goods need to be produced?
3. For whom are the goods or services produced? This problem deals with the class of people for whom the goods are produced.

Economic systems solve theproblems in several ways such as by custom and instinct, by command and centralized control (in planned economies) and inmixed economies which uses both market signals and government directives to allocate goods and resources.The latter is variously defined as an economic

system blending elements of a market economy with elements of a planned economy, free markets with state interventionism, or private enterprise with public enterprise.

2.2 The Market Economic System:

A market economy is an economic system in which economic decisions and the pricing of goods and services are guided by the interactions of a country's individual citizens and businesses. There may be some government intervention or central planning, but usually this term refers to an economy that is more market oriented in general.A market economy functions under the laws of supply and demand.It is characterized by private ownership, freedom of choice, self-interest, optimized buying and selling platforms, competition, and limited government intervention.Competition drives the market economy as it optimizes efficiency and innovation. Market economies marginalize those that are unable to compete, contributing to income inequality.

Table 2.1 Characteristics of Market Economy

Characteristics	Description of Characteristics
Private Ownership	Most goods and services are privately-owned. The owners can make legally binding contracts to buy, sell, or lease their property. Their assets give them the right to profit from ownership.
Decentralized decisions	Decentralized decision-making is any process where the decision-making authority is distributed throughout a larger group. It also connotes a higher authority given to lower-level functionaries, executives, and workers. This can be in any organization of any size, from a governmental authority to a corporation.
Self-interest profits	Everyone sells their wares to the highest bidder while negotiating the lowest price for their purchases. Although the reason is selfish, it benefits the economy over the long run. This auction system sets prices for goods and services that reflect their market value. It gives an accurate picture of supply and demand at any given moment.
Allocation by price	Businesses sell their wares at the highest price consumers will pay. At the same time, shoppers look for the lowest prices for the goods and services they want. Workers bid their services at the highest possible wages that their skills allow. Employers seek to get the best employees at the lowest possible price.
Efficiency is valued	A market economy relies on an efficient market in which to sell goods and services. That's where all buyers and sellers have equal access to the same information. Price changes are pure reflections of the laws of supply and demand. There are five determinants of demand: product price, buyer's income, prices of related goods, consumer taste, buyer's expectations.

Table 2.2:Advantages and Disadvantages of Market Economy

Advantages of Market Economy	Disadvantages of Market Economy
1. Efficiency Since a market economy allows the free interplay of supply and demand, it ensures that the most desired goods and services are produced. Consumers are willing to pay the highest price for the things they want the most. Businesses will only create those things that return a profit.	1. Inequalities The key mechanism of a market economy is competition. As a result, it has no system to care for those who are at an inherent competitive disadvantage which further brings inequalities among the people generating more income to already rich people and distributing lesser income to low earners.
2. Minimum State Intervention It means no government intervention. The basic purpose of the laissez-faire economy is to promote a free and competitive market that demands the restoration of the order and natural state of liberty that humans emerged from. A laissez-faire economy is thus characterized by the free movement of forces of supply and demand, free from any form of intervention by a government, a price-setting monopoly, or any other authority.	2. Exploitation of poor It has been criticised by the economist that the market economy concentrates power in the hands of a small number of capitalists who profit from the exploitation of the majority working class and their labour, that it prioritises profit over social good, natural resources, and the environment, that it is a source of inequality, corruption, and economic instability, and that many people are unable to benefit from its ostensible benefits and freedoms.
3. Individual choices Owners are free to produce, sell, and purchase goods and services in a competitive market.In addition to this, the choices are driven by profit motive. Everyone sells their wares to the highest bidder while negotiating the lowest price for their purchases.	3. Overlooks economic welfare Market economies range from minimally regulated free-market and laissez-faire systems, in which the government's role is limited to providing public goods and services and protecting private property rights, to interventionist forms, in which the government actively intervenes to correct market failures and promote social welfare.

2.3 Economic Decisions in Market Economy

1. What to produce: In capitalism, an entrepreneur will only produce goods and services for which there is a demand from consumers so to enjoy higher profits. Production depends on the goods demanded by the consumer.

2.How to produce: Firms can produce any product or provide any service using more than one method. The method depends on the relative price of the resources involved. As resources become scarce relatve to demand, prices will rise and discourage their usage

3. For whom to produce: The third economic decision as to who will be receiving goods and services in the capitalism system is answered through the price system. Goods and services are obtained by anyone who can afford them.

2.4 The Command Economic System

Another name is planned economic system or socialism. It is an economic system where the economic decisions are made by the government or a central authority. There will be no private rights since the government officially own all resources. Government central planners own or control the means of production and set the distribution of output in a command economy. Poor incentives for planners,

managers, and employees in state-owned firms plague command economies. Central planners in a command economy are unable to rationally determine the methods, quantities, proportions, location, and timing of economic activity across an economy without private property or the operation of supply and demand.

Table 2.3 Characteristics of Command Economy

Characteristics	Description of Characteristics
State Ownership	All the resources are owned and operated by the state or the government in the interest of society as a whole. This is to ensure equal opportunity of all citizens regardless of their income. Public ownership also aims to fully utilize the country's resources.
Centralized decisions	The central authority is responsible for making economic decisions for society. The authority plans and allocates resources between current consumption and investment for the future.
Collective welfare	A planned economy is a fully planned economy where the government intervenes in all aspects of economic activity with perspective of social welfare.
Allocation by non-price mechanism	Planned economy gives less importance to market forces. Prices are fixed by the government and not determined by demand and supply. Private profits are not allowed, and public interest is emphasized in the command economy.

Advantages of Planned Economy	Disadvantages of Planned Economy
1. Collective goods provision Production in a socialist economy is mainly directed at producing the basic needs of the people such as food, clothing and building materials which is not determined by the purchasing power of the rich in the society and thereby aimed at collective provision of goods for the welfare of the citizens of the country	**1. Inefficient system** Critics of planned economies claim that planners are unable to accurately discern consumer preferences, shortages, and surpluses, and hence are unable to efficiently coordinate production, thereby leading to the inefficient system
2. Employment security Unemployment rate is usually taken care by the government to ensure the activities thereby ensuring economic stability in the country.	**2. Cumbersome process** Opponents of central economic planning contend that central institutions lack the infrastructure needed to collect and analyse the financial data needed to make key economic decisionswhich have historically resulted in inefficiencies and a loss of aggregate utility.
3. Equal opportunity Under the socialist system, the planning authority will allocate resources between current consumption and future investment, thereby leading to equal opportunity in every sector	**3. Lack of profit** Individuals have no profit motive. This will lead to economic inefficiency since jobs are provided by the government and individuals are not motivated to work harder.

Table 2.4:Advantages and Disadvantages of Planned Economy

Economic Decisions in Planned Economy

1. **What to produce**: In socialism, planning authorities decide what to produce. The Central Planning Authority collect detailed Statistics on the resources availability in the country and link it with national priorities. If the planning authority feels that the nation needs more computers for current and future consumption, more resources will be allocated to produce computers over other products.

2. **How to produce**: The Central Planning Authority also decides on the techniques to be used in the production of different goods and services. The choice is between traditional and modern techniques of production.

3. **For whom to produce**: The distribution of the national product is decided by the Central Planning Authority. The distribution of various commodities among citizens is done through a set of administered fixed processes.

2.5 The Mixed Economy

This is an economic system which combines both capitalism and socialism to solve basic economic problems. A mixed economy is an economy in which both the public and private sectors play a role. In the real world, most countries practice a mixed economy. While there is no single definition of a mixed economy, one definition is about a mixture of markets with state interventionism, referring specifically to a capitalist market economy with strong regulatory oversight and extensive interventions into markets.

Table 2.5 Characteristics of Mixed Economy

Characteristics	Description of Characteristics
Public and Private Ownership of resources	The private and public sectors play important roles in a mixed economy. Private enterprises conduct business freely and the government encourages the private sector by providing them with infrastructural facilities
Price mechanism and economic plans in making economic decisions	The price mechanism is used to price both goods and services.
Government helps to control income disparity	In most mixed economies, the government controls income disparity through income taxes and welfare payments. The government also has direct control over profits, wages and rents.
Government intervention in the economy	The government will not intervene in the economy except for particular industries. In a mixed economy, the government uses legislation for unsafe goods categorized as illegal products such as military items. The government also uses direct provision, e.g. health, education and defense etc to increase standard of living.
Cooperation between the government, public and business sectors	In mixed economies, there is significant co-operation between the public and private sectors leading to economic development

Table 2.6 Advantages and disadvantages of Mixed Economy

Advantages	Disadvantages
1. Permits private participation in production Mixed economies allow private participation	One disadvantage of mixed economies is that they tend to lean more toward government control and

in production and many more freedoms than command economies, such as the freedom to possess the means of production; to participate in managerial decisions; to buy, sell, fire, and hire as needed; and for employees to organize and protest peacefully.	less toward individual freedoms. While most modern forms of government are consistent with some form of mixed economy, the mixed economy is most associated with social democratic parties or nations run by social democratic governments. In addition, unsuccessful regulations may paralyze features of production. This, in return, can cause the economic balance to shift. Another negative point is that the government decides the amount of tax on products, which leads to people complaining about high taxes and their unwillingness to pay them. Moreover, lack of price control management can cause shortages in goods and can result in a recession.
2. Allows healthy competition that can result in profit The benefit of this form of market is that it allows for competition between producers while also ensuring that society as a whole is protected. The presence of the government in the economy gives vendors and customers a sense of security. This safety contributes to the economy's stability.	
3. Contributes to public ownership in manufacturing, which can address social welfare needs Overall, both firms and consumers benefit from the freedoms afforded by mixed economies. While the government is actively involved and gives support, which is beneficial for the welfare of the individuals	

Economic Decisions in Mixed Economy

1. What to produce: In mixed economies, the question of what to produce is decided by both the public and private sectors. The goods produced and the services provided depend on the consideration of social welfare and economic growth

2. **How to produce**: The public and private sectors will decide on the techniques of production to be used in the production of the different goods and services.

3. **For whom to produce**: The distribution of goods and services is also decided by the public and private sectors. The price mechanism does not fully function in the mixed economies. In many mixed economies, the government intervenes directly through price controls and indirectly through the imposition of indirect taxes and subsidies.

Identify five countries where mixed economic system prevails

Summary

- An economic system is the decision-making structure of a nation's economy, characterized by the entities and policies that shape it.
- An economic system may involve production, allocation of economic inputs, distribution of economic outputs, firms, and the government to answer the economic problem of resource allocation.
- There are three general subtypes of economic systems: free market systems, planned systems and nixed economic system
- A country may have some elements of both systems, and this type of economy is known as a mixed economy.

Keywords

Scarcity: It is defined as human wants being always greater than the available resources

Economic system: It is a way in which an economy is organized to answer basic economic questions.

Free Market Economy: It is an economic system where individuals make all main economic decisions without government interventions.

Planned Economy: It is an economic system where all economic decisions are made by the government or a central authority.

Mixed Economy: It is an economic system which is a mix of capitalism and socialism systems to solve basic economic problems.

Self-Assessment

1. Scarcity requires that people must

A. Trade
B. Compete
C. Cooperate
D. Make choices

2. Economists point out that scarcity confronts

A. The rich but not the poor
B. The poor but not the rich
C. Both the poor and the rich
D. Neither the poor nor the rich

3. As an economic concept, scarcity applies to

A. Neither time nor money
B. Both money and time
C. Time but not money
D. Money but not time

4. Which of the following is not the characteristic of a planned economy

A. Central planning authority
B. Private ownership of resources
C. Public ownership of resources

D. Advocacy of social justice

5. In a central-planned economic system, the question of what, how and for whom to produce are solved by a(n)_____

A. Planning committee
B. Elected representative of people
C. Price mechanism
D. Action of producer

6. Problems relating to the allocation of the factors of production and the distribution of income exist:

A. In socialist economies only
B. In capitalist economies only
C. In mixed economies only
D. In all economies

7. In a market system, which of the following is incorrect?

A. Prices allocate resources equally among competing industries and sectors in the economy
B. Prices indicate relative scarcities and costs of production
C. Relative price changes are a determinant of firms' profits and therefore encourage or discourage production
D. Prices are measures of consumers' willingness to pay for goods and services

8. In a command system, economic planners would be concerned with all but one of the following areas. The exception is:

A. An appropriate allocation of resources between the production of consumer goods and capital goods
B. The elimination of bottlenecks in the supply of key commodities
C. Implementation of incentives to achieve output targets
D. Freedom of movement of capital to respond to profit signals throughout the economy

9. In a command economy, resource allocation is brought about by

A. Price signals driven by relative price changes
B. The collective preferences of central planners
C. The desire of producers to maximize profits
D. The behavior of self-interested individuals striving to maximize their own well-being.

10. Which one of the following statements about economic systems is correct?

A. A traditional system is a dynamic system
B. A command system is an efficient system
C. A market system is a fair system
D. Most economic systems are mixed systems

11. Which of the following is incorrect?

Market capitalism is characterized by:

A. Strong government intervention
B. Individualism
C. Private freedom
D. Private property

12. In market capitalism, economic activity is driven by:

A. Altruism
B. Concern for others
C. Self- interest
D. The public interest

13. Privatization means that:

A. The private sector sells assets to the government
B. The government obtains private assets without compensation
C. The government obtains private assets but compensates the owners
D. The government sells some of its assets to the private sector

14. The basic question of what to produce and for whom to produce are essentially independent because

A. A particular level of output may be produced by many different combinations of inputs.
B. Different patterns of factor use generate different patterns of income distribution
C. Income and wealth are concentrated in the hands of the economically powerful.
D. Markets cannot be relied upon to allocate resources efficiently.

15. In the context of market system, which of the following statements is incorrect?

A. The market mechanism acts to coordinate the plans of consumers and producers.
B. Firms face incentives to produce what consumers demand
C. A highly unequal distribution of income and wealth may exist
D. Goods and services are distributed in accordance with consumers' needs

Answers for Self Assessment

1.	D	2.	C	3.	B	4.	C	5.	B
6.	D	7.	A	8.	D	9.	B	10.	D
11.	A	12.	C	13.	D	14.	B	15.	D

Review Questions

1. What is an economic system?
2. What does economic system comprises of?
3. How is planned economic system different from market economic system?
4. Discuss the difference between capitalism and socialism.

5. Explain how a mixed economy can solve the economic problem
6. Explain the merits and demerits of socialism.
7. What are the main economic decisions in capitalism.
8. Explain the key features of mixed economic system.
9. How a planned economy can solve the economic problem.
10. Briefly describe all economic systems that prevails.

Further Readings

1. Atmanand, Managerial Economics, Excel Books
2. G.S. Maddala, Microeconomics: Theory and Application, Tata McGraw-Hill
3. Samuel Bowles, Microeconomics: Behavior, Institutions, and Evolution, Oxford
4. Jeffrey M. Perloff, Microeconomics, Pearson Education

Web Links

http://www.swlearning.com/economics/hirschey/managerial_econ.pdf
http://www.referenceforbusiness.com/encyclopedia/Man-Mix/MaEconomics.html
http://bilder.buecher.de/zusatz/14/14727/14727814_vorw_1.pdf

Unit 03: The Price Mechanism

CONTENTS

Objectives

After this lecture, you would be able to

- Introduce the basics of demand
- Understand the concept of supply
- Understand the concept of equilibrium
- Identify the price determination by the intersection of demand and supply
- Understand the situation of shortage and surplus

Introduction

In economics, demand and supply are two of the most fundamental principles. Demand has a broader and more specific meaning than it does in everyday usage. Normally, demand would refer to your want to purchase something, but in economic terms, demand is more than that. It's seen as a desire backed up by financial means. Considering all these aspects the term demand can be defined as, "Demand for anything means the quantity of that commodity, which is desired to bebought, at a given price, per unit of time."

Example: Suppose price of a pen is 10 per unit of time. At this price, people are willingto buy 100 units of that pen at a specific point of time. So, it is the demand for that pen.

3.1 Concept of Demand

One of the most important factors for every business's survival is demand. A company is concerned with its own profit and/or sales, both of which are influenced by the demand for its product. An examination of demand is required when management makes decisions about production, advertising, cost allocation, pricing, and so forth.Demand for a commodity refers to the quantity of the commodity which an individual householdis willing and able to purchase per unit of time at a particular price.

Demand for a commodity implies:

1. Desire to acquire it,

2. Willingness to pay for it, and

3. Ability to pay for it.

Demand has a specific meaning as, mere desire to buy a product is not demand.

As demand for sweets go up, the demand for sugar also goes up or as yourincome increases, you demand for branded clothes also goes up

3.2 Classification of Goods and Services

Classification of Good	Description of Classification
Free Goods	A free good is one that society requires but for which there is no opportunity cost. It is a good that is not scarce. Air, for example, is a completely free good because we can breathe it as often as we like. We do not deplete the available resource for others by breathing.
Public Goods	A public good has two characteristics: 1. Non-rivalry – consuming the good doesn't reduce the amount available to other people. 2. Non-excludable – once provided you can't stop anyone consuming it. Examples of public goods include street lights, law and order and national defence.
Economics Goods	A societal benefit (utility) is provided by an economic good or service. Economic products are also limited in supply, resulting in an opportunity cost. In response to demand, an economic good will experience some scarcity. Scarcity establishes a value for which people are willing to pay a premium. The concept of opportunity cost is based on scarcity.
Economic Services	A service is a transaction in which no physical goods are transferred from the seller to the buyer. The benefits of such a service are held to be demonstrated by the buyer's willingness to make the exchange. Public services are those that society (nation state, fiscal union or region) as a whole pays for.

3.3 Types of Demand

It is important to note that, the enormous number of goods and services offered in the economy must be categorised for a purposeful demand analysis for decision-making. Understanding demand at various levels of aggregation also helps policymakers make better judgments.

1. **Direct demand and derived de**mand: Goods that yield direct satisfaction to the consumers are said to have a direct demand.This demand comes from the consumers side.Demand for food, cloth and house etc. are the examples of direct demand.All the finished goods have a direct demand whereas Goods that are needed by the producers are said to have derived demand.This demand comes from the producers side.Demand for land, labor, capital, etc. are the examples of derived demand.All factors of production have derived demand.

2. **Perishable goods and durable goods**: This term refers to the categorisation of demand based on how commodities are used. Perishable goods and durable goods are the two categories of products. The term "perishable" or "non-durable" refers to things that have only one usage. Cement, coal, fuel, and food, for example. Durable goods, on the other hand, are those that may be used repeatedly.For example, clothes, shoes, machines, and buildings. Perishable goods satisfy the present demand of individuals.

Furthermore, due of their ongoing usage, durable goods require replacement. Perishable goods demand fluctuates based on current prices of commodities and customers' income, tastes, and preferences, whereas durable goods demand fluctuates over a longer period of time.Individuals' current desire is met by perishable items. Durable items, on the other hand, meet people's current and future needs. As a result, buyers choose sturdy things based on their durability.

3. **Substitute goods and complementary goods**: Substitute Products, as the name implies, are goods that the customer perceives as alternatives to one another, i.e., they can be substituted for one another in consumption. Such things are capable of satiating human desires with equal ease. In other words, we can say that goods that compete with each other are referred to as substitute goods. This means that these items can be substituted for other items. When the two goods are developed with similar technology or contain the same ingredient, serve the same purpose and their price is approximately equal, they are called Substitutes. In such a case, an increase in the price of the product leads to an increase in the quantity demanded of its substitutes.Complementary Goods are defined as the goods which are used or consumed concurrently, so as to satisfy a particular want. This means that these goods are needed jointly, to serve the purpose.**For Example,** A increase in the price of computer will lead to a decrease in the demand for the software package.When there is a change in the price of a particular commodity, it will react oppositely to the demand for the other commodity, which is associated with the primary commodity.Therefore, there is an **inverse relationship** between the price of a particular commodity and demand for its complementary item, while other things remain constant. And because the cross elasticity of demand between them is negative, the demand curve is downward sloping.

4. Recurring demand and replacement demand: Consumable goods have recurring demand i.e. they are consumed at frequentintervals, like you eat food twice a day, take tea and snacks three to four times aday, read newspaper every day, fill petrol or diesel in car every week and so on.Demand is per unit of time, therefore producers or sellers of such goods knowthat consumers make purchase on short term basis, hence pricing should bedone accordingly. Goods like televisions, cars, bikes, mobiles, furniture andhouses are all examples of durable consumer goods, they are purchased to beused for a long period of time. But they wear and tear over time due to use orobsolescence of technology, thus they need replacement. At the same time, allcapital goods like machinery also need replacement. Thus the producers ofthese goods have to make long term planning.

Transportation as a Derived Demand

In economic systems what takes place in one sector has impacts on another; demand for a good or service in one sector is derived from another. For instance, a consumer buying a good in a store will likely trigger the replacement of this product, which willgenerate demands for activities such as manufacturing, resource extraction and, of course,transport. What is different about transport is that it cannot exist alone and a movement.cannot be stored. An unsold product can remain on the shelf of a store until a customer buysit (often with discount incentives), but an unsold seat on a flight or unused cargo capacityin the same flight remain unsold and cannot be brought back as additional capacity later.In this case an opportunity has been missed since the amount of transport being offered hasexceeded the demand for it. The derived demand of transportation is often very difficultto reconcile with an equivalent supply and actually transport companies would prefer tohave some additional capacity to accommodate unforeseen demand (often at much higherprices). There are two major types of derived transport demand:Direct derived demand: This refers to movements that are directly the outcome of economicactivities, without which they would not take place. For instance, work-related activitiescommonly involve commuting between the place of residence and the workplace. There is a supply of work in one location (residence) and a demand of labor in another (workplace),transportation (commuting) being directly derived from this relationship. For freighttransportation, all the components of a supply chain require movements of raw materials,parts and finished products on modes such as trucks, rail or containerships. Thus,transportation is directly the outcome of the functions of production and consumption. Indirect derived demand: Considers movements created by the requirements of othermovements. The most obvious example is energy where fuel consumption fromtransportation activities must be supplied by an energy production system requiringmovements from zones of extraction, to refineries and storage facilities and, finally, toplaces of consumption. Warehousing can also be labelled as an indirect derived demandsince it is a non-movement of a freight element. Warehousing exists because it is

virtuallyimpossible to move commodities instantly from where they are produced to where theyare consumed.Transportation can also be perceived as an induced (or latent) demand which represents ademand response to a reduction in the price of a commodity. This is particularly the casein the context where the addition of transport infrastructures results in traffic increasesdue to higher levels of accessibility. Roadway congestion is partially the outcome ofinduced transport demand as additional road capacity results in mode shifts, route shifts,redistribution of trips, generation of new trips, and land use changes that create new tripsas well as longer trips. However, the induced demand process does not always take place.For instance, additional terminal capacity does not necessarily guarantee additional trafficas freight forwarders are free to select terminals they transit their traffic through, such as itis the case for maritime shipping.

Demand Function

Demand Function explains the functional relationship between price of a commodity and thequantity demanded of the commodity. A demand function is an algebraic statement of the relationship between price and quantity demanded.

Determinants of Demand: The demand for a commodity arises from the consumer's willingness and ability to purchase the commodity. The demand theory says that the quantity demanded of a commodity is a function of or depends on not only the price of a commodity, but also on income of the person, price of related goods – both substitutes and complements – tastes of consumer, price expectation and all other factors. Demand function is a comprehensive formulation which specifies the factors that influence the demand for the product.

$$Dx = f(Px, Py, Pz, Y, A, E, P, T)$$

Where, Dx = Demand for item x

Px= Price of item x

Py= Price of substitutes

Pz = Price of complements

Y = Income of consumer

E = Expectation of future change in prices

A = Advertisement expenditure

P= Population

T = Taste or preference of the consumer

The impact of these determinants on demand is:

1. Price effect on demand: Demand for x is inversely related to its own price.

This can be shown as: $D_x \propto P_y$

This shows that demand for x is inversely proportional to price of x. This means- as priceof x increases, the quantity demanded of x falls

2. Substitution effect on demand: If y is a substitute of x, then as price of y increases, demandfor x also increases. For example, tea and coffee, cold drinks and juice etc. are substitutes

This can be shown as: $D_x \propto 1/P_x$

This shows that the demand for x is directly proportional to price of substitute commodity. This means -demand for x and price of substitute commodity y are directly related

3. Complementary effect on demand: If z is a complement of x, then as the price of z falls, thedemand for z goes up and thus the demand for x also tends to rise. For example, ink andpen, bread and butter etc. are complements.

This can be shown as: $D_x \propto 1/P_z$

This shows that the demand for x is inversely proportional to the price of complementarycommodity z. This means – demand for x and price for complementary commodity y areinversely directly related.

4. Expectation of future change in price: Here the relation may not be definite as the psychologyof the consumer comes into play. Your expectations of a price increase might be different from your friends'

5. Income effect on demand: As income rises, consumers buy more of normal goods (positiveeffect) and less of inferior goods (negative effect). Examples of normal goods are t-shirts,tea, sugar, noodles, watches etc. and examples of inferior goods are low quality rice, jowar,second hand goods etc.

6. Promotional effect on demand: Advertisement increases the sale of a firm up to a point.

This can be shown as: $D_x \propto A$

This means that, demand for x is directly proportional to advertisement expenditure of thefirm producing x.Socio-psychological determinants of demand like tastes and preferences, custom, habits,etc., is difficult to explanation theoretically

If there is an increase in GDP, there will positive effect on demand.

3.4 Law of Demand

The Law of demand explains the functional relationship between price of a commodity and thequantity demanded of the commodity. It is observed that the price and the demand are inverselyrelated which means that the two move in the opposite direction. An increase in the price leads toa fall in quantity demanded and vice versa. This relationship can be stated as "Other things beingequal, the demand for a commodity varies inversely as the price".The law of demand is the inverse relationship between the price of a commodity and the amount required that is observed in reality with such regularity. The law of demand is an empirical (statistical) law because of this observed pattern.

Why Demand Curve Slopes Downward?

The first reason for the validity of downward sloping demand curve is that the lowerprices bring in new buyers. Secondary, when the price of a commodity declines, the realincome or purchasing power of the consumers increases which induced them to buy of thiscommodity. This is known as the income effect. Thirdly, when the price of a commodityfalls while prices of all other goods remain constant, the commodity becomes relativelycheaper. This induces the consumers to substitute this commodity in place of othercommodities which have been relatively dearer. This is known as substitution effect.

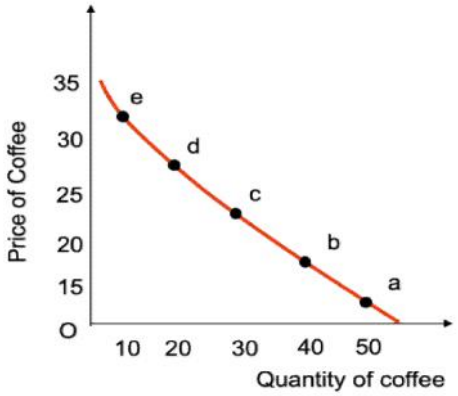
3.5 Demand Schedule and Demand curve

A **demand schedule** is a table that shows the quantity demanded at different prices in the market. A **demand curve** shows the relationship between quantity demanded and price in a given market on a **graph**. The law of **demand** states that a higher price typically leads to a lower quantity demanded

Table 1: Demand Schedule

Point on Demand Curve	Price (Rs per cup)	**Demand ('000 cups)**
a	15	50
b	20	40
c	25	30
d	30	20
e	35	10

Figure 1 Demand Curve



An example from the market for coffee can be shown in the form of a table or a graph. A table that shows the quantity demanded at each price, such as Table 1, is called a **demand schedule**. Price in this case is measured in price per cup. The quantity demanded is measured in thousand cups over some time period A **demand curve** shows the relationship between price and quantity demanded on a graph like Figure 1, with quantity on the horizontal axis and the price per cup on the vertical axis.

The demand schedule shown by Table 1 and the demand curve shown by the graph in Figure 1 are two ways of describing the same relationship between price and quantity demanded.

The demand schedule shows that as price rises, quantity demanded decreases, and vice versa. These points are then graphed, and the line connecting them is the demand curve (D). The downward slope of the demand curve again illustrates the law of demand—the inverse relationship between prices and quantity demanded.Demand curves will appear somewhat different for each product. They may appear relatively steep or flat, or they may be straight or curved. Nearly all demand curves share the fundamental similarity that they slope down from left to right. So demand curves embody the law of demand: As the price increases, the quantity demanded decreases, and conversely, as the price decreases, the quantity demanded increases.

Concept of Supply

Supply is a fundamental economic concept that describes the total amount of a specific good or service that is available to consumers. Supply can relate to the amount available at a specific price or the amount available across a range of prices if displayed on a graph.

Law of Supply: Law of supply states that when the price of a commodity increases its supply also increases. Similarly, when the price of a commodity decreases its supply also decreases. Hence, there is a direct relationship between price and supply of a commodity. However, here we shall study the Supply Function in detail.

Supply Function: Supply function is the mathematical expression of law of supply. In other words, supply function quantifies the relationship between quantity supplied and price of a product, while keeping the other factors at constant. The law of supply expresses the nature of relationship between quantity supplied and price of a product, while the supply function measures that relationship.It explains the relationship between the supply of a commodity and the factors determining its supply. We can better represent the supply function in the form of the following equation:

Sx = f (Px, PI, T, W, GP)

Where,

Sx = supply of commodity x

Px = Price of commodity x

PI = Price of inputs

T = Technology

W = Weather conditions

GP = Government Policy

1. Price of Commodity: It is the most important and influential determinant of demand. Producers or suppliers are willing to sell more commodities when the price of the product is high.

As a result, the commodity's supply expands. Similarly, because of the direct relationship between the price of a product and its supply, when the price is low, the supply of the product falls.

2. Price of inputs: The price of inputs or the factors of production such as land, labor, capital, and entrepreneurship also determine the supply of the goods. When the price of inputs is low the cost of production is also low.Thus, at this point, the firms tend to supply more goods in the market and vice-versa.

3. Technology: When a company employs new technology, it saves resources and lowers manufacturing costs. As a result, businesses develop and supply more things.

4. Weather conditions: The factors like weather conditions, flood, drought, etc. also affect the supply of goods. When these factors are favourable the supply will increase and when the weather conditions are not favourable then the supply decreases.

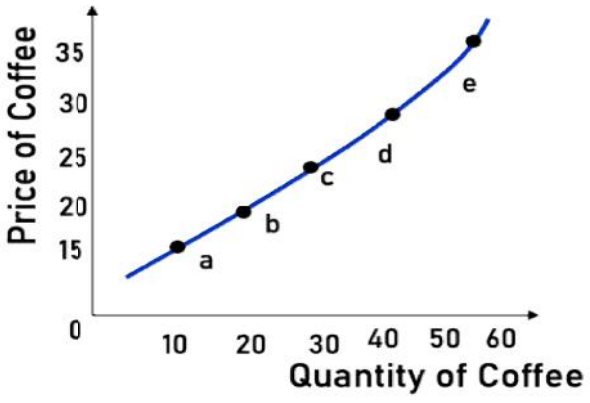
5. Government Policy: The taxation policies and the subsidies given by the government also impact the supply of goods.When the taxes are high the producers are unwilling to produce more goods and thus, the supply will decrease.On the other hand, when the government grants various subsidies and gives financial aids to the producers, they increase the production of goods. Thus, the supply also increases

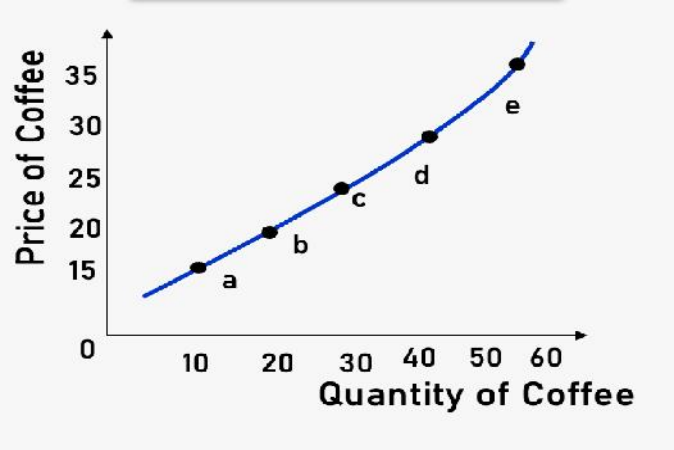
Supply Schedule and Supply Curve: Supply schedule shows a tabular representation of law of supply. It presents the different quantities of a product that a seller is willing to sell at different price levels of that product whereas The graphical representation of supply schedule is called supply curve. In a graph, price of a product is represented on Y-axis and quantity supplied is represented on X-axis. Supply curve can be of two types, individual supply curve and market supply curve. Individual supply curve is the graphical representation of individual supply schedule, whereas market supply curve is the representation of market supply schedule.

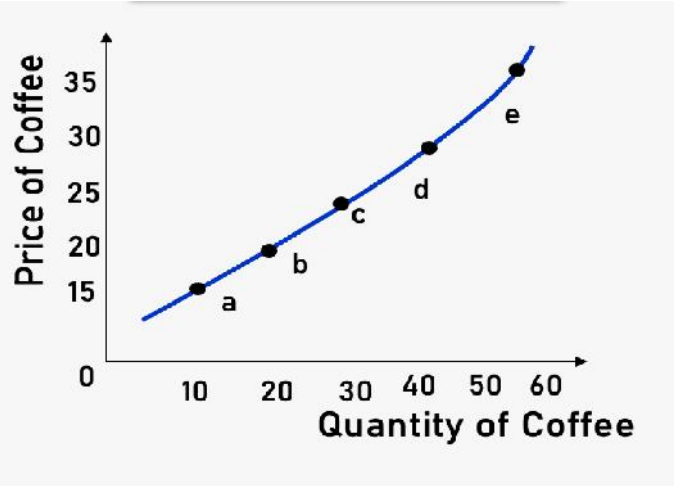
Table 2: Supply Schedule

P	P	S
a	1	1
b	2	2
c	2	3
d	3	4
e	3	6

Fig 2: Supply Curve







The above schedule depicts the individual supply schedule. We can see that when the price of the commodity is 15, its supply is 10(in thousands) units. Similarly, when its price is 35, its supply increases to 60 (in thousands) units.Thus, we can conclude that as the price falls the supply decreases and as the price rises the supply also increases. Hence, there exists a direct relationship between the price and quantity supplied.

Market Equilibrium

Price is determined in a free market by the interaction of supply and demand. We can underline three dynamic laws of supply and demand.

1. When quantity demanded is greater than quantity supplied, prices tend to rise; whenquantity supplied is greater than quantity demanded, prices tend to fall.

2. In a market, larger the difference between quantity supplied and quantity demanded, thegreater the pressure on prices to rise (if there is excess demand) or fall (if there is excess supply).

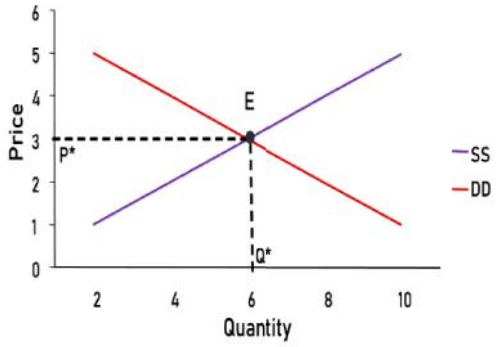
3. When quantity supplied equals quantity demanded, prices have no tendency to change.Price theory answers the question of interaction of demand and supply to determine price in a competitive market.

So, we can say that a market equilibrium is a situation when quantitydemanded, and quantitysuppliedare equal and there is no tendency for price or quantity to change.

Table 3: Demand and Supply Schedule

Price	Quantity Supplied	Quantity Demand
5	10	2
4	8	4
3	6	6
2	6	8
1	4	10

Fig 3: Market Equilibrium



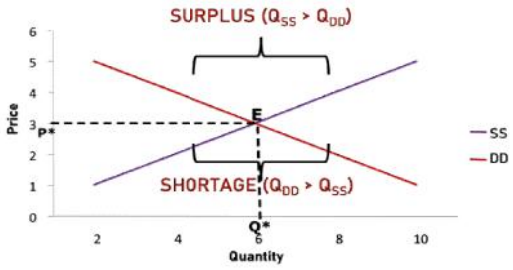
The table 3 shows the quantity supplied directly proportional to price and quantity demanded as indirectly proportional to price. At price 3 quantity demanded equals to quantity supplied and the same has been replicated with the help of graph.

Shortage and Surplus:

Table 4: Market Condition

Price	Quantity Demanded	Quantity Supplied	Market Condition
5	2	10	Surplus
4	4	8	Surplus
3	6	6	Equilibrium
2	8	4	Shortage
1	10	2	Shortage

Fig 4: Market Condition



At a price of 3 units, and only at this price, the quantity which producers are willing to produceand supply is identical to the amount consumers are willing to buy. As a result, there is neithera shortage nor a surplus of commodity X at this price. A surplus causes prices to decline and ashortage causes prices to rise. With neither shortage nor surplus at 3 units, there is no reason forthe actual price of commodity X to move away from this price. This price is called the equilibriumprice. Equilibrium represents a situation from where there is no tendency to change. It is a stateof balance. Stated differently, the price of X will be established where the supply decisions ofproducers and demand decisions of buyers are mutually consistent.

Interaction of demand and supply to reach equilibrium is shown in Figure 4. Graphically, the interaction of supply and demand curves will indicate the equilibriumpoint (E).

If market price is more than OP*, the quantity demanded by consumers will be less, while the quantity whichproducers wish to supply will be more. There is thus a surplus at this price. It is well known thata surplus leads to a downward pressure on price and so market price will fall. At the lower price than OP*, the quantity supplied will be less, while the quantity demanded will be more. There is, therefore,a shortage at this price.. This shortage tends to put an upward pressure onprice and market price is expected to rise.

There is only one price, at which the quantity supplied is equal to the quantity demanded, thereis no surplus or shortage, no rise or fall of price – OP*. It is thus referred to as the equilibriumposition.

Summary

- In economics demand has a specific meaning. Demand for any commodity implies: desireto acquire it, willingness to pay for it, ability to pay for it and at a particular time.
- Demand depends on not only the price of a commodity, but also income, price of relatedgoods – both substitutes and complements – taste of consumer, price expectation and all
- According to Law of Demand, there is an inverse relationship between the price of a commodity and the quantity demanded (other things remaining equal)
- Supply indicates the quantities of a good or service that the seller is willing and able to provide at a price, at a given point of time, other things remaining the same.
- Law of Supply states that other things remaining the same, the higher the price of a commodity the greater is the quantity supplied.
- A market equilibrium is a situation when quantitydemanded, and quantitysuppliedare equal and there is no tendency for price or quantity to change.

Keywords

Demand: The quantity of the commodity which an individual is willing to purchase per unit o ofprice at a particular time.

Derived demand: Goods whose demand is tied with the demand for some other goods

Direct demand: Goods whose demand is not tied with the demand for some other goods

Demand function: A comprehensive formulation which specifies the factors that influence thedemand for the product

Supply: Indicates the quantities of a good or service that the seller is willing and able to provide at a price, at a given point of time, other things remaining the same.

Equilibrium: A market equilibrium is a situation when quantitydemanded, and quantitysuppliedare equal and there is no tendency for price or quantity to change.

Self Assessment

1. Which of the following pairs is a substitute?

A. Mobile phone and charger

B. Wool and cotton

C. Salt and pepper

D. Tea and sugar

2. Sugar and honey are viewed as substitutes for each other in many recipes. If the price of sugar rises, what can be expected is the

A. Demand for honey to increase

B. Demand for honey to decrease

C. Quantity demanded for honey to increase

D. Quantity demanded for honey to decrease

4. Which of the following is the non-price determinant of supply of wheat?

A. A decrease in the price of corn

B. A decrease in the price of wheat

C. Improvements in the techniques of growing wheat

D. A decrease in the price of wheat farming machinery and equipment

5. Sellers would offer _____ for sale as price decreases , and thus, the supply curve is _____ sloping.

A. Less; upwards

B. More; upwards

C. Less; downwards

D. More; downwards

6. The demand curve for a normal good shift leftward if income _____ or the expected future price _____.

A. Decreases; falls

B. Increases; rises

C. Increases; falls

D. Decreases; rises

7. If income increases or the price of a complement falls,

A. The supply curve of a normal good shifts leftward.

B. The supply curve of a normal good shifts rightward.

C. The demand curve for a normal good shifts rightward.

D. The demand curve for a normal good shifts leftward.

8. Inferior goods are those for which demand increases as

A. Income decreases
B. Income increases
C. The price of substitute rises
D. The price of substitute falls

9. When we say demand increases, we mean that there is a

A. Movement to the right along a demand curve.
B. Movement to the left along a demand curve.
C. Leftward shift of the demand curve.
D. Rightward shift of the demand curve.

10. Which of the following is NOT held constant while moving along a supply curve?

A. The price of the good itself
B. Prices of resources used in production
C. Expected future prices
D. Complements in production.

11. The following is the characteristic of a market in equilibrium, except

A. There is no excess
B. There is no surplus
C. There is a tendency for price to change
D. Quantity demanded is equal to quantity supplied.

12. If there is shortage of product, we can conclude that its price _____

A. Is below the equilibrium level
B. Is above the equilibrium level
C. Will fall in the near future
D. Is in equilibrium

13. Which of the following statement is incorrect?

A. If demand increases and supply decreases, the equilibrium price will rise
B. If demand decreases and supply increases, the equilibrium price will rise

C. If supply increases and demand decreases, the equilibrium price will fall

D. If supply declines and demand remains constant, the equilibrium price will rise

14. The entrance tickets to Legoland Malaysia are very expensive. However, there is a daily queue to buy the tickets. Some visitors are not even able to buy the tickets on the same day. From this, we know that the prices of Legoland Malaysia's tickets _____

A. Are in equilibrium

B. Are above equilibrium

C. Are below equilibrium

D. Cannot be categorized due to limited information

15. Which of the following statements is true about the equilibrium price?

A. There is no pressure on price to either increase or decrease

B. There are forces that will increase the price

C. There are forces that will decrease the price

D. Quantity supplied may exceed quantity demanded, and vice versa.

Review Questions

1. Define 'demand'. Discuss different types of demand.

2. Distinguish between direct demand and derived demand with the help of suitable examples.

3. Examine the impact of increase in prices of goods on the substitute goods?

4. "Demand for everything in this world is a derived demand." Discuss.

5. Explain how a mixed economy can solve the economic problem

6. It is generally believed that when fares of airlines go up, the demand for railway travel alsogoes up? Does this seem logical to you?

7. What are the main factors that affect the supply of the product.

8. Explain the difference between demand schedule and demand curve.

9. How supply curve is different from supply schedule.

10. Explain with the help of diagram the situation of equilibrium in the market.

Answers for Self Assessment

1.	C	2.	B	3.	A	4.	D	5.	C
6.	A	7.	C	8.	A	9.	D	10.	A
11.	C	12.	A	13.	B	14.	C	15.	A

Further Readings

1. Dr.Atmanand, Managerial Economics, Excel Books, Delhi.

2. G.S. Maddala, Microeconomics: Theory and Application, Tata McGraw-Hill

3. N. Gregory Mankiw, Principles of Microeconomics, Harcourt College Publications

4. Samuel Bowles, Microeconomics: Behavior, Institutions and Evolution, Oxford

Web Links

http://www.netmba.com/econ/micro/supply-demand/

http://www.basiceconomics.info/supply-and-demand.php

http://ingrimayne.com/econ/DemandSupply/OverviewSD.html

http://tutor2u.net/economics/revision-notes/as-markets-equilibrium-price.html

Dr. Tushinder Preet Kaur, Lovely Professional University

Unit 04: Movements of Curve Price Mechanism

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the concept of disequilibrium.
- identify the consequences and solutions to the problem of excess supply and excess demand.
- identify the reasons of movements and shifts in demand curve.
- understand the reasons of movements and shifts in the supplycurve.
- understand the reasons of change in demand and supply
- learn the effect of change in demand and supply on the equilibrium

Introduction

It is true that economy runs on demand but that demand has to be fulfilled with correspondingsupply as well. Say, if there is a huge demand for mobile phones in an economy, there has to be corresponding supply to fulfill that demand. If adequate supply is not there, then the demand would not be fulfilled. The imbalance between demand and supply creates a lot of problems in an economy. So, there should be an attempt to balance demand and supply and reach a point, where the demand equals supply. Such a state of balance is known as equilibrium.

4.1 Disequilibrium and Excess supply

Disequilibrium is when external forces cause a disruption in a market's supply and demand equilibrium.Disequilibrium is a situation where internal and/or external forces prevent market equilibrium from being reached. It is a situation when the market is not in equilibrium-that is quantity supplied doesn't equal quantity demanded or we can say that this situation occurs there is either excess supply or excess demand.

Excess Demand	Excess Supply
When the quantity demanded exceeds the quantity **supplied** there will be **excess demand**	When the quantity supplied exceeds the quantity **demanded** there will be **excess supply**
Excess demand occurs at a price less than the equilibrium price.	**Excess supply** occurs at a price above its equilibrium price

Disequilibrium can produce two possible outcomes:

1. Shortage-A market shortage occurs when quantity demanded is greater than quantity supplied. Supply could be less because of less prices .In this situation, consumers won't be able to buy as much of a good as they would like.
2. Surplus- Surplus occurs when quantity supplied is greater than quantity demanded. Demand might be less because of more pricessome producers won't be able to sell all their goods

Let's take an example of demand for wheat, supply of wheat and prices of wheat with the help of a table.A market in equilibrium is said to be operating efficiently as its quantity supplied equals its quantity demanded at an equilibrium price or a market clearing price. In an equilibrium market, there are neither surpluses or shortages for a good or service. The table 4.1 represents the quantity demanded and quantity supplied at a particular price. The inverse relationship between demand and price is shown whereas the positive relation between supply and price is shown in the table. Furthermore, looking at the figure 4.1 for the wheat market below, the price at P* is the single price which incentivizes both farmers (or suppliers) and consumers to engage in an exchange. At P*, there is a balance in the supply and demand for wheat.

Table 4.1

Price of wheat	Quantity Demanded of wheat	Quantity Supplied of wheat	Market Condition
10	12	20	SURPLUS
9	14	18	SURPLUS
8	16	16	EQUILIBRIUM
7	18	14	SHORTAGE
6	20	12	SHORTAGE

Sometimes, certain forces bring about a movement in the price of a commodity or service. When this happens the proportion of goods supplied to the proportion demanded becomes imbalanced, and the market for the product is said to be in a state of disequilibrium.

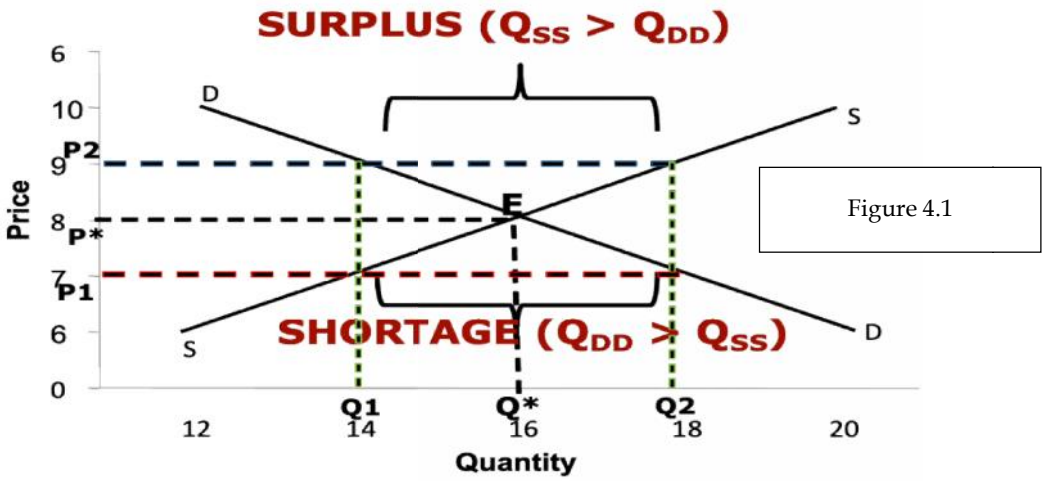


Figure 4.1

Considering the graph for wheat market, if prices are increased to P2, suppliers will be willing toprovide more wheat from their storage to sell in the market, since the higher price would covertheir production costs and lead to higher profits. However, consumers may reduce the quantity of wheat (i.eQ1)that they purchase, given the higher price in the market. When this imbalance occurs, quantity supplied will be greater than quantity demanded, and a surplus will exist, causing a disequilibrium market. Now the question arises, "What if the market price for wheat is P1"?. At this price, consumers are willing to purchase more wheat OQ2 at the lower price. On the other hand, since the price is below the equilibrium price, suppliers will provide a smaller amount of wheat OQ1 to sell as the price may be too low to cover their marginal costs of production. In this case, when P* falls to P1, there will be a shortage of wheat as the quantity demanded exceeds the quantity supplied for the commodity. Since resources are not allocated efficiently, the market is said to be in disequilibrium.

4.2 Reasons of Disequilibrium

1. **Fixity of prices for some certain period of time**: when a supplier sets a fixed price for a good or service for a certain time period. During this period of sticky prices, if the quantity demanded increases in the market for the good or service, there will be a shortage of supply.

2. **Government intervention**: If the government sets a floor or ceiling for a good or service, the market may become inefficient if the quantity supplied is disproportionate to the quantity demanded. For example, if the government sets a price ceiling on rent, landlords may be reluctant to rent out their extra property to tenants, and there will be excess demand for housing due to the shortage of rental property.

3**. Fixing minimum wage:**A labor market disequilibrium can occur when the government sets a minimum wage, that is, a price floor on the wage that an employer can pay its employees. If the stipulated price floor is higher than the labor equilibrium price, there will be an excess supply of labor in the economy.

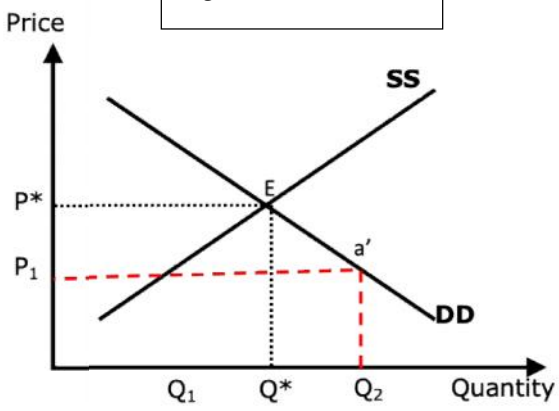
4.3 Solution to the problem of Disequilibrium

a. Case of Excess Supply

As we know that Excess supply is one of the two types of disequilibrium in a perfectly competitive market, excess demand being the other. When quantity supplied is greater than quantity demanded, the equilibrium level does not obtain and instead the market is in disequilibrium. Excess supply, also known as economic surplus, market surplus, or briefly surplus in economics, is a scenario in which the quantity of an item or service supplied exceeds the quantity sought, and the price is above the supply-demand equilibrium level. The best way how to prevent excess supply is to find an optimal production plan for the specific products for example based on historical data. Another way of reducing the excess supply is to encourage customers to buy things, for example, sales are a great instrument that allows sellers to reduce inventory as well as other marketing techniques such as 2+1, black Fridays and night shopping etc.

When we have higher prices and excess supply, manufacturers will have excess inventories and the competition among manufacturers will put the downward pressure on price as there will be some suppliers who will be willing to supply at lower prices. As prices fall, the consumer demand will increase until it finally settles at the equilibrium price which can be visualised in figure 4.2

Figure 4.2



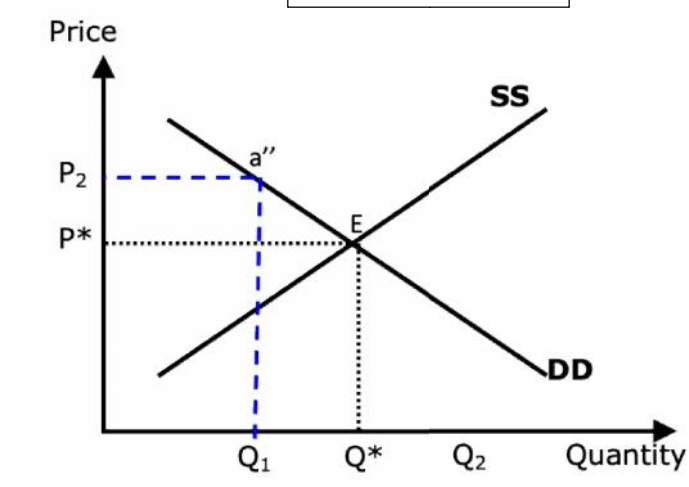
b. Case of Excess Demand: Excess demand is the excess of aggregate demand over and above its level required to maintain full employment equilibrium in the economy. It implies two things-

1) Planned aggregate demand in the economy happens to exceed its full employment level.

2) The level of aggregate demand surpasses the level of aggregate supply even when the available factors are fully utilized.

The best way to prevent excess demand is to increase the prices as When we have lower prices and excess demand, there will shortage of goods, putting an upward pressure on the price as there will be more buyers chasing the available goods. As price increases the suppliers will start producing more but the demand from buyers will decrease. This will drive the price and quantity to its equilibrium level. Figure 4.3 represents that P* is the equilibrium price and OQ* is the equilibrium quantity and the equilibrium is at point E. In case of excess demand, as prices increase it will lead to decreased demand because of the inverse relation between demand and price of the product.

Figure 4.3



Along the curve and shifts of the curve

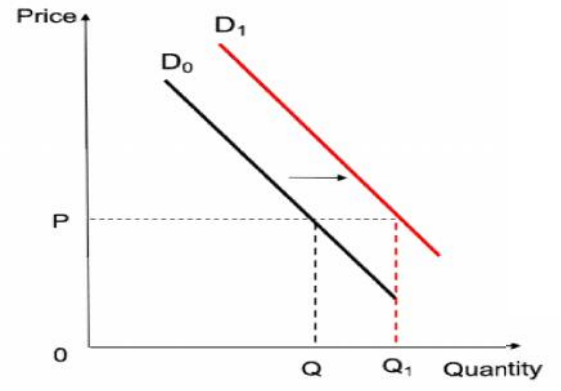
While understanding the meaning and analysis of a demand curve in the study of Economics, it is also important to be able to make a distinction between the movement and shift of the demand curve. In this article, we will look at ways by which you can understand the difference between a movement along a demand curve and shift of the demand curve. Theoretically, we will see that the basic of law demand has a role to play in shift and movement in demand curve. When there is a change in the quantity demanded of a particular commodity, because of a change in price, with other factors remaining constant, there is a movement of the quantity demanded along the same curve.When there is a change in the quantity demanded of a particular commodity, at each possible price, due to a change in one or more other factors, the demand curve shifts. The important aspect to remember is that other factors like the consumer's income and tastes along with the prices of other goods, etc., which were expected to remain constant, changed.

Change in quantity demanded	Change in demand
A **change in quantity demanded** refers to a movement along the **demand** curve, which is caused only by a change in price, other factors are kept constant	A **change in demand** means that the entire **demand** curve **shifts** either left or right because of change in other factors except price.
It leads to 1. Extension in demand 2. Contraction in demand	It leads to 1. Increase in demand 2. Decrease in demand

If any of the components held constant in drawing a demand curve change, there is a shift in the demand curve. It is of two types:

1. Increase in Demand: The demand curve shifts upward or to the right, so that the individual demands more of the commodity at each commodity price if the price of a substitute Commodity increases or the price of a complimentary commodity falls, and if the consumer's taste for the commodity changes which is depicted from D0 to D1

Figure 4.4



2. Decrease in Demand: With opposite changes in factors affecting demand, the demand curve shifts from D0 to D2 which states that demand decreases because of change in other factors except price.

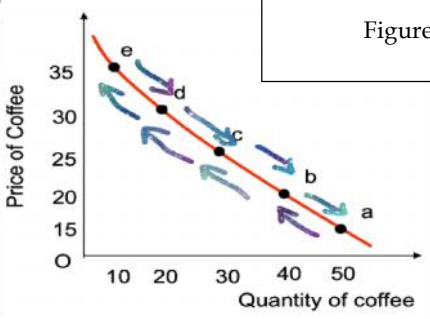
Figure 4.5

It is important to clearly distinguish between a movement along a given demand curve (as a Result of change in price) from a shift in demand (as a result of change in income, price of related Commodities and tastes). The first is known as a change in quantity demanded and the second is known as a change in demand.Movement along a demand curve is different from shift in demand curve, as, movement along ademand curve is the change in a point on the demand curve whereas shift in the demand curve meansthe change in the whole demand curve.

Table 4.2

Point on Demand Curve	Price (Rs per cup)	Demand ('000 cups)
a	15	50
b	20	40
c	25	30
d	30	20
e	35	10

Figure 4.6



In Table 4.2 the inverse relationship between demand and price is shown and Figure 4.6, explains the movement from point e to b to c marks the prevalence of *extension in demand* which is caused with the change in the price of products, other factors are kept constant. On the contrary, the movement from a to b to c to d to e refers to the *contraction in demand* which is caused by the increase in prices.

The contraction and expansion along ademand curve depends on the change in "quantity demanded".

An increase in price of cold drinks has been caused by an increased demand for cold drinks. Thisis shift in demand curve for cold drinks. The demand curve shifts to the right indicating morecold drinks demanded at each price. Next, less cold drinks are being bought because they havebecome more expensive. This refers to a movement along a given demand curve and reflectsa change between two specific quantities being bought, one before the price rise and one afterit. Some important factors that cause a shift in the demand curve need to be discussed here thegeneral rule for the shift in the demand curve is "Any change will shift the demand curve to theright if it increases the amount that households wish to buy, other things remaining equal. It willshift the demand curve to the left if it decreases the amount that households wish to buy, otherthings remaining constant or equal."

1. A Change in testes in favour of a product shift the demand curve to the right that households

with to buy, other. More will be demanded at each price.

2. Goods that can be used in place of another good are called SUBSTITUTES, e.g., a bus ridesubstitutes for a train ride, ball pens for fountain pens. A rise in the price of substitutes fora product shifts the demand curve for the product to the right. More will be demanded ateach price.

3. Complements are products that tend to be used jointly, e.g., cars and gasoline, hamburgers

and French fires, tapes and tape players. Complementary goods are consumed together,so a price fall in one will increase the demand for both products. A fall in price of one willshift the products demand curve to the right. More will be demanded at each price.

4. A change in the distribution of income will case an increase in demand for productsbrought most by households whose incomes increase and a decrease in the demand forproducts bought most by households whose incomes decrease.

5. Household's tastes and preferences in favour of product shift the demand curve to theright. More

will be demanded at each price.

6. Rise in consumer's income shifts the demand curve to the right.

Exceptions to the Law of Demand:

There are a few exceptions to the law of demand. Some goods behave differently and defy thelaw.

1. **Case of inferior goods**: Low quality rice, bajra, secondhand goods etc. are all considered asinferior goods whereas basmati rice, branded clothes, watches etc. are all considered as normalgoods. When an increase in income leads to an increased consumption of a good, it is calleda normal good or superior good. But when an increased in income of buyers leads to a fallin the consumption of a good it is called an inferior Good. Inferior goods have preferred butmore expensive substitutes. With rise in income, consumers can afford more of the expensivesubstitutes, e.g., ordinary bread, costly soaps and perfumes to ordinary ones.

2. Case of giffen goods: The concept of Giffen goods will be clear after going through the followingexample: It was observed that British workers bought more bread even when there was a rise inits price. This phenomenon was observed by Robert Giffen in the 19th century and is called theGiffen's paradox. Bread was the main diet of the poor labourers when the price of bread rose,it affected the resources of these families. They curtailed the consumption of costlier productslike meat and increased the consumption of bread. After all even after price rice, bread was tillcheaper than meat. This phenomenon shows a perverse demand relation. A Giffen good is anextreme type of inferior good. When the price of a Giffen good rises, consumers actually buymore of that good.

In the Giffen good situation, cheaper close substitutes are not available. Because of the lack ofSubstitutes, the income effect dominates, leading people to buy more of the good, even as its pricerises.

3. Case of Veblen goods: Expensive perfumes, designer clothes, imported cars etc. fall in category ofVeblen goods. Veblen goods are goods for which people's preference for buying them increaseswith the increase in the prices of those goods. This happens because a greater price confers greaterstatus. So when price of such goods increase their demand also goes up, instead of decreasing.

This concept is referred to as the Veblen effect, named after the economist Thorstein Veblen,who first pointed out the concepts of conspicuous (easily noticeable and attracting attention)consumption and status-seeking.

Some types of high-status goods, such as exclusive watches, designer handbags and luxury cars,are Veblen goods, because a decrease in their prices decreases people's preference for buyingthem because they are no longer perceived as exclusive or high status products.

Shift and Movement of Supply Curve

In order to understand the shift and movement of supply curve better, we must recognise the factors

that affect supply. Other than price of the commodity, the important factors that affect supply of

a commodity are:

1. **Price of inputs**: In addition to the price of the commodity being the main factor as stated

in the Law of Supply, the price of production inputs also plays a part. The lowest price at

which a firm can sell a good without losing money is the amount of money that it costs toproduce it.Producing a good or service involves taking inputs and applying a process to them toproduce an output. The output is the finished good or service, and inputs are raw materials,labor, utilities, licensing fees, or even other goods. These inputs are also known as factors ofproduction. If the price of inputs goes up, the cost of producing the commodity increases.And therefore, at each price producers need to sell their good for more money. So, anincrease in the price of inputs leads to a decrease in supply. Similarly, a decrease in theprice of inputs leads to an increase in supply.

2. Current state of production technology: Production of a good involves taking inputs,applying a process to them, and producing an output. Well, production technology isinvolved in the process part. Increases in the level of production technology can make thatprocess more efficient.

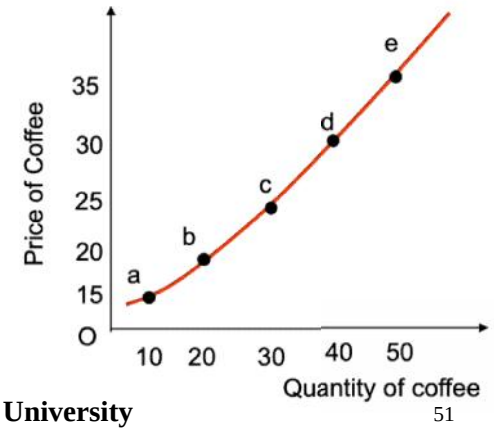
3. Producer's expectations: It doesn't just matter what is currently going on - one's expectations

can also affect how much of a product one is willing and able to sell

4. Number of producers in the market: As more or fewer producers enter the market this has adirect effect on the amount of a product that producers (in general) are willing and able tosell. More competition usually means a reduction in supply, while less competition givesthe producer an opportunity to have a bigger market share with a larger supply. If thenumber of producers in the same market increases, then the market supply will go up butthe individual supply might come down.

Each of these shift factors will cause a shift in supply, whereas a change in price causes amovement along the supply curve.Any change in price will cause a movement along an existing supply curve. The result will be an extension or contraction of supply, in other words, an extension or contraction in the quantity supplied is because of change in price alone keeping others factors as constant. The relationship is exhibited in table 4.3 and fig 4.7 shows the extension in supply through the movement from a to b to c and to d to e whereas the reverse movement shows contraction in supply.

Fig 4.7



Point on Demand Curve	Price (Rs per cup)	Supply ('000 cups)
a	15	10
b	20	20
c	25	30
d	30	40
e	35	50

Table 4.3

The fig 4.8 and 4.9 shows the incresae and decresae in supply which is caused by the change in other factors and keeping prices as constant. Incresae in supply is shown by the rightward shift in supply curve from ss to s's'whereas decrease in supply curve is shown by the leftward shift in supply curve ss to s's' respectively.

Fig 4.8

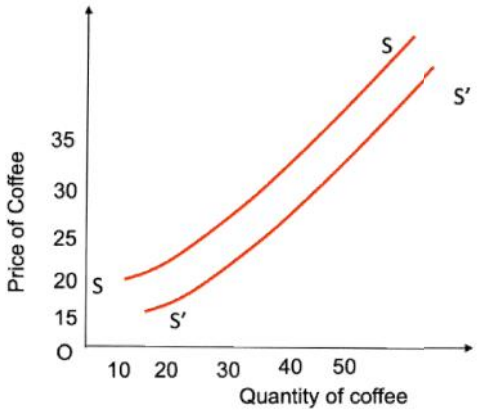
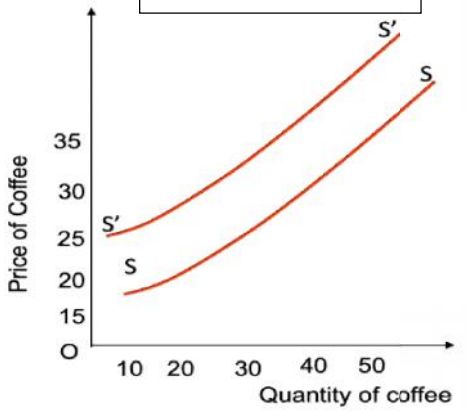


Fig 4.9



Some other factors that can affect supply are:

1. Inter-related supply: Some goods are in joint supply so that variations in the amount of one good produced almost automatically affect the supply of by-products. Other goods are in competitive supply, especially when they use a common raw material. Thus increase in supply of cheese can reduce supply of butter as both are made from milk.
2. Events beyond human control like good/bad harvest, weather conditions and natural disasters like floods.
3. Taxes and subsidies also have an important effect on supply

Exceptions to the law of Supply:

1. Closure of business: When a business is about to close, the seller may sell the goods at any price to get rid of the inventory. As a result, the law of supply will not apply in this circumstance.
2. Agricultural products: We all know that land is a finite resource, hence agricultural output can't be raised beyond a certain point. Hence, even if the prices increase the supply cannot be increased.
3. Monopoly: Monopoly is a situation where there is only a single seller of a commodity. Thus, he is the price maker and has control over the prices. In such a case, the law of supply may not apply as he may not be willing to increase the supply even if the prices are high.

4. Competition: When there is fierce rivalry in the market, vendors may be able to sell more things for less money. The rule of supply will not apply in this circumstance.
5. Perishable Goods: A seller is willing to offer more perishable goods, even at low pricing, because if they go unsold, the seller will lose money.
6. Out of fashion goods: The most recent fashion items have exorbitant pricing. However, out-of-style items are inexpensive. Even at low prices, the vendors may be able to sell them out of style items. Because these will become obsolete inventory, as well as to recoup the cost of the inventory. As a result, the law of supply is nullified.

4.4 Changes in Equilibrium Demand and Supply

Once price settles at an equilibrium level, it can be expected to remain there until somethinghappens to disturb the equilibrium. This can only be a change in one or more of the underlyingconditions of demand and/or supply which cause demand and/or supply to shift. For example,let us consider the market for lettuces. How would this market be affected by a sudden spellof late frost which destroyed many young plants? Clearly such an occurrence would shift thesupply curve to the left and this would result in a higher price with a lower equilibrium quantity.Suppose, instead, that there was a long spell of warm weather so that people demanded morelettuces to put in their summer salads. In this case the demand curve would shift to the righti.e., DD1,resulting in a rise both in equilibrium price and in quantity.All sorts of things can happen to alter the underlying conditions of supply or demand, but they canall be reduced to four possibilities: either demand will shift, or supply will shift; and the shift willeither be an increase or a reduction which is shown in Fig 4.9 and Fig 4.10 respectively.

Fig 4.9

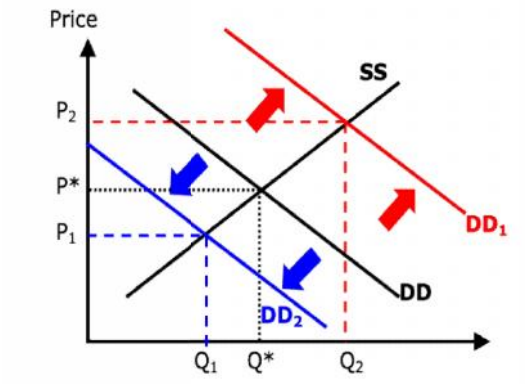
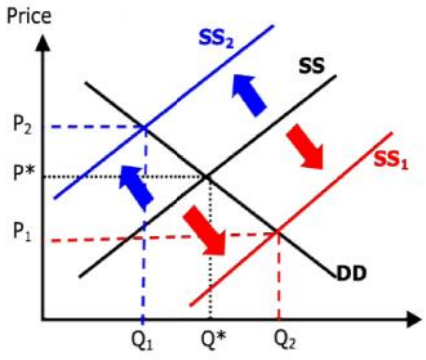


Fig 4.10



In fig 4.9 at P*, Demand is intersecting Supply and that is equilibrium point. Suppose there is increase in demand, supply remians constant then new demand DD1 and new quantity will be OQ2 so new demand will shift the prices to upward direction because supply is same. In this case equilibrium price and quantity will increase. In fig. 4.10 demand remains comstant and the fluctuations in supply will lead to fluctuations in equilibrium price and quantity.

It is important to note that when a demand curve shifts, there is movement along the supplycurve, with the result that the amount supplied and demanded in equilibrium change – althoughfor different reasons. Similarly, a shift in supply is accompanied by a movement along thedemand curve.

Change	Effect on Equilibrium Price	Effect on Equilibrium Quantity
Demand Increases	Higher	Higher
Demand Decreases	Lower	Lower
Supply Increases	Lower	Higher
Supply Decreases	Higher	Lower

Summary

Supply is the specific quantity of output that the producers are willing and able to make available to consumers at a particular price over a given period.

- According to the Law of Supply, more of a good will be supplied the higher its price, other things constant or less of a good will be supplied the lower its price, other things remaining
  constant.
- Price is determined by the two forces of demand and supply, in a free market. A point of balance, where demand equals supply is known as market equilibrium.
- A movement along the supply curve is caused by a change in price of the good or service.
- A shift in the supply curve is caused by a change in any non-price determinant of supply.
- The curve can shift to the right or left.The cross elasticity of demand is a numerical measure of the degree to which quantity demanded of a good respond to changes in the prices of other commodities, the other determinants of demand being kept constant.
- Disequilibrium is when external forces cause a disruption in a market's supply and demand equilibrium. In response, the market enters a state during which supply, and demand are mismatched.
- Shortage is the difference between quantity demanded and quantity supplied in a market, where quantity demanded is greater than quantity supplied.
- Surplus is the difference between quantity demanded and quantity supplied in. a market, where quantity supplied is greater than quantity demanded

Keywords

- Equilibrium: A state of balance.
- Law of supply: More of a good will be supplied the higher its price and vice-versa
- Change in supply: When other factors change and the price of a good remains constant
- Exceptional supply: When price increases, the quantity supplied decreases

Self Assessment

1.Which of the following term describes a situation in which there is an excess quantity demanded in the market?

A. Equilibrium

B. Shortage
C. Surplus
D. Excess supply

2.Excess demand occurs at a:

A. Price less than equilibrium price
B. Price above the equilibrium price
C. At the equilibrium price
D. None of the above

3. Movement along the demand curve due to change in:

A. Own price of the commodity
B. Determinants of demand, other than own price of the commodity
C. Prices of the other commodity
D. Inefficient production methods to expand the production of goods and services

4. Shift in the demand curve means:

A. Fall in demand due to rise in own price of the commodity
B. Rise in demand due to fall in own price of the commodity
C. Change in demand due to factors other than own price of the commodity
D. None of these

5. Increase in demand occurs due to:

A. Decrease in the price of complementary good
B. Increase in the income of the consumer
C. Increase in the price of the substitutes
D. All of the above

6. An exception to the law of demand is:

A. Article of distinction
B. Giffen good
C. Normal good
D. Both (a) and (b)

7. If two goods are complementary then rise in the price of one result in:

A. Rise in demand for the other
B. Fall in demand for the other
C. Rise in demand for both
D. None of the above

8. An increase in the price of electricity will cause the demand for electric appliances to:

A. Fall
B. Rise
C. Remains the same
D. None of these

9. Suppose the supply of a certain product increases. Under which of the following situations, would the price of it increase?

A. The demand for its complements decreases
B. The price of its competitive supply good decreases
C. The supply of its substitute decreases
D. The supply of it is perfectly inelastic

10. A supply curve shows the relation between the quantity of a good supplied and

A. The price of the good. Usually, a supply curve has a negative slope.
B. Income. Usually, a supply curve has a positive slope.
C. Income. Usually, a supply curve has a negative slope.
D. The price of the good. Usually, a supply curve has a positive slope.

11. When the price is below the equilibrium price, the quantity demanded

A. Is less than the equilibrium quantity. The quantity supplied exceeds the equilibrium quantity.
B. Exceeds the equilibrium quantity. The quantity supplied is less than the equilibrium quantity.
C. Exceeds the equilibrium quantity. So does the quantity supplied
D. Is less than the equilibrium quantity. So is the quantity supplied.

12. When demand decreases and supply does not change, the equilibrium price

A. Rises and the equilibrium quantity decreases.
B. Rises and the equilibrium quantity increases.
C. Falls and the equilibrium quantity increases.
D. Falls and the equilibrium quantity decreases.

13. An increase in demand combined with no change in supply causes

A. A decrease in demand because the supply curve does not shift.
B. The equilibrium price to fall.
C. The equilibrium price to rise
D. A movement rightward along the demand curve

14. As per the law of supply, more goods will be supplied at _____ price

A. Equilibrium
B. Lesser
C. Higher
D. None of the above

15. _____ is a position at which there is no surplus or shortage in the economy

A. Demand
B. Supply
C. Equilibrium
D. None of the above

Answers for Self Assessment

1.	B	2.	A	3.	A	4.	C	5.	D
6.	D	7.	B	8.	A	9.	C	10.	D
11.	B	12.	D	13.	C	14.	C	15.	C

Review Questions

1. What is shift in the demand curve?

2. Name some type of goods and services that consumers will respond to in the event of a price change which may be elastic or inelastic.

3. Agricultural products have more inelastic supply compared to that of industrial products. Explain why.

4. Explain what exceptional demand means, with appropriate examples.

5. Examine with the help of graph how movement along the demand curve differs from shift in the demand curve?

6. What solution can be provided if there arises excess supply?

7. What is disequilibrium? Briefly explain the reasons of disequilibrium.

8. Explain the reasons behind the rightward shift of supply.

9. When profit for a firm relies on demand, then why is the study of supply important?.

10. Over time, the demand for wheat has shifted to the right. Why, do you think, it has occurred?

Further Readings

Dr. Atmanand, Managerial Economics, Excel Books, Delhi.

G.S. Maddala, Microeconomics: Theory and Application, Tata McGraw-Hill

N. Gregory Mankiw, Principles of Microeconomics, Harcourt College Publications

Samuel Bowles, Microeconomics: Behavior, Institutions and Evolution, Oxford

Web Links

http://www.netmba.com/econ/micro/supply-demand/

http://www.basiceconomics.info/supply-and-demand.php

http://ingrimayne.com/econ/DemandSupply/OverviewSD.html

http://tutor2u.net/economics/revision-notes/as-markets-equilibrium-price.

Unit 05: Concept of Elasticity

CONTENTS

Objective

After this lecture, you will be able to

- understand the concept of elasticity
- learn the concept of elasticity of demand and differentiate between law of demand and elasticity of demand
- understand the concept of price elasticity of demand
- learn different methods to measure price elasticity of demand
- discuss various factors that affect elasticity of demand

Introduction:

Elasticity is the measure of responsiveness. It is the ratio of the percent change in one variable to the percent change in another variable. The key thing to understand is that we use elasticity when we want to see how one thing changes when we change something else. How does demand for a good change when we change its price? How does the demand for a good change when the price of a substitute good changes?

Elasticity varies among products because some products may be more essential to the consumer. A good or service is considered to be elastic if a slight change in price leads to a sharp change in the quantity demanded or supplied. Usually these kinds of products are readily available in the market and a person may not necessarily need them in his or her daily life.

Air conditioners, televisions, movie tickets, branded clothes etc.

On the other hand, an inelastic good or service is one in which changes in price witness onlymodest changes in the quantity demanded or supplied, if any at all. These goods tend to bethings that are more of a necessity to the consumer in his or her daily life.

Rice, potatoes, onion, salt, medicines etc.

Concept of Elasticity of Demand: The law of demand tells us that consumers will respond to a price decline by buying more of a product. It does not, however, tell us anything about the degree of responsiveness of consumers to a price change. Demand elasticity indicates responsiveness of demand to a change in a determinate like price, price of other goods and income. Graphically, elasticity of demand can be represented by the appearance of the demand curve."The elasticity or responsiveness of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price and diminishes much or little for a given rise in price"

5.1 Degrees of Elasticity of Demand

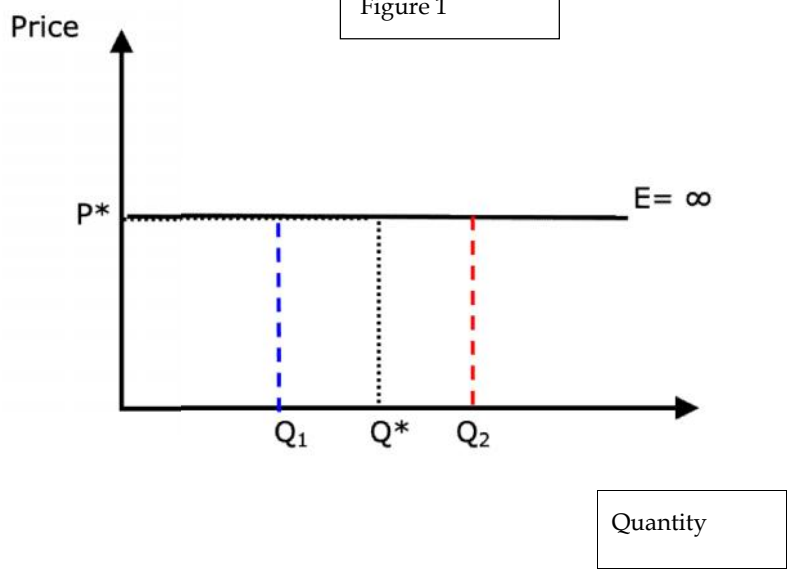
As we know that demand for a product is sensitive or responsive to price change, the variation in demand is, however not uniform with a change in price. In case of some products, a small change in price leads to a relatively larger change in quantity demanded.The terms elastic and inelastic demand do not indicate the degree of responsiveness and unresponsiveness of the quantity demanded to a change in price.

The economists therefore, group various degrees of elasticity of demand into five categories.

1. ***Perfectly Elastic Demand***:Perfectly elastic demand is said to happen when a little change in price leads to an infinite change in quantity demanded. A small rise in price on the part of the seller reduces the demand to zero.

In such a case the shape of the demand curve will be horizontal straight line

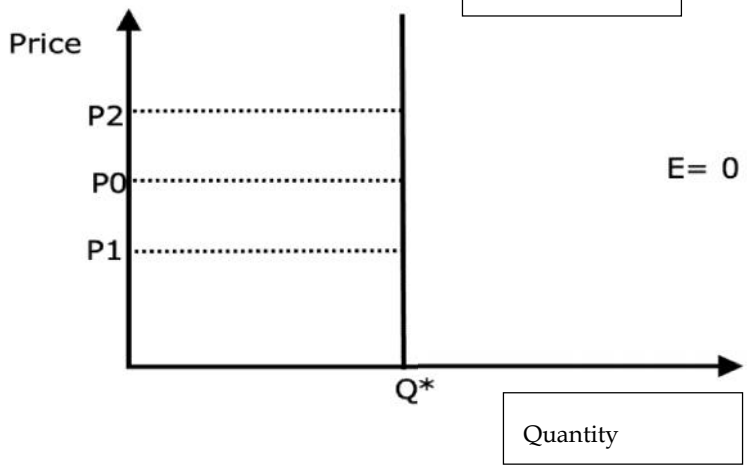
Figure 1



The demand is unlimited at the ruling price OP*, as seen in Figure 1. A modest price rise will lead to reduction in demand and there will be infinite change in demand i.e. demand will be zero. A modest price reduction will attract more customers, but demand elasticity will remain infinite (ed=). However, in the real world, completely elastic demand is extremely unusual and of no practical interest.

2. ***Perfectly Inelastic Demand***:Perfectly inelastic demand is opposite to perfectly elastic demand. Under the perfectly inelastic demand, irrespective of any rise or fall in price of a commodity, the quantity demanded remains the same. The elasticity of demand in this case will be equal to zero ($e_d = 0$).

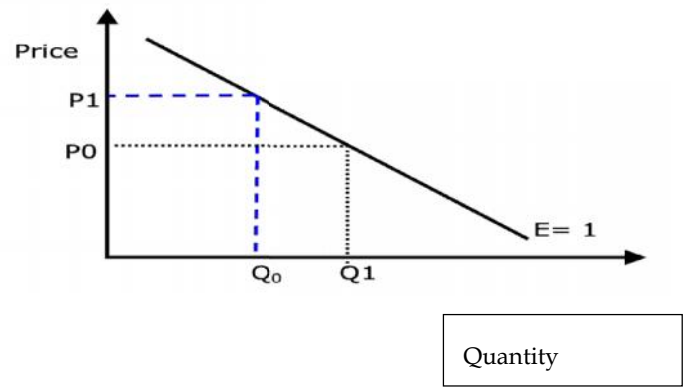
Figure 2



In diagram 2, Q* shows the perfectly inelastic demand. At price OP_0, the quantity demanded is OQ*. Now, the price falls to OP_1, from OP_0, the demand remains the same. Similarly, if the price rises to OP_2 the demand still remains the same. But just as we do not see the example of perfectly elastic demand in the real world, in the same fashion, it is difficult to come across the cases of perfectly inelastic demand because even the demand for, bare essentials of life does show some degree of responsiveness to change in price.

3. **Unitary Elastic Demand**:The demand is said to be unitary elastic when a given proportionate change in the price level brings about an equal proportionate change in quantity demanded. The numerical value of unitary elastic demand is exactly one i.e. Marshall calls it unit elastic.

Figure 3



In figure 3, DD demand curve represents unitary elastic demand. When price is OP_1, the quantity demanded is OQ_0. Now price falls to OP_0 the quantity demanded increases to OQ1. Thus, the demand curve is called unitary elastic demand curve.

4. ***Greater than Unitary Elastic Demand***:Greater than elastic demand refers to a situation in which a small change in price leads to a big change in quantity demanded. In such a case elasticity of demand is said to be more than one ($e_d > 1$).

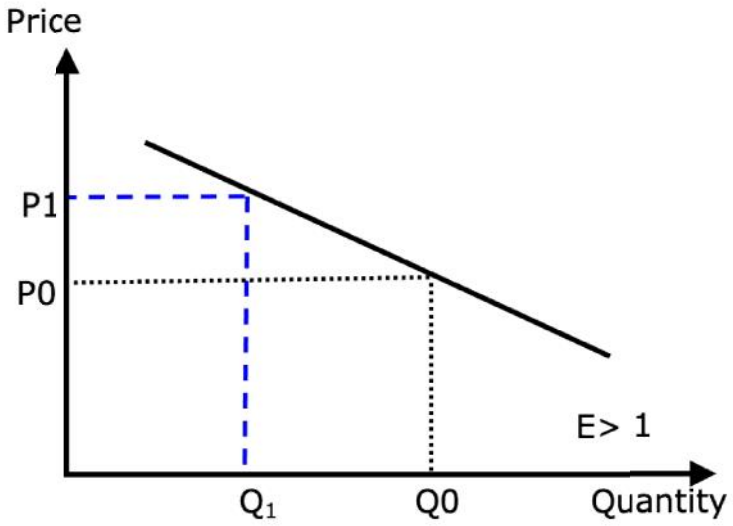


Figure: 04

In fig. 4, DD is the demand curve which indicates that when price is OP_1 the quantity demanded is OQ_1. Now the price falls from OP_1 to OP_0 the quantity demanded increases from OQ_1 to OQ_0 i.e. quantity demanded changes more than change in price.'

5. Less than Unitary Elastic Demand: Under the relatively inelastic demand, a given percentage changes in price produces a relatively less percentage change in quantity demanded. In such a case elasticity of demand is said to be less than one ($e_d < 1$). It has been shown in figure 5.

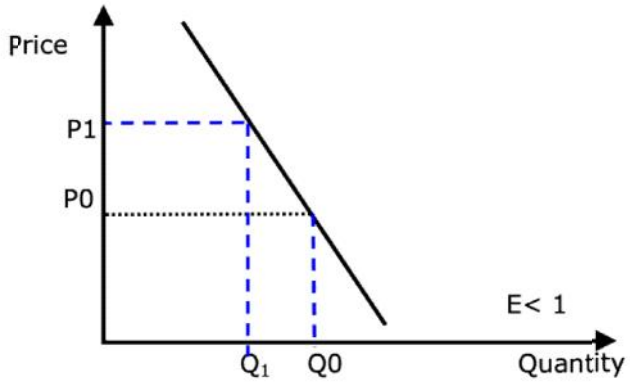


Figure: 5

In fig. 5, DD is the demand curve which indicates that when price is OP_1 the quantity demanded is OQ_1. Now the price falls from OP_1 to OP_0 the quantity demanded increases from OQ_1 to OQ_0 i.e. quantity demanded changes more than change in price.'

Types of Elasticity of Demand

As, Elasticity is a concept in economics that talks about the effect of change in one economic variable on the other and Elasticity of Demand, on the other hand, specifically measures the effect of change in an economic variable on the quantity demanded of a product. There are several factors that affect the quantity demanded for a product such as the income levels of people, price of the product, price of other products in the segment, and various others.

On the basis of different factors affecting the quantity demanded for a product, elasticity of demand is categorized into mainly three categories

1. Price Elasticity of Demand

2. Income Elasticity of Demand

3. Cross Elasticity of Demand

Let us look at them in detail and their examples.

Price Elasticity of Demand:

The concept of price elasticity of demand is a numerical measure of the extent to which quantity demanded responds to a change in price, other determinants of demand being kept constant.

Example: If the price of cold drinks fell by 20% and the price of salt fell by 20%, the increase in quantity demanded due to equal changes in prices would be different for salt and cold drinks. Thus salt and cold drinks are said to have a different price elasticity of demand.

Price elasticity of demand, Ep, measures the degree to which the quantity demanded responds to a change in price when all other factors that influence demand such as tastes or income are keptconstant. In the example, it is extremely likely that the percentage increase in quantity demandedwould be much more for cold drinks than for salt, even though the percentage decreases in priceare the same. Thus, price elasticity of demand allows us to compare the sensitivity of the demandfor various goods for the same changes in price. So, we can say that when other factors such as income and the prices of similar commodities that impact demand are heldconstant, price elasticity of demand reflects how responsive a good's quantity desired is to a change in its price.

From the definition:

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

Let us consider a commodity X. If its price rose, then the percentage change in price would bepositive (since the new price is greater than the old price). This means that the denominatorin the expression for Ep would be positive. However, the quantity demanded would fall andthe percentage change in quantity demanded would be negative. Hence the numerator in theexpression would be negative.Thus, for most goods as quantity demanded and price have an inverse relationship, ep is likelyto be negative. However, by placing a minus sign in the formula we make ep positive. The reasonis that we want to equate "more elastic" with "more responsive".

The factors that govern the price elasticity of demand are:

1. ***The number and closeness of substitutes***: The more and the better the substitutes, thegreater is the price elasticity of demand. For example, if the price of "chocolate" ice creamrose by a small amount, consumers would readily switch to other flavours of ice creamsuch as "strawberry" or "butter-scotch". Thus, for a small percentage change in price, therewould be a large percentage change (decrease) in quantity demanded. Hence "chocolate" ice cream would be highly elastic. One the other hand, there are no good substitutes forsalt, hence it is likely to be inelastic

2. ***Number of uses the commodity satisfied***: The greater the number of uses of the commodity,the greater is its price elasticity of demand. For example, aluminium, which has severaluses, is likely to be highly elastic. Thus, if the price of aluminium fell by a small amount,the quantity demanded would increase substantially since it can be put to so many uses.Since the percentage change in price is small and the percentage change in quantity large, aluminium has a

high price elasticity of demand. On the other hand, salt (which is only afood) has only a single use and hence is inelastic.

3. ***Time period***: The greater the time period, the greater is the price elasticity of demand. Forexample, if the price of diesel increases, the quantity demanded by a firm will decrease bya very small amount because in the short run the firm uses equipment that runs on diesel.In the long run (greater time period), the firm can replace its existing equipment (whichruns on diesel) for one which runs on electricity. Thus, the percentage change in quantitydemanded is greater in the long run for the same percentage change in price. Thus, anycommodity is likely to be more elastic when its "adjustment time" is longer

4. ***Proportion of income spent on the commodity***: The greater the proportion of incomespent on a commodity, the larger is the price elasticity of demand. The reason is that theproportion of income previously being spent on the commodity determines what amountof income will be released as a result of the fall in price of the commodity. The income thusreleased will be spent on increasing the purchase of the commodity as well as all othercommodities. Hence cars, refrigerators, etc., are likely to be price elastic while soaps, etc.,are likely to be inelastic.

5. ***How narrowly the commodity is defined***: The more narrowly a commodity is defined, thegreater is its price elasticity of demand. Hence the price elasticity of Marlboro cigarettes isgreater than the price elasticity of cigarettes; the elasticity of Campa Cola is higher than thatof soft drinks, etc. The reason is that there are many other good substitutes for Marlboro(namely the many other brands of cigarettes) than cigarettes in general (namely cigars andpipes).

5.2 Methods of Measuring Price Elasticity of Demand

1. Total Expenditure Method:

Dr. Marshall has evolved the total expenditure method to measure the price elasticity of demand. According to this method, elasticity of demand can be measured by considering the change in price and the subsequent change in the total quantity of goods purchased and the total amount of money spent on it.

Total Outlay = Price X Quantity Demanded

There are three possibilities:

(i) If with a fall in price (demand increases) the total expenditure increases or with a rise in price (demand falls), the total expenditure falls, in that case the elasticity of demand is greater than one i.e. ED > 1.

(ii) If with a rise or fall in the price (demand falls or rises respectively), the total expenditure remains the same, the demand will be unitary elastic or ED = 1.

(iii) If with a fall in price (Demand rises), the total expenditure also falls, and with a rise in price (Demand falls) the total expenditure also rises, the demand is said to be less classic, or elasticity of demand is less than one (ED < 1).

Price	Demand	Total Expenditure	Elasticity of Demand
Falls	Rises	Rises	>1 (Greater than Unitary Elastic)
Rises	Falls	Falls	>1 (Greater than Unitary Elastic)
Falls	Falls	Same	=1 (Unitary Elastic)
Rises	Rises	Same	=1 (Unitary Elastic)
Falls	Rises	Falls	<1 (Less than Unitary Elastic)
Rises	Falls	Rises	<1 (Less than Unitary Elastic)

Price	Quantity Demanded	Total Outlay	Elasticity of Demand
10	1	10	
9	2	18	E>1
8	3	24	
7	4	28	
6	5	30	E=1
5	6	30	
4	7	28	
3	8	24	E<1
2	9	18	
1	10	10	

In the above table there are three possibilities:

A. More Elastic Demand:

When price is Rs. 10 the quantity demanded is 1 unit and total expenditure is 10. Now price falls from Rs. 10 to Rs. 6, the quantity demanded increases from 1 to 5 units and correspondingly the total expenditure increases from Rs. 10 to Rs. 30. Thus it is clear that with the fall in price, the total expenditure increases and vice-versa. So elasticity of demand is greater than one or ED >1.

B. Unitary Elastic Demand:

If price is Rs. 6, demand is 5 units so the total outlay is Rs. 30. Now price falls to Rs. 5, the demand increases to 6 units but the total expenditure remains the same i.e., Rs. 30. Thus it is clear that with the rise or fall in price, the total expenditure remains the same. The elasticity of demand in this case is equal to one orED = 1.

C. Less Elastic Demand:

If price is Rs. 5, demand is 6 and total outlay is Rs. 30. Now price falls from Rs. 5 to Re. 1. The demand increases from 6 units to 10 units and hence the total expenditure falls from Rs. 30 to Rs. 10. Thus it is clear that with the fall in price, the total expenditure also falls and vice-versa. In this case, the elasticity of demand is less than one or ED <1.

2. **Proportionate Method**: This method is also associated with the name of Dr. Marshall. According to this method, "price elasticity of demand is the ratio of percentage change in the amount demanded to the percentage change in price of the commodity."

It is also known as the Percentage Method, Flux Method, Ratio Method, and Arithmetic Method. Its formula is as under:

$$Ed = \frac{\text{Proportionate Change in quantity demanded}}{\text{Proportionate Change in Price}}$$

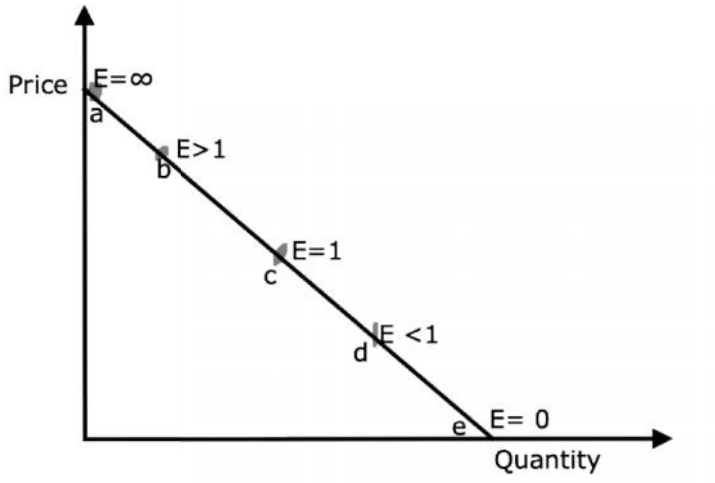
Implications:

(a) This method should be used when there is a very small change in price and quantity demanded.

(b) The coefficient of price elasticity of demand is always negative. It is because when price changes, demand changes in the opposite direction. But by convention, we ignore negative sign.

(c) The elasticity of demand is relative. It is not expressed in any unit rather expressed in percentage or infractions.

3. **Point Elasticity Method**:This method was also suggested by Marshall and it takes into consideration a straight line demand curve and measures elasticity at different points on the curve. This method has now become very popular method of measuring elasticity. In this we take a straight line demand curve, which connects the demand curve with both the axes OX and OY. In the diagram OX axis represents the quantity demanded and OY axis represents the price.



$$\text{Elasticity} = \frac{\text{Lower segment of demand curve}}{\text{Upper segment of demand curve}}$$

4. **Arc Elasticity Method**: "Arc elasticity is a measure of the average responsiveness to price change exhibited by a demand curve over some finite stretch of the curve" Prof. Baumol

"Arc elasticity is the elasticity at the mid-point of an arc of a demanded curve" Watson

"When elasticity is computed between two separate points on a demand curve, the concept is called Arc elasticity" Leftwitch

5. **Revenue Method**:Mrs. Joan Robinson has given this method. She says that elasticity of demand that a firm obtains by selling its products are called its revenue. However, when total revenue is divided by the number of units sold, we get average revenue.

On the contrary, when addition is made to the total revenue by the sale of one more unit of the commodity is called marginal revenue. Therefore, the formula to measure elasticity of demand can be written as,

$E_A = A/ A\text{-}M$

Where E_d represents elasticity of demand, A = average revenue and M = marginal revenue.

So, we can conclude that when value of Ep is one, it means that price elasticity of demand is unitary. Similarly, if it is more than one, price elasticity of demand is greater than one and if it is less than one, price elasticity of demand is less than unity.

Price Gouging takes you Home

Picture this. It is raining and you are caught inside a mall after a long shopping expedition. The auto drivers want twice the "normal" fare to take you home. Is life unfair? Or is pure economics at play?

You know that price is determined by demand and supply. If demand goes up with supply remaining same, prices ought to go up. And we know that the rain has increased the demand for autos — people who would have otherwise walked or travelled by public transport now want to hire an auto. The increased demand ought to increase the hire charges, considering the supply of autos remain the same. This does not, however, consider fairness of the price. You may argue that several people who cannot afford to hire an auto for the twice the "normal" fare will be priced out of the market. That is, of course, partially true. If the rates are way too high, very few will hire the auto. This denies the auto drivers a good chance to make more money. The sensitivity to price (or elasticity of demand) will ensure that there is no intense price gouging. The question still remains: Should auto drivers charge higher prices during rainy days or such other market conditions? Suppose autos ply only on metered rate. You will agree that driving on rainy days is more difficult than driving on other days. The risk for the auto driver is higher but his return (metered fare), the same. There is, hence, no incentive for auto drivers to work on rainy days. This would drive several autos out of the market. It means you can hire an auto at "normal" fare… if you are lucky enough to get one! So, consider price gouging (or call it free market pricing if you will) as a means to keep the autos' supply high… enough to get you home, if you agree on the price. This does not, of course, justify unfair prices on regular days as well!

Source: www.thehindubusinessline.com

Income Elasticity of Demand:

The **income** elasticity of demand is the percentage change in quantity demanded divided by the percentage change in income, as follows:

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

For most products, most of the time, the income elasticity of demand is positive: that is, a rise in income will cause an increase in the quantity demanded. This pattern is common enough that these goods are referred to as normal goods**.** However, for a few goods, an increase in income means that one might purchase less of the good; for example, those with a higher income might buy fewer hamburgers, because they are buying more steak instead, or those with a higher income might buy less cheap wine and more imported beer. When the income elasticity of demand is negative, the good is called an **inferior good**. The concepts of normal and inferior goods were introduced in the Supply and Demand module. A higher level of income for a normal good causes a demand curve to shift to the right for a normal good, which means that the income elasticity of demand is positive. How far the demand shifts depends on the income elasticity of demand. A higher income elasticity means a larger shift. However, for an inferior good—that is, when the income elasticity of demand is negative—a higher level of income would cause the demand curve for that good to shift to the left. Again, how much it shifts depends on how large the (negative) income elasticity is.

Cross Elasticity of Demand:

The term "cross-price" refers to the idea that the price of one good is affecting the quantity demanded of a different good. Specifically, the cross-price elasticity of demand is the percentage change in the quantity of good A that is demanded as a result of a percentage change in the price of good B, as follows:

$$E_C = \frac{\text{Percentage change in quantity demanded of Good X}}{\text{Percentage change in Price of Good Y}}$$

A change in the price of one good can shift the quantity demanded for another good. If the two goods are complements, like bread and peanut butter, then a drop in the price of one good will lead to an increase in the quantity demanded of the other good. However, if the two goods are substitutes, like plane tickets and train tickets, then a drop in the price of one good will cause people to substitute toward that good, and to reduce consumption of the other good. Cheaper plane tickets lead to fewer train tickets, and vice versa.

Substitute goods have positive cross-price elasticities of demand: if good A is a substitute for good B, like coffee and tea, then a higher price for B will mean a greater quantity of A consumed. Complement goods have negative cross-price elasticities: if good A is a complement for good B, like coffee and sugar, then a higher price for B will mean a lower quantity of A consumed.

5.3 Factors Affecting Elasticity of Demand:

A change in price does not always lead to the same proportionate change in demand. For example, a small change in price of AC may affect its demand to a considerable extent/whereas, large change in price of salt may not affect its demand. So, elasticity of demand is different for different goods. There are various factors which affect the elasticity of demandwhich are as follows:

1. **Nature of commodity**:Elasticity of demand of a commodity is influenced by its nature. A commodity for a person may be a necessity, a comfort or a luxury.

i. When a commodity is a necessity like food grains, vegetables, medicines, etc., its demand is generally inelastic as it is required for human survival and its demand does not fluctuate much with change in price.

ii. When a commodity is a comfort like fan, refrigerator, etc., its demand is generally elastic as consumer can postpone its consumption.

iii. When a commodity is a luxury like AC, DVD player, etc., its demand is generally more elastic as compared to demand for comforts.

iv. The term 'luxury' is a relative term as any item (like AC), may be a luxury for a poor person but a necessity for a rich person.

2. **Availability of substitutes**:A commodity with a high number of replacements will have a more elastic demand. The reason for this is that even a minor increase in its prices will cause purchasers to seek out alternatives. A rise in the price of Pepsi, for example, stimulates consumers to purchase Coke, and vice versa.

Thus, availability of close substitutes makes the demand sensitive to change in the prices. On the other hand, commodities with few or no substitutes like wheat and salt have less price elasticity of demand.

3. **Income Level**:Elasticity of demand for any commodity is generally less for higher income level groups in comparison to people with low incomes. It happens because rich people are not influenced much by changes in the price of goods. But, poor people are highly affected by increase or decrease in the price of goods. As a result, demand for lower income group is highly elastic.

4. **Level of Price**:Level of price also affects the price elasticity of demand. Costly goods like laptop, Plasma TV, etc. have highly elastic demand as their demand is very sensitive to changes in their prices. However, demand for inexpensive goods like needle, match box, etc. is inelastic as change in prices of such goods do not change their demand by a considerable amount.

5. **Postponement of Consumption**:Commodities whose demand is not urgent, such as biscuits and soft drinks, have highly elastic demand since their consumption can be postponed in the event of a price increase. However, due of their immediate requirement, goods with urgent demand, such as life-saving medications, have inelastic demand.

6. **Number of Uses**:The demand for the commodity in question will be elastic if it has multiple uses. When the price of a commodity rises, it is usually devoted to just the most necessary purposes, and demand reduces as a result. When costs decline, it is used to meet even less urgent needs, resulting in an increase in demand.

For example, electricity is a multiple-use commodity. Fall in its price will result in substantial increase in its demand, particularly in those uses (like AC, Heat convector, etc.), where it was not

employed formerly due to its high price. On the other hand, a commodity with no or few alternative uses has less elastic demand.

7. **Time Period**: Price elasticity of demand is always related to a period of time. It can be a day, a week, a month, a year or a period of several years. Elasticity of demand varies directly with the time period. Demand is generally inelastic in the short period.

It happens because consumers find it difficult to change their habits, in the short period, in order to respond to a change in the price of the given commodity. However, demand is more elastic in long rim as it is comparatively easier to shift to other substitutes, if the price of the given commodity rises.

8. **Habits**:Commodities, which have become habitual necessities for the consumers, have less elastic demand. It happens because such a commodity becomes a necessity for the consumer and he continues to purchase it even if its price rises. Alcohol, tobacco, cigarettes, etc. are some examples of habit forming commodities.

Finally it can be concluded that elasticity of demand for a commodity is affected by number of factors. However, it is difficult to say, which particular factor or combination of factors determines the elasticity. It all depends upon circumstances of each case.

Summary

- Elasticity of demand tells the degree of responsiveness of consumer to a price change.
- The elasticity or responsiveness of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price and diminishes much or little for a given rise in price
- The income elasticity of demand is a numerical measure of the degree to which quantitydemanded responds to a change in income, other determinants of demand being keptconstant.
- The cross elasticity of demand is a numerical measure of the degree to which quantitydemanded of a good respond to changes in the prices of other commodities, the otherdeterminants of demand being kept constant.

Keywords

- Arc elasticity: It computed if the data is discrete and therefore incremental change is measurable.
- Cross elasticity: Degree to which demand for one product is affected by the price of another product.
- Demand elasticity: Elasticity used to show the responsiveness of the quantity demanded of a good or service to a change in its price.
- Elasticity: It measures the degree of responsiveness of demand/supply to change in price.
- Point elasticity: It computed if demand function is continuous and therefore only marginalchanges are calculable.

Self Assessment

1. "An economist would estimate the _____ to determine the relationship between two goods.

A. Income elasticity of demand
B. Cross elasticity of demand
C. Price elasticity of demand
D. Price elasticity of supply

2. Cross elasticity of demand is

A. Negative for complementary goods

B. Unitary for inferior goods

C. Negative for substitute goods

D. Positive for inferior goods

3. For which product is the income elasticity of demand most likely to be negative?

A. Computer software

B. Basketballs

C. Used clothing

D. Bread

4. A positive cross elasticity of demand coefficient indicates that:

A. A product is an inferior good

B. A product is a normal good

C. Two products are complementary goods

D. Two products are substitute goods

5. When change in price brings infinite change in the demand for the product, then the demand for the product is

A. Perfectly elastic

B. Perfectly inelastic

C. Unitary elastic

D. None of these

6. Total revenue falls as the price of good increases if price elasticity of demand is

A. Inelastic

B. Elastic

C. Unitary elastic

D. Perfectly elastic

7. What is most likely effect of the Netflix and other entertainment series on the movie theatre industry?

A. Decreased cost of producing movies

B. Increased demand for movie theatre tickets

C. Movie theatre tickets become an inferior good

D. Increased price elasticity of demand for movie theatre tickets.

8. If demand for farm crops is inelastic, a good harvest will cause farm revenues to:

A. Increase because of the increase in the quantity that farmers can sell.

B. increase because of a downward movement along the supply curve, encouraging an increase in demand.

C. Decrease because of a percentage fall in price greater than the percentage increase in quantity sold.

D. Remain unchanged, because the increase in quantity that can be sold will be matched by an equal decrease in price.

9. Sony is considering a 10 percent price reduction on its color television sets. If the demand for sets in this price range is inelastic:

A. Revenues from color sets will remain constant
B. Revenues derived from color sets will decrease
C. Revenues derived from color sets will increase
D. The number of television sets sold will decrease

10. Demand is inelastic if ?

A. A leftward shift of the supply curve raises the total revenue.
B. The good in question has close substitutes.
C. The smaller angle between the vertical axis and the demand curve is less than 45 degrees.
D. Large shifts of the supply curve lead to only small changes in price.

11. The price elasticity of demand can range between

A. Negative one and one
B. Zero and infinity
C. Zero and one
D. Negative infinity and infinity

12. Demand is perfectly inelastic when

A. The good in question has perfect substitutes
B. Shifts in supply curve results in no change in price
C. Shifts of supply curve results in no change in quantity demanded.
D. Shifts of the supply curve results in no change in the total revenue from sales.

13. An increase in the price of the good causes sharp fall in the demand for the product, so the demand is

A. Elastic
B. Inelastic
C. Greater than unit elastic
D. None of the above

14. Price elasticity of demand is not influenced by

A. The number of substitutes available
B. The proportion of the consumer's budget spent on the good
C. The length of the time period under consideration
D. The units of measurement used for price or for quantity demanded

15. Necessity goods are _____ elastic in nature

A. More

B. Less
C. Unitary
D. None of the above

Answers for Self Assessment

1.	B	2.	A	3.	C	4.	D	5.	A
6.	B	7.	D	8.	C	9.	B	10.	A
11.	B	12.	C	13.	A	14.	D	15.	B

Review Questions

1. What is elasticity of demand?
2. Discuss the factors that determine elasticity of demand.?
3. Explain price elasticity of demand with help of examples
4. As a business manager, how do you find the demand elasticity to be useful? Also, can youforecast you revenues in case you know the demand elasticity?.
5. Examine the concept of price elasticity of demand. Which of the two methods of measuringit is preferred by you and why?
6. Explain the concept of income elasticity of demand.
7. Discuss cross elasticity of demand, prove its utility for business managers.
8. Explain the degrees of price elasticity of demand.
9. Whynormal goods and inferior goods are differentiated on the basis of income.
10. How price elasticity of demand is different from cross elasticity of demand.

Further Readings

1. Atmanand, Managerial Economics, Excel Books
2. G.S. Maddala, Microeconomics: Theory and Application, Tata McGraw-Hill
3. Samuel Bowles, Microeconomics: Behavior, Institutions, and Evolution, Oxford
4. Jeffrey M. Perloff, Microeconomics, Pearson Education

Web Links

http://www.swlearning.com/economics/hirschey/managerial_econ pdf

http://www.referenceforbusiness.com/encyclopedia/Man-Mix/Ma Economics.html

http://bilder.buecher.de/zusatz/14/14727/14727814_vorw_1.pdf

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Unit 06: Industry and Market Structure

CONTENTS

Objectives

After studying this unit, you will be able to:

- identify the forms and structure of market
- know the features and returns in perfect competition
- understand the features and returns in monopoly
- learn the concept of price discrimination
- identify the features and returns in monopolistic competition
- know the features of Oligopoly market structure
- identify the shape of revenue curves under oligopoly

Introduction

The term "market" refers to a location where commodities are bought and sold at retail or wholesale prices. As a result, a marketplace is defined as a location with a variety of large and small stores, stalls, and even hawkers offering a variety of commodities. Market refers to the interaction between buyers and sellers of a good (or service) at a mutually agreed upon price.

However, in economics, the term "market" does not refer to a specific location, but rather to a market for a commodity or commodities. It refers to a situation in which buyers and sellers interact closely, either directly or indirectly, in order to sell and acquire goods.

6.1 Forms and Structure of Market

For the existence of any market, buyers and sellers need not personally meet each other at a particular place andthey may contact each other by any means such as a telephone or telex. Thus, the term "Market" is used in economics in a typical and specialized sense. It does not refer only to a fixed location.

"The term market refers not necessarily to a place but always to a commodity and the buyers and sellers who are in direct competition with one another." Prof. R. Chapman

The French economist Cournot defined a market thus "Economists understand by the 'Market' not any particular marketplace in which things are bought and sold but the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same goods tend to equality, easily and quickly."

Jevons defined market as "public place in a town where provision and other objects were exposed for sale, but the word has been generalized so as to mean anybody or persons, who are in intimate business relation and carry-on extensive transaction in any commodity."

Prof. Behham defined market as, "any area over which buyers and sellers are in such close touch with one another either directly or through dealers that the prices obtainable in one part of the market affect the prices in other parts."

The function of a market is to enable an exchange of goods and services to take place. Amarket is any organisation whereby buyers and sellers of a good are kept in close touch witheach other. It is precisely in this context that a market has four basic components

(i) consumers

(ii) sellers

(iii) a commodity

(iv) a price.

Price determination is one of the most crucial aspects inmicro-economics. Business managers are expected to make perfect decision based on theirknowledge and judgment. Since every economic activity in the market is measured as per price,it is important to know the concepts and theories related to pricing under various market forms.

6.2 Features of Market

1. ***One Commodity***:In practical life, a market is understood as a place where commodities are bought and sold at retail or wholesale price, but in economics "Market" does not refer to a particular place as such but it refers to a market for a commodity or commodities i.e., a wheat market, a tea market or a gold market and so on.

2. ***Area***:Market does not simply relate to a fixed location in economics, but it refers to the entire area or territory in which demand and supply operate.

3. ***Buyers and Sellers***:In order to create a market for a commodity, we need a group of potential sellers and potential buyers who must be present in the market at different places.

4. ***Free Competition***:There should be free competition among buyers and sellers in the market. This competition is in relation to the price determination of a product among buyers and sellers.

5. ***One Price***:One and only one price be in existence in the market which is possible only through perfect competition and not otherwise.

So, we can say that the market for a product refers to the whole region where buyers and sellers of that product are spread and there is such free competition that one price for the product prevails in the entire region.

Market Structure and its Determinants:

Market structure refers to the nature and degree of competition in the market for goods and services. The structures of market both for goods market and service (factor) market are determined by the nature of competition prevailing in a particular market.

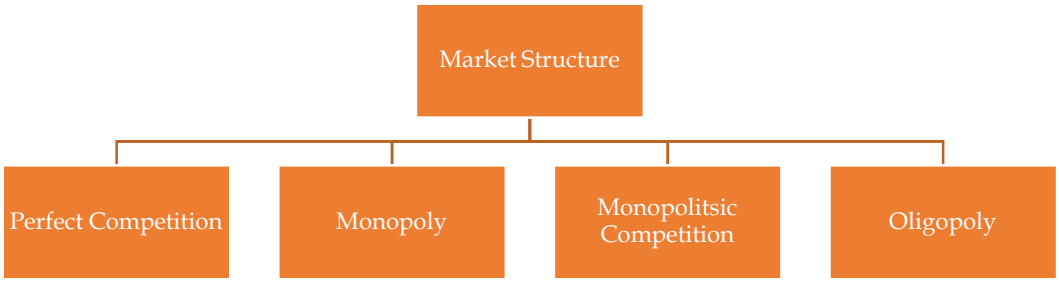
There are a number of determinants of market structure for a particular good.They are as follows:

1. The number and nature of sellers: The number and type of sellers in themarket have an impact on market structures. They range from numeroussellers in perfect competition to a single seller in a complete monopoly,two sellers in a duopoly, a few sellers in an oligopoly, and many sellers ofdistinct items.

2. The number and nature of buyers: The market structures are also influenced by thenumber and nature of buyers in the market. If there is a single buyer in the market, this isbuyer's monopoly and is called monophony market. There may be two buyers who actjointly in the market. This is called duopsony market. They may also be a few organisedbuyers of a product. This is known as oligopsony. Duopsony and oligopsonymarkets are usually found for cash crops such as rice, sugarcane, etc. whenlocal factories purchase the entire crops for processing.
3. The nature of the product: The market structure is determined by the type of the commodity. If items aren't differentiated, they're close equivalents, then the market is dominated by monopolistic competition. In the absence of product differentiation, on the other hand, the market is characterized by perfect competition and if a product is absolutely unique from others, there are no close substitutes, and the market is monopolized.
4. The conditions of entry into and exit from the market: The criteria for a firm's entry and exit in a market are determined by the market's profitability or loss. Profits in a market will entice new firms to enter the market, while losses will drive weak firms out. Firms have the freedom to enter and depart a perfect competition market.However, there are impediments to new enterprises entering monopolistic and oligopoly markets. Governments typically have a monopoly on public utility services such as postal, air and road transportation, water, and power supply, and so on. Exclusive franchises prevent fresh supplies from entering the market.In oligopoly markets, there are barriers to entry of firms because of collusion, tacit agreements, cartels, etc. On the other hand, there are no restrictions in entry and exit of firms in monopolistic competition due to product differentiation.

6.3 Forms of Market Structure

Market structure, in economics, refers to how different industries are classified and differentiated based on their degree and nature of competition for goods and services. It is based on the characteristics that influence the behavior and outcomes of companies working in a specific market.



The four popular types of market structures include perfect competition, monopoly market, monopolisticcompetition and oligopoly market. Market structures show the relations between sellers and other sellers, sellers to buyers, or more.

Perfect Competition

Perfect competition is a market structure characterized by a complete absence of rivalry among the individual firms. Thus, perfect competition in economic theory has a meaning diametrically opposite to the everyday use of this term. In practice, businessmen use the world competition as

synonymous to rivalry. In theory, perfect competition implies no rivalry among firms. In a perfectly competitive market structure, there is a large number of buyers and sellers of the product and each seller and buyer is too small in relation to the market to be able to affect the price of the product by his or her own actions. This means that a change in the output of a single firm will not perceptibly affect the market price of the product. Similarly, each buyer of the product is too small to be able to extract from the seller such things as quantity discounts and special terms.

Features of Perfect Competition:

The model of perfect competition is based on the following features:

1.***Presence of large numbers of sellers and buyers***: The industry in perfect competition includes many firms (and buyers). Each individual firm, however large, supplies only a small part of the total quantity offered in the market. The buyers are also numerous so that no monopolistic power can affect the working of the market. Under these conditions each firm alone cannot affect the price in the market by changing its output.

2. ***Homogeneous product***: The technical characteristics of the product as well as the services associated with its sale and delivery is identical. There is no way in which a buyer could differentiate among the products of different firms. If the products were differentiated the firm would have some discretion in setting its price. This is ruled out in perfect competition. The assumption of large number of sellers and of product homogeneity implies that the individual firm in pure competition is a price-taker: its demand curve is infinitely elastic, indicating that the firm can sell any amount of output at the prevailing market price.

3***. Freedom of entry and exit of firms***: There is no barrier to entry or exit from the industry. Entry or exit may take time, but firms have freedom of movement in and out of the industry. If barriers exist, the number of firms in the industry may be reduced so that each one of them may acquire power to affect the price in the market.

4. ***Perfect knowledge***: It is assumed that all the sellers and buyers have complete knowledge of the conditions of the market. This knowledge refers not only to the prevailing conditions in the current period but in all future periods as well. Information is free and cost less.

5***. Perfect Elastic Demand***: Under perfect competition, a demand curve of the firm is perfectly elastic because the firm can sell any amount of goods at the prevailing price. So even a small increase in price will lead to zero demand. This indicates that the firm has no control over price.

6***. Perfect mobility of factors of production***: The factors of production are free to move fromone firm to another throughout the economy. It is also assumed that workers can movebetween different jobs. Finally, raw materials and other factors are not monopolized, andlabor is not organized

7. ***Price determined by market and Firm is a price taker***: A perfectly competitive firm is known as a price taker, because the pressure of competing firms forces them to accept the prevailing equilibrium price in the market. If a firm in a perfectly competitive market raises the price of its product by so much as a penny, it will lose all of its sales to competitors.

Example: By design, a stock exchange resembles a perfect competition, not as a complete description (for no markets may satisfy all requirements of the model) but as an approximation. The flaw in considering the stock exchange as an example of Perfect Competition is the fact that large institutional investors (e.g., investment banks) may solely influence the market price. This, of course, violates the condition that "no one seller can influence market price". Free software works along lines that approximate perfect competition. Anyone is free to enter and leave the market at no cost. All code is freely accessible and modifiable, and individuals are free to behave independently. Free software may be bought or sold at whatever price that the

marketmay allow.

Another very near example of perfect competition would be the fish market and the vegetable or fruit vendors who sell at the same place.

1. There are large number of buyers and sellers.
2. There are no entry or exit barriers.
3. There is perfect mobility of the factors, i.e. buyers can easily switch from one seller to theother.
4. The products are homogenous.

Analyze stock market on the basis of the features of perfect market. Do you find it close to the perfect market?

Market Condition

The assumptions of perfect competition imply that a particular relationship exists between the firm and its market. Figure 10.2(a) shows the market demand curve for a product. It shows the total amount of this product demanded by consumers at different prices. It is a normal downward sloping demand curve showing that for the industry as a whole quantity demanded increases as price falls.

Figure 6.1: Relationship between the Market and the Firm in Perfect Competition

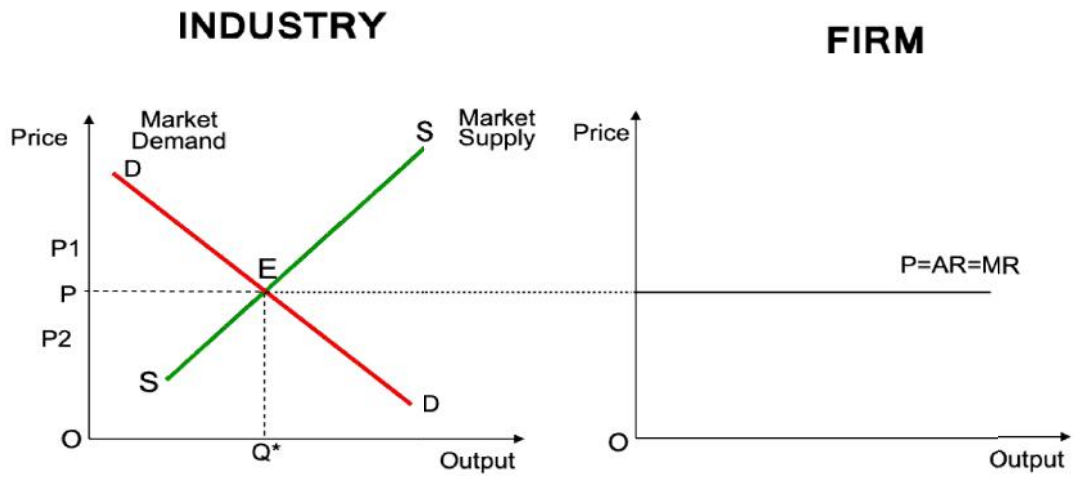


Figure 6.1 (b) shows the seller perceived demand curve which is horizontal, i.e., it is perfectly elastic demand with respect to price. It hits the vertical axis at the current market price, P. Two factors are stopping the producer from charging a price such as P1, which is higher than P-perfect knowledge and homogeneous product. If a higher price is charged, customers would know immediately that a lower price is available elsewhere, and that the product for sale at the lower price is a perfect substitute for the more expensive product. The producer is also not undercutting its rivals and charging a price, P2 which is lower than P. The firm's output is small compared to the industry as a whole and so its entire output can be sold at the current market price of P. At a price

lower than P the firm would not maximise its profit. Thus, over any feasible range of output, the demand curve for the product of the individual firm is perceived to be horizontal.

Equilibrium of the Firm

Firms aim to maximise profit and they can be in equilibrium only when they achieve this. For all firms, profit maximisation is achieved when Marginal Revenue (MR), equals Marginal Cost (MC). If MR>MC, the firm adds more to revenue than it does to costs by increasing output and sales. When this happens profits will rise. On the other hand, if MR<MC, the firm adds more to costs than it does to revenue by expanding output and sales. When this happens profits will fall. It follows thus, that the firm is in equilibrium when MC=MR.

Equilibrium of the Industry. The industry is in long run equilibrium when a price is reached at which all firms are in equilibrium (producing at the minimum point of their LAC curve and making just normal profits). Under these conditions, there is no further entry or exit of firms in the industry, given the technology and factor prices. At the market price P, the firms produce at their minimum cost, earning just normal profits. The firm is in equilibrium because at the level of output Q

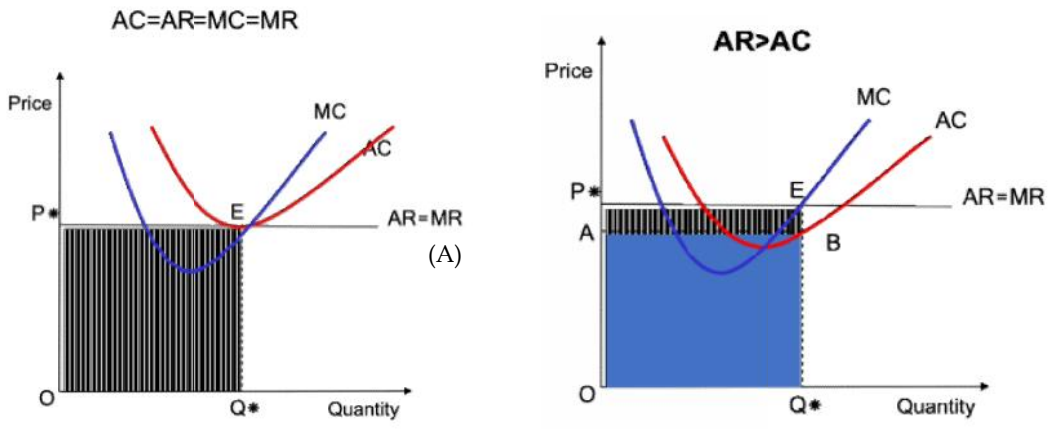
$$LMC = SMC = P = MR$$

This equality ensures that the firm maximizes its profit. At the price P, the industry is in equilibrium because profits are normal, and all costs are covered so that there are no incentives for entry or exit.

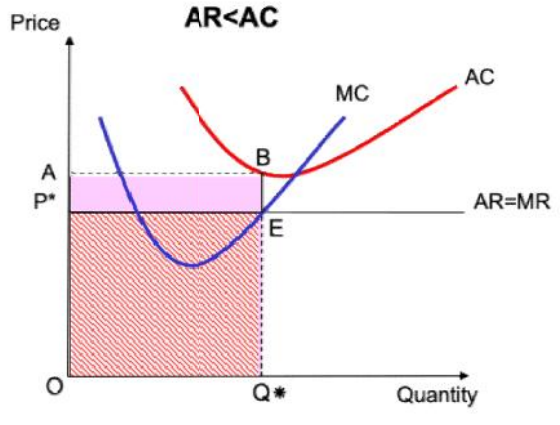
Short Run Equilibrium of a Perfectly Competitive Firm

The aim of a firm is to maximize profits. In the short run some inputs are fixed, and these give riseto fixed costs which have to be incurred whether the firm produces or not. Thus, it pays for thefirm to stay in business in the short run even if it incurs losses. Thus, the best level of output of the firm inthe short run is the one at which the firm maximisesprofits or minimises losses

Figure 6.2: Price and Output Determination in Short Period in Perfect Competition



(b)



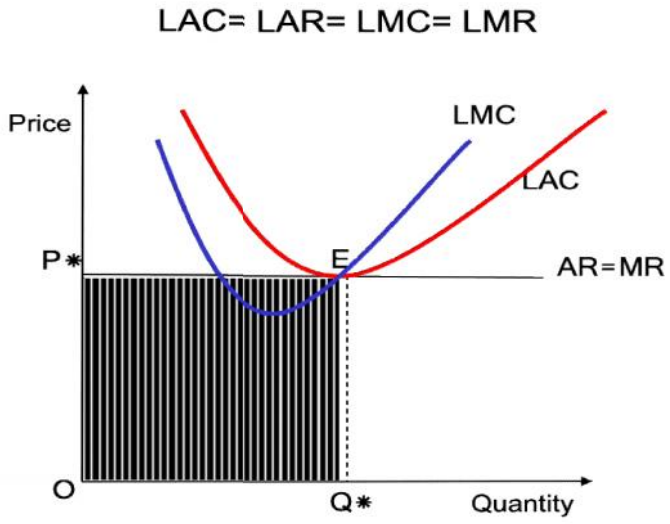
(c)

Figure 6.2 (a) , (b) and (c) represents the short run price and output determination under perfect competition. Part (a) of fig. 6.2 represents the supernormal profits for the shaded area as AP*EB which has been extracted by the difference between the revenue and the cost curve whereas part (b) of the figure represents normal profits which shows the revenue equals to the cost of production. The third part i.e part (c) shows the losses which is caused because of more costs than revenue.

Long Run Equilibrium of a Perfectly Competitive Firm

In the long run, all inputs and costs of production are variable, and the firm can construct the optimum or most appropriate scale of plant to produce the best level of output. The best level of output is one at which price P=LMC equals the long run Marginal Cost (LMC) of the firm. The optimum scale of the plant is the one in which short run Average Total Cost (SATC) curve is tangent to the long run average cost of the firm at the best level of output. If existing firms earn profits, however, more firms enter the market in the long run. This increases the market supply of the product and results in a lower product price until all profits are squeezed out. On the other hand, if firms in the market incur losses, some firms will leave the market in the long run. This reduces the market supply of the product until all firms remaining in the market just break-even. Thus, when a competitive market is in long run equilibrium, all firms produce at the lowest point on their long run Average Cost (LAC) curve and break-even. This is shown by point E in Figure 6.3

Figure 6.3: Price and Output Determination in Long Period in Perfect Competition



In Figure 6.3, we show how firms adjust to their long run equilibrium position. If the then new firms will enter the market, the quantity supplied in the market increases the supply curve in the

market will shift to the right and price will fall until it reaches the level P* at which the firms and industry are in long run equilibrium.

So, the firms who cannot bear the loss will leave the market and the other firms who can retain on the previous profits will remain means only firms in the long run will have only normal profits.

Error!

Economic Analysis of Agriculture

Irony is the nature of the economics of agriculture; even as many in America still struggle with hunger, the government has been offering subsidies to the American farmer to artificially raise the price of produce, in some cases since 1933.

History of Subsidies

Because a typical farmer is so small compared to the entire market for the good, he or she offers, they cannot affect the price of the good, or try to affect the price of good too efficaciously. Instead, they are referred to as 'price takers', who are forced to accept the market price. However, subsidies alter this economic situation to occasionally illogical results. At the end of World War I, farmers were rewarded by high prices as the government spent millions to rebuilt war-torn Europe. In fact, a small farmer who might have been almost forced to sell the farm before the war was in fact currently quite successful. However, in 1921, the nation fought through a recession as the farm goods they fervently produced outpaced demand, probably due to Europe's quick agricultural recovery. American farmers now suffered, and continued to do so into 1922, where virtually every industry had recovered except for agriculture. Large lands that had been opened up to feed Europe's millions pumped out more and more crops, but prices went lower and lower, and a surplus quickly accumulated that prevented prosperity.

Rising Anger of Farmers

Farmers could no longer meet the cost of production, and many were forced to leave their farms. Under neo-classical theory, this could be considered a frictional unemployment situation; as each farm increases production until it doesn't take as many to cover the market, some of them should switch to other tasks. This 'message of the market' was a message of sadness for many farmers. During the Great Depression, farmers were especially hurt.

For example, low dairy prices due to increased production meant that Midwestern dairyfarmers were earning less than ever. Milk, as a highly spoilable good, is a good exampleof 'perfect competition,' when farmers can only earn the price the market tells them. Even dairy farm strikes were ineffective, like those as a part of the Farmer's Holiday Association

Strike of 1932 in Wisconsin and Iowa (some of these became violent as milk haulers and

milkmen scuffed on the picket lines).

Since the 1930s

FDR worked to create a national program to guarantee income to farmers by enactinga significant number of measures to raise prices, beginning with the creation of theAgricultural Adjustment Administration in May 1933, which began the subsidy systemthat continues to this day, even though the AAA was declared unconstitutional in 1936. The AAA measures paid landowners to leave part of their land fallow. This did raise farmers' incomes, but consumers were forced to endure high food prices during the worse years of the Depression. Subsidies to farmers have been a part of the American agricultural system ever since. Bill Clinton attempted to reduce payments and increase diversity of crops with the Freedom to Farm Act in 1994. In 2000, however, the Farm Security and Rural Investment Act restored the farming subsidies. While it is true that some farmers struggle, the government spent $30 billion dollars in subsidies yearly, even though it is estimated that it would only cost $10 billion dollars in crop insurances and other measures to bring the poorest farmers in America up to middle class. On May 14, 2002, President Bush signed a farm subsidy estimated to cost $190 billion dollars over ten years, rekindling a national debate about subsidies. Today, large commercial farms dominate the agricultural market; 8% dominate 72% of sales.

Farm policies are sometimes more the product of politics than economics. While security of the food supply and preservation of small family-owned farms are good goals, well-intentioned programs might be hugely inefficient. There are cost-effective ways of helping small farmers, including crop insurance, but today some of these measures are still not used.

Questions

1. Compare the earlier global agricultural scenario with the recent scenario (as depicted

in the case)

2. Do you agree that agriculture is a perfectly competitive industry?

6.4 Monopoly

In a monopoly market, a single company represents the whole industry. It is the only seller of products in the entire market and has no competitors. This market is defined by factors such as sole claim to resource ownership, patent and copyright protection, government-issued licenses, and significant initial startup costs. It is the only seller of products in the entire market and has no competitors. This market is defined by factors such as sole claim to resource ownership, patent and copyright protection, government-issued licenses, and significant initial startup costs. Monopoly refers to a market condition in which there is only one seller of a product and other sellers face significant hurdles to entry. There are no close equivalents for this product. Every other product has an extremely low cross elasticity of demand. This indicates that no one else makes a product like it. According to D. Salvatore, "Monopoly is the form of market organisation in which there is a single firm selling a commodity for which there are no close substitutes." Thus, the monopoly firm is itself an industry and the monopolist faces the industry demand curve.

The demand curve for his product is, therefore, relatively stable and slopes downward to the right, given the tastes, and incomes of his customers. It means that more of the product can be sold at a lower price than at a higher price. He is a price-maker who can set the price to his maximum advantage.

However, it does not mean that he can set both price and output. He can do either of the two things. His price is determined by his demand curve once he selects his output level. Or, once he sets the price for his product, his output is determined by what consumers will take at that price. In any situation, the ultimate aim of the monopolist is to have maximum profits.

Characteristics of Monopoly

The main features of monopoly are as follows:

1. Under monopoly, there is one producer or seller of a particular product and there is no difference between a firm and an industry. Under monopoly a firm itself is an industry.

2. A monopoly may be individual proprietorship or partnership or joint stock company or a co-operative society or a government company.

3. A monopolist has full control on the supply of a product. Hence, the elasticity of demand for a monopolist's product is zero.

4. There is no close substitute of a monopolist's product in the market. Hence, under monopoly, the cross elasticity of demand for a monopoly product with some other good is very low.

5. There are restrictions on the entry of other firms in the area of monopoly product.

6. A monopolist can influence the price of a product. He is a price-maker, not a price-taker.

7. Pure monopoly is not found in the real world.

8. Monopolist cannot determine both the price and quantity of a product simultaneously.

9. Monopolist's demand curve slopes downwards to the right. That is why, a monopolist can increase his sales only by decreasing the price of his product and thereby maximize his profit. The marginal revenue curve of a monopolist is below the average revenue curve, and it falls faster than the average revenue curve. This is because a monopolist has to cut down the price of his product to sell an additional unit.

Examples of monopolies can be public utilities such as gas, electric, water, cable TV, and local telephone service companies, professional sports teams, DeBeers, and Alcoa. Microsoft settled anti-trust litigation in the U.S. in 2001; fined by the European Commission in 2004 for 497 million Euros which was upheld for the most part by the Court of First Instance of the European Communities in 2007. The fine was 1.35 Billion USD in 2008 for noncompliance with the 2004 rule. Monsanto has been sued by competitors for anti-trust and monopolistic practices. They hold between 70% and 100% of the commercial seed market.Examples of monopolies can be public utilities such as gas, electric, water, cable TV, and local telephone service companies, professional sports teams, DeBeers, and Alcoa. Microsoft settled anti-trust litigation in the U.S. in 2001; fined by the European Commission in 2004 for 497 million Euros which was upheld for the most part by the Court of First Instance of the European Communities in 2007. The fine was 1.35 Billion USD in 2008 for noncompliance with the 2004 rule. Monsanto has been sued by competitors for anti-trust and monopolistic practices. They hold between 70% and 100% of the commercial seed market.

Sources of Monopoly

1. Legal Restrictions: Some public sector services are statutory monopolies, which means their position is protected by law. A monopoly position might also be protected by a patent which prevents other firms from producing an identical good during the life of the patent. However, similar products can often be produced, and it is easy to exaggerate the protection afforded by patents.

2. Capital Costs: Certain businesses, such as international airlines and chemical companies, have relatively high set-up costs. In such cases the minimum efficient scale of production might be very high indeed and this creates a formidable barrier to entry.

3. Natural Factor Endowments: Sometimes firms, within a particular country, between them control a major proportion of the world output of a commodity: nitrates from Chile, coffee from Brazil and gold from South Africa are cases in point. A particular country has a monopoly in the supply of a particular commodity due to natural factor endowments and it is impossible to obtain supply of the commodity from any other source.

4. Tariffs and Quotas: It can happen that a firm has a dominant position in its home country but faces competition internationally. A tariff raises the price of goods imported into the domestic economy and a quota restricts the volume that can be imported. They, therefore, protect domestic industry from international competition.

Price and Output Determination in Short Run

In the short run the monopolist maximizes his short run profits or minimizes his short run losses

if the following two conditions are satisfied:

1. MC = MR and

2. The slope of MC is greater than the slope of MR at the point of their intersection (i.e., MC cuts the MR curve from below)

Figure 6.4: Price and Output Determination in Short Period in Monopoly

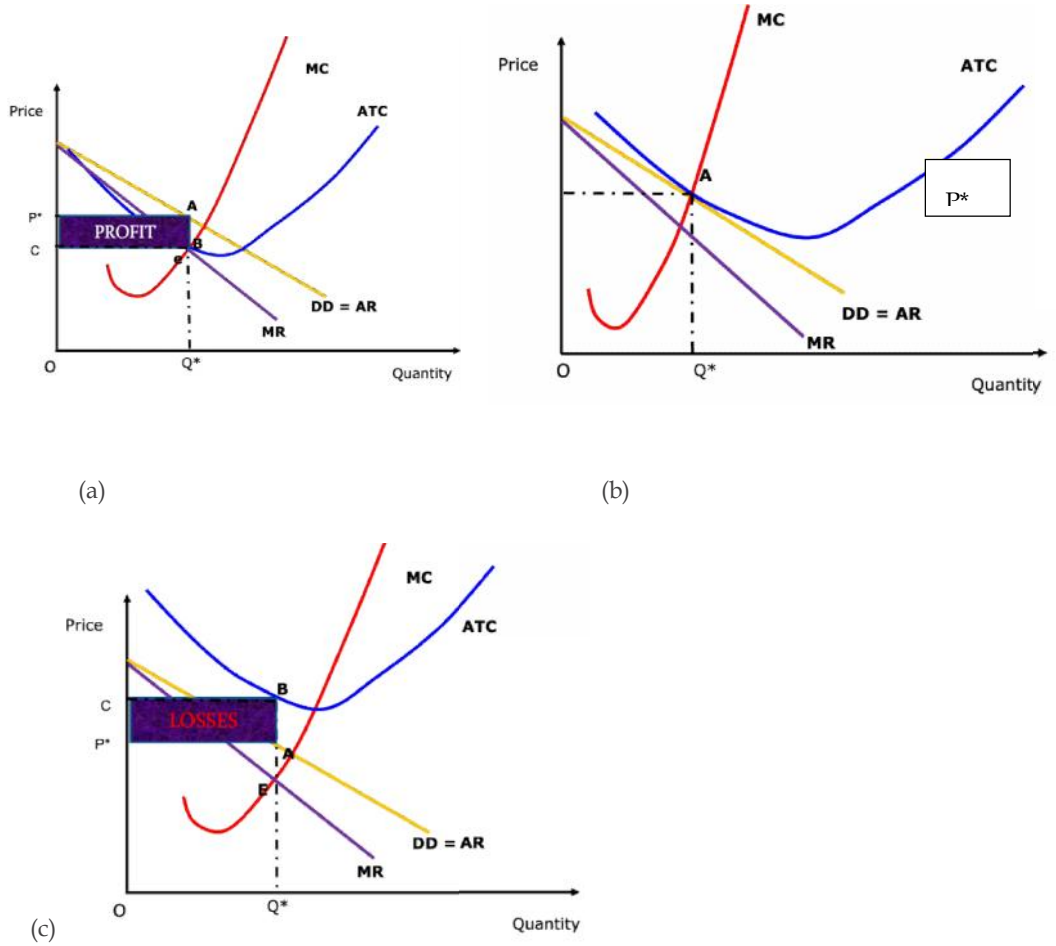


Fig 6.4 shows the price and output determination in monopoly under short period. Part (a) of fig 6.4 shows at tOQ* output, the firm earns economic profit or supernormal profit equal to the shaded area i.e. CP*AB. Thus, *economic profit or supernormal profit* is the profit earned by a monopolist where revenue is greater than cost. Part (b) of the figure 6.4 shows that at OQ*, monopolist is at the break-even or earns normal profit. So, *normal profit or break-even* is earned when revenue equals to cost. Part (c) of fig 6.4 shows that at OQ*, the firm earns economic losses or negative profits equal to the shaded area i.e P*CBA. Thus, *Economic loss or negative profits is* earned by a monopolist when cost is greater than revenue.

Price and Output Determination in Long Run

In the long run, the monopolist has the time to expand his plant or to intensively use his existing plant which will maximise his profits. Since there will be no new entry, it is not necessary for the monopolist to reach an optimal scale. It means that monopolist will not stay in business if he makes losses in the long run. The size of his plant and the degree of utilisation of any given plant size depend entirely on market demand.

Figure 6.5: Price and Output Determination in Long Period in Monopoly

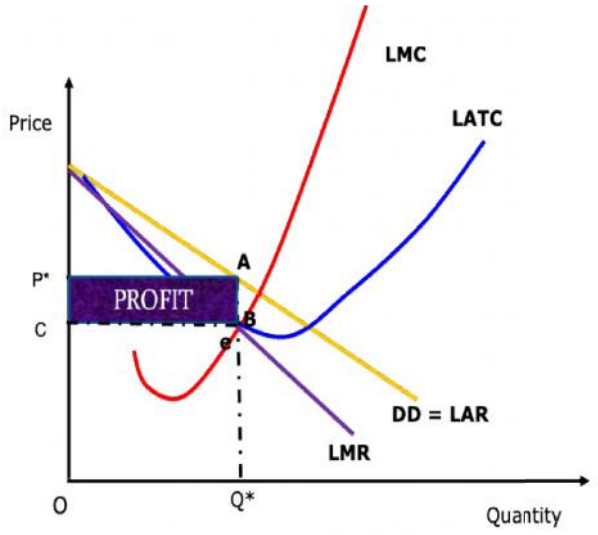


Figure 6.5 shows that a monopoly firm earns economic profits or supernormal profit in the long run to the tune of CP*AB due to the barriers to entry of new firms.

Price Discrimination

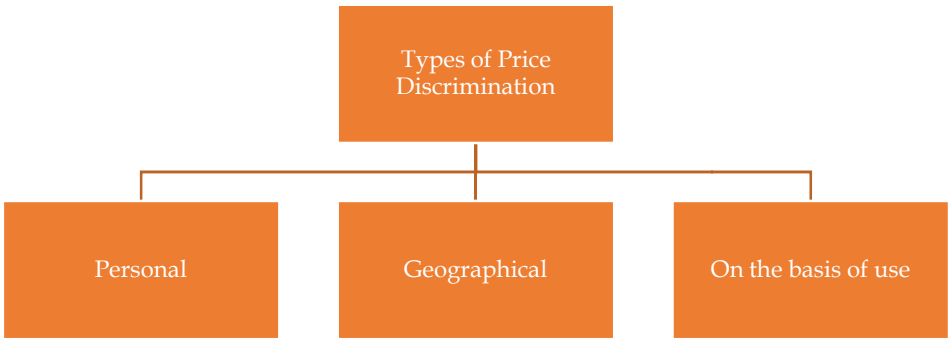
In monopoly, there is a single seller of a product called monopolist. The monopolist has control over pricing, demand, and supply decisions, thus, sets prices in a way, so that maximum profit can be earned.

The monopolist often charges different prices from different consumers for the same product. This practice of charging different prices for identical product is called price discrimination.

According to Robinson, "Price discrimination is charging different prices for the same product or same price for the differentiated product."

Thus, it can be concluded that Price discrimination refers to the selling or charging of different prices by a firm to different buyers for the same product.

Different types of Price Discrimination:



The different types of price discrimination are explained as follows:

i. Personal: When different persons are charged different prices, this is referred to as price discrimination. Different prices are charged depending on the consumer's level of income and willingness to purchase a product. A doctor, for example, may charge different prices to needy and wealthy customers.

ii. Geographical: When a monopolist charges different prices for the same commodity in different locations, this is referred to as price discrimination. Dumping is another term for this form of discrimination.

iii. On the basis of use: When different prices are charged depending on how a product is used. For example, an electrical supply board may charge lower rates for home electricity consumption and higher rates for commercial usage.

Necessary Conditions for Price Discrimination

1. **Existence of monopoly power**: Implies that a supplier can discriminate prices only when there is monopoly. The degree of the price discrimination depends upon the degree of monopoly in the market.

2. **Existence of different markets for the same**: Implies that there must be two or more markets that can be easily separated for discriminating prices. The buyer of one market cannot move to another market and goods sold in one market cannot be resold in another market.

3**. Existence of different degree of elasticity of demand***:* Implies that the elasticity of demand in the markets should differ from each other. In markets with high elasticity of demand, low price will be charged, whereas in markets with low elasticity of demand, high prices will be charged. Price discrimination fails in case of markets having same elasticity- of demand.

4**. Cost of separating market must be low**:With price discrimination, the company looking to make the sales identifies different market segments, such as domestic and industrial users, with different price elasticities. Markets must be kept separate by time, physical distance, and nature of use.

5. No resale: implies that product purchased in the low-priced market should not be resold in the high-priced market

6. Legal sanction: implies that government allows the public utility firms such as electricity to charge different prices from different consumers

6.5 Degree of Price Discrimination

There are three types or degrees of price discrimination i.e first-degree or perfect price discrimination, second-degree, and third-degree. These degrees of price discrimination are also known as personalized pricing (1st-degree pricing), product versioning or menu pricing (2nd-degree pricing), and group pricing (3rd-degree pricing).

First-degree Price Discrimination

First-degree discrimination, or perfect price discrimination, occurs when a business charges the maximum possible price for each unit consumed. Because prices vary among units, the firm captures all available consumer surplus for itself, or the economic surplus. Many industries

involving client services practice first-degree price discrimination, where a company charges a different price for every good or service sold.

Second-degree Price Discrimination

Second-degree price discrimination occurs when a company charges a different price for different quantities consumed, such as quantity discounts on bulk purchases.

Third-degree Price Discrimination

Third-degree price discrimination occurs when a company charges a different price to different consumer groups. For example, a theatre may divide moviegoers into seniors, adults, and children, each paying a different price when seeing the same movie. This discrimination is the most common.

6.6 Monopolistic Competition

Monopolistic competition has an element of product differentiation. We can define a monopolisticcompetitive market as a market in which there are a large number of firms and the products in themarket are close but not perfect substitute. The real world is widely populated by monopolisticcompetition. Perhaps half of the economy's total production comes from monopolisticallycompetitive firms. The best examples of monopolistic competition come can be retail trade,including restaurants, clothing stores, and convenience stores.

Features of Monopolistic Competition

Monopolistic competition is a form of market structure in which a large number of independentfirms are supplying products that are slightly differentiated from the point of view of buyers.Thus, the products of the competing firms are close but not perfect substitutes because buyers donot regard them as identical. This situation arises when the same commodity is being sold underdifferent brand names, each brand being slightly different from the others. For example, Lux,Liril, Rexona, Hamam, etc., are brands of toilet soap, or Colgate, Cibaca, Prudent, Promise, etc.,brands of toothpaste.As a result, under monopolistic competition, the demand or average revenue curve of anindividual firm is a gradually falling curve. It is highly elastic but not perfectly so. Therefore,the marginal revenue curve of the firm is also falling and lies below the average revenue curveat all levels of output. It is in this respect that monopolistic competition differs from perfectcompetition.

In addition to product differentiation, the other three basic characteristics of monopolisticcompetition are:

1. There are a large number of independent sellers (and buyers) in the market.

2. The relative (proportionate) market shares of all sellers are insignificant and more or lessequal. That is, seller concentration in the market is almost non-existent.

3. There are neither any legal nor any economic barriers against the entry of new firms intothe market. New firms are free to enter the market and existing firms are free to leave themarket.

In other words, product differentiation is the only characteristic that distinguishes monopolistic

Competition from perfect competition.Firms selling slightly differentiated products under different brand names compete not onlythrough variations in price but also through variations in product quality (product variation)and changes in advertising or selling costs. Thus, under monopolistic competition, an individualfirm has tomaximize profits in relation to variations in three policy variables, namely, price,product quality, and selling costs. (In contrast, under perfect competition there is competition only through price variation)

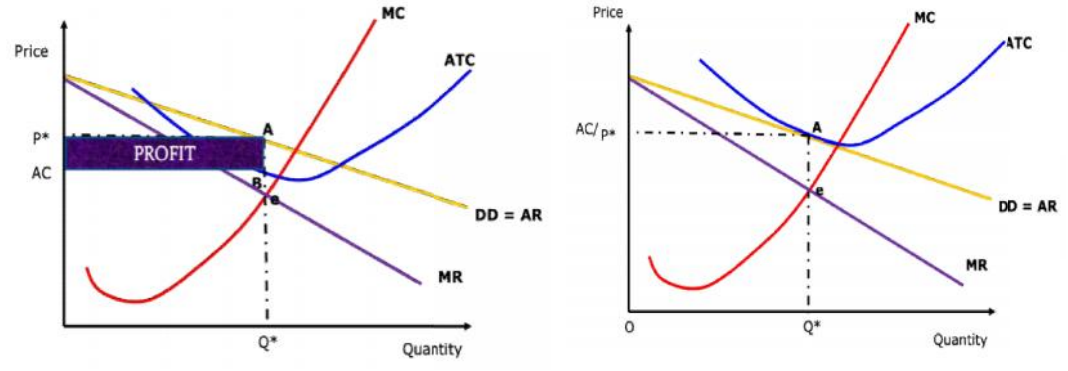
We find many examples of monopolistic competition in real world. The bestexamples can be found in retail trade. As we know the main characteristics for this type of marketsituation is that there are many producers and many customers for the services/products, yetno company has control over the market price, consumers understand that there are non-pricedifferences among the competitors' products, and there are very few barriers to enter and exitfrom the market.Food and Beverage (Restaurant) industry is an example of monopolistic competition, especiallyin the fast-food industry in which all services are basically the same, but are marketed differently,and there exists a perception that some fast food restaurants must be better than others.

Toothpaste and soap manufacturers often engage in monopolistic competition practices. Ratherthan changing the products themselves, producerschange the packaging, the design, or simplyclaim through advertising that their product is best.

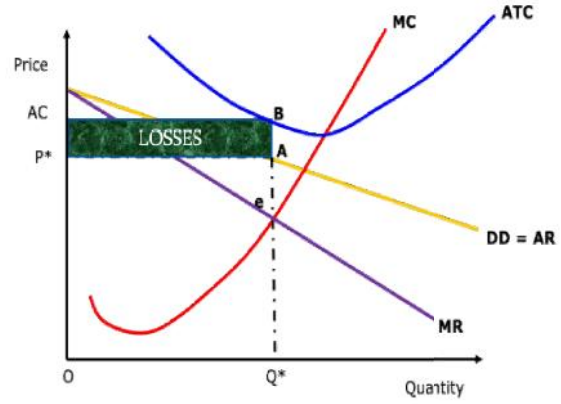
Short-run and Long Run Equilibrium of a Firm

When firms are competing only through price changes, there are three situations of short-runequilibrium of a typical firm under monopolistic competition

Figure 6.6: Price and Output Determination in Short Period in Monopolistic Competition



(a) (b)



(c)

Fig 6.6 part (a) shows that the profit maximization level occurs where MR curve and MC curve intersects at Point e. Now in order to find the price, we use the same vertical line with output upto the demand curve. The profit maximizing price and output is P* and Q*. Economic profit or supernormal profit is the profit earned by a monopolist competitive firm when TR > TC. At this output, the firm earns economic profit or supernormal profit equal to the shaded area. Shaded area

is the diff between revenue and cost. Therefore, the firm earns supernormal profit of CP*AB. Part (b) shows the profit maximization level occurs where MR curve and MC curve intersects at Point e. The profit maximizing price and output is P* and Q*. Normal profit or break-even is earned when revenue equal to costs. At this output, monopolistic competitive firm is at the break-even or earns normal profit. Part (c) of the figure shows that the profit maximization level occurs where MR curve and MC curve intersect at Point e. The profit maximizing price and output is P* and Q*.Economic losses or subnormal profit is the losses incurred by a monopolistic competitive firm when revenue is less than cost. At this output, monopolist suffers economic losses or subnormal profit equal to the shaded area of P*CBA.

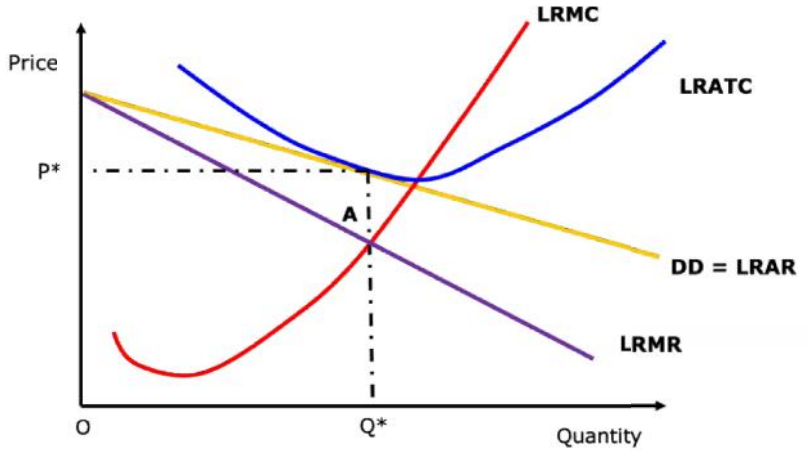


Figure 6.7: Price and Output Determination in Long Period in Monopolistic Competition

In the long run a monopolistic competitive firm earns normal profit in the long run due to free entry and exit. The reason behind this is thatif the competitive firms in an industry earn an economic profit, then other firms will enter the same industry, which will reduce the profits of the other firms. More firms will continue to enter the industry until the firms are earning only a normal profit. However, if there are too many firms, then firms will incur losses, especially the inefficient ones, which will cause them to leave the industry. Consequently, the remaining firms will return to normal profitability. Hence, the long-run equilibrium for monopolistic competition will equate the market price to the average total cost, where marginal revenue = marginal cost, as shown in the figure 6.7.

Oligopoly

Oligopoly is a situation in which only a few firms (sellers) are competing in the market for a particular commodity. On reading this unit you will see that the structure of oligopoly is different from that of the three market structures we have discussed till now. The distinguishing characteristics of oligopoly are such that neither the theory of monopolistic competition nor the theory of monopoly can explain the behaviour of an oligopolistic firm. But speaking generally, you will find that an oligopoly is much like a monopoly, in which only one company exerts control over most of a market. In an oligopoly, there are at least two firms controlling the market. The retail gas market is a good example of an oligopoly because a small number of firms control a large majority of the market.

Thus, Oligopoly is a market situation in which there are a few firms selling homogeneous or differentiated products. It is difficult to pinpoint the number of firms in 'competition among the few.' With only a few firms in the market, the action of one firm is likely to affect the others. An oligopoly industry produces either a homogeneous product or heterogeneous products. The former is called pure or perfect oligopoly and the latter is called imperfect or differentiatedoligopoly. Pure oligopoly is found primarily among producers of such industrial products asaluminium, cement, copper, steel, zinc, etc. Imperfect oligopoly is found among producers of suchconsumer goods as automobiles, cigarettes, soaps and detergents, TVs, rubber tyres, refrigerators,typewriters, etc.

Features of Oligopoly

The features of Oligopoly are briefly explained as under:

1. Under oligopoly the number of competing firms being small, each firm controls an important proportion of the total (industry) supply. Consequently, the effect of a change in the price or output of one firm upon the sales of its rival firms is noticeable and not insignificant. When any firm takes an action, its rivals will in all probability react to it (i.e., retaliate). The behavior of oligopolistic firms is interdependent and not independent or atomistic as is the case under perfect or monopolistic competition.

2. The demand curve of an individual firm under oligopoly is not known and is indeterminate because it depends upon the reaction of its rivals which is uncertain. Each theory of oligopoly therefore makes a specific assumption about how rivals will (or will not) react to an individual firm's action.

3. In view of the uncertainty about the reaction of rivals and interdependence of behavior, oligopolistic firms find it advantageous to coordinate their behavior through explicit agreement (cartel) or implicit, hidden, understanding (collusion). Also, because the number of firms is small, it is feasible for oligopolists to establish a cartel or collusive arrangement. However, it is difficult as well as expensive to monitor and enforce an agreement or understanding. Very few cartels last long, particularly when oligopolistic firms significantly differ in their cost conditions.

4. Under oligopoly, new entry is difficult. It is neither free nor barred. Hence the condition of entry becomes an important factor determining the price or output decisions of oligopolistic firms and preventing or limiting entry an important objective.

5. Given the indeterminacy of the individual firm's demand and, therefore, the marginal revenue curve, oligopolistic firms may not aim at maximization of profits.

Oligopolies may include the markets for petrol in the UK (BP, Shell and a few other firms) and soft drinks (such as Coke, Pepsi, and Cadbury-Schweppes). The accountancy market is controlled by PricewaterhouseCoopers, KPMG, Deloitte, and Ernst &Young (commonly known as the Big Four). Three leading food processing companies, Kraft Foods, PepsiCo and Nestle, together achieve alarge proportion [indistinct] of global processed food sales. These three companies are often used as an example of "Rule of three", which states that markets often become an oligopoly of three large firms.

Kinked Demand Curve

According to Sweezy, the most distinguishing feature of oligopoly is that an individual firm does not know (and cannot determine) the exact nature (functional form) of its actual demand curve because of the uncertainty and indeterminacy of rivals' reactions to its own actions. An oligopolistic firm is therefore guided in its decisions by the 'imagined' demand curve which is based on what it expects to be the most likely (probable) reaction of its rivals. Under oligopoly, a firm expects that when it raises its price, it is most likely that rival firms will not follow suit by raising their prices. Instead, the rivals will keep their prices constant in order to increase their sales at the expense of the firm that raises the price. Hence, when a firm increases its price, its demand is expected to fall much more than it would if its rivals were not to keep their prices constant. That is, for upward changes in price, a firm's demand is expected to be highly elastic. In contrast, when the firm lowers its product price, it is most likely that its rivals will follow suit because if they did not do so they would lose sales to the firm that lowered the price. Hence, when a firm reduces its price, its demand is expected to increase much less than would otherwise have been the case (because its rivals will also reduce their prices). That is, for downward changes in the price, a firm's demand curve is expected to be less elastic than it would have been had the firm's rivals not followed suit by reducing their prices.

Consequently, for an oligopolistic firm, the demand curve is highly elastic and gradually falling for prices above the current or existing price, and for prices below the current price the demand curve is less elastic and steeply falling.

Because of the differences in elasticity (and slope) at prices above and below the current price, the demand curve of the firm has a corner or a kink at the current or existing price.

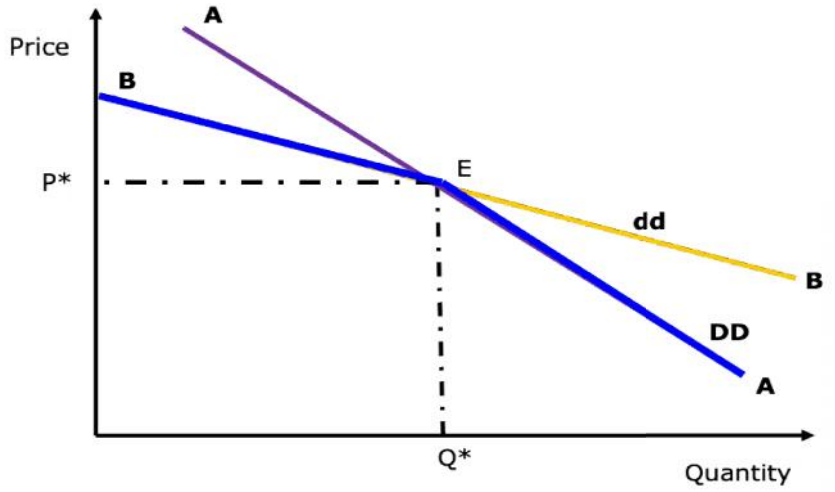


Fig 6.8: Kinked Demand Curve

In Figure 6.8 'dd' and 'DD' are the perceived and proportional demand curve respectively. The **perceived curve** illustrates the seller's expectations for the product when he reduces the price for his product while other sellers keep their price constant for the same product.

The **proportional curve** illustrates the seller's expectations for hisproduct when hereduces the price for his product when all competing sellers including him charge the same price for the same product or follow matching price changes.

The fig 6.8 reveals that the firm's demand curve is BEA, which has a kink or corner at current priceP* and output OQ*. The upward segment EB is relatively more elastic than the downward segmentEB. That is, if e1 shows the elasticity of EB and e2 shows the elasticity of EA then e1 is > e2. Thus, Above the kink, demand is relatively elastic because all other firms' prices remain unchanged. Below the kink, demand is relatively inelastic because all other firms will introduce a similar price cut, eventually leading to a price war. Therefore, the best option for the oligopolist is to produce at point E which is the equilibrium point and the kink point.

Summary of Market Structure

Characteristics	Perfect competition	Monopoly	Monopolistic competition	Oligopoly
Number of sellers	Large	One	Many	Few
Type of product	Identical or homogenous	Unique or no close substitution	Differentiated	Homogenous or differentiated
Entry condition	Very easy	Impossible	Easy	Difficult
Control over price	None	Some	Some	Considerable
Examples	Wheat, corn	Railways	Food, clothing	Automobiles, cigarettes
Profit maximization	MR = MC	MR = MC	MR = MC	MR = MC
Short run	Subnormal,	Subnormal,	Subnormal,	Subnormal,

equilibrium	supernormal or normal profit	supernormal or normal profit	supernormal or normal profit	supernormal or normal profit
Long run equilibrium	Normal profit due to free entry and exit	Supernormal profit because of barriers to entry	Normal profit due to free entry and exit	Supernormal profit because of barriers to entry
Shut down	S/run: AR<AVC L/run: AR< AC	S/run AR<AVC L/run: AR< AC	S/run: AR<AVC L/run: AR< AC	S/run: AR<AVC L/run: AR< AC
Short run equilibrium	Subnormal, supernormal or normal profit	Subnormal, supernormal or normal profit	Subnormal, supernormal or normal profit	Subnormal, supernormal or normal profit

Summary

- In theory, perfect competition implies no rivalry among firms.
- In a perfectly competitive market structure, there is a large number of buyers and sellers of the product, and the product is homogeneous.
- There is free mobility of factors of production and the buyers and sellers have perfectknowledge of the market.
- In the short run the best level of output of the firm is the one at which the firm maximizes profits or minimizes losses. This is possible at P = MR = MC. The point at which the firm covers its variable costs is called "the closing down point"
- In the case of monopoly one firm constitutes the whole industry.
- There must be a single producer or seller of a product and the product has no close substitute.
- In the short run the monopolist maximises his short run profits or minimises his short run losses if the following two conditions are satisfied: (i) MC = MR and (ii) The slope of MC is greater than the slope of MR at the point of their intersection.
- In the long run, the monopolist has the time to expand his plant or to intensively use his existing plant which will maximise his profits.
- Monopolistic competition is a form of market structure in which a large number of independent firms are supplying products that are slightly differentiated.
- When firms are competing only through price changes, there are three cases of long run equilibrium of a typical firm under monopolistic competition.
- The long run equilibrium can be seen under three situations: when competition takes place only through the entry of new firms, when competition takes place only through price variations and when competition arises through price variation and new entry.
- Advertising is commonly used by firms operating under monopolistic competition as a way to create product differentiation and thus to acquire some degree of market control and thus charge a higher price by a change in any non-price determinant of supply.

- The curve can shift to the right or left. The cross elasticity of demand is a numerical measure of the degree to which quantity demanded of a good respond to changes in the prices of other commodities, the other determinants of demand being kept constant.
- Oligopoly is a situation in which only a few firms (sellers) are competing in the market for a particular commodity.
- Under oligopoly, each firm controls an important proportion of the total supply. The demand curve of an individual firm under oligopoly is not known and is indeterminate.

Keywords

- Equilibrium: Condition when the firm has no tendency either to increase or to contract its
- output.
- Homogeneous products: The product of an industry in which the outputs of different firms are
- indistinguishable
- Perfect competition: A market structure characterized by a complete absence of rivalry amongthe individual firms.
- Perfect mobility: The absence of any barriers to movement of factors of production
- Monopoly: Existence of a single producer or seller which is producing or selling a product whichhas no close substitutes.
- Perfect competition: A market structure characterized by a complete absence of rivalry among the individual firms.
- Monopolistic competition: the form of imperfect competition that exists when there are manyproducers or sellers of similar but differentiated goods or services.
- Product differentiation: Differences among competing products.
- Kinked demand curve: A bend in a standard demand curve that is a result of competitorsdecreasing their prices to match each other's, but not raising them to achieve the same effect.
- Oligopoly: A situation in which few firms are competing in the market for a particularcommodity

Self Assessment

1. In which kind of market, a firm is a price-taker?

A. Perfect Competition
B. Monopoly
C. Monopolistic competition
D. Oligopoly

2. Under perfect competition 'Average Revenue' and 'Marginal Revenue' are indicated by:

A. A vertical straight line
B. A common horizontal straight line
C. A common rectangular hyperbola
D. Different lines sloping downward

3. If the demand curve of a firm is a horizontal straight line:

A. Firms can differentiate their product

B. A firm can sell only a specified amount at any existing price

C. A firm will sell equal amount of a commodity

D. A firm can sell any amount at the existing price

4. If a firm sells its output on a market that is characterized by a single seller and many buyers of a homogeneous product for which there are no close substitutes and barriers to long-run resource mobility, then the firm is:

A. A monopolist

B. An oligopolist

C. A perfect competitor

D. A monopolistic competitor

5. When a perfectly competitive industry is in long-run equilibrium, all firms in the industry

A. Earn zero economic profits

B. Produce a level of output where short-run marginal cost is equal to short-run average total cost

C. Produce a level of output where long-run marginal cost is equal to long-run average cost.

D. All of the above are correct

6. If a firm sells its output on a market that is characterized by many sellers and buyers, a differentiated product, and unlimited long-run resource mobility, then the firm is

A. A monopolist

B. An oligopolist

C. A perfect competitor

D. A monopolistic competitor

7. Which of the following types of firms is likely to be a monopolistic competitor?

A. A local telephone company

B. An automobile manufacturer

C. A restaurant

D. All of the above are likely to be monopolistic competitors.

8. Charging different prices from different buyers for the same good is called:

A. Price extension

B. Price contraction

C. Price control

D. Price discrimination

9. Compared with monopolistic competition, a firm's demand curve under monopoly is:

A. Equally elastic

B. Less elastic

C. More elastic

D. Infinitely elastic

10. Which characteristic of monopolistic competition is compatible with monopoly?

A. Demand curve slopes downward.
B. One seller large number of buyers.
C. Full control over price.
D. Freedom of entry and exit.

11. The market for automobiles is an example of

A. Monopolistic competition
B. Duopoly
C. Differentiated oligopoly
D. None of the above

12. The refrigerator industry is an example of

A. Monopolistic competition
B. Monopoly
C. Perfect competition
D. Oligopoly

13. Oligopolistic firms can earn positive economic profits

A. In the short run, but not in the long run
B. In the short run and in the long run
C. In the long run, but not in the short run
D. In neither the short run nor the long run

14. In which of the following forms of market, there is restricted entry of the firms

A. Perfect competition
B. Monopolistic competition
C. Oligopoly
D. None of the above

15. The kinked demand curve theory assumes

A. Firms cooperate
B. Firms are competitive
C. Firms act as a part of cartel
D. Firms are not profit maximisers

Answer for Self Assessment

1.	A	2.	B	3.	D	4.	C	5.	D
6.	D	7.	C	8.	D	9.	B	10.	A
11.	C	12.	D	13.	B	14.	C	15.	B

Review Questions

1. What are the differences between perfect competition and monopolistic competition?

2. Explain the differences between monopoly and monopolistic competitive firms.

3. Discuss why the demand curve in an oligopoly is kinked.

4. Why does a monopolistic competitive earn normal profits in the long run?

5. List the characteristics of an oligopoly and explain the barriers to entry.

6. Discuss the short-run equilibrium conditions of a firm under monopolistic competition.

7. Briefly differentiate the characteristics of monopoly with monopolistic competition.

8. Explain why the demand for a competitive firm is perfectly elastic.

9. What will happen to the demand curve of a perfectly competitive firm if:

(a) new sellers are attracted to the industry by the existence of supernormal profits?

(b) there is an increase in market demand for the firm's output?

10. Assume that firms in the short run are earning above normal profits. Explain what will happen to these profits in the long run for a market having perfect competition.

Further Readings

- Dr. Atmanand, Managerial Economics, Excel Books, Delhi.
- G.S. Maddala, Microeconomics: Theory and Application, Tata McGraw-Hill
- N. Gregory Mankiw, Principles of Microeconomics, Harcourt College Publications
- Samuel Bowles, Microeconomics: Behavior, Institutions and Evolution, Oxford
- Jeffrey M. Perloff, Microeconomics, Pearson Education
- Robert S. Pindyck, Microeconomics, Pearson Education
- Sampat Mukherjee, Microeconomics, Prentice Hall

Web Links

http://ayushveda.com/blogs/business/perfect-competition-the-root-of-market-analysis/
http://tutor2u.net/economics/content/topics/competition/competition.htm
http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=perfect+competition
http://www.buzzle.com/articles/perfect-competition-characteristics.html
http://alpha.fdu.edu/~koppl/note19.htm
http://tutor2u.net/blog/index.php/economics/C180/
http://www.ehow.com/about_6601606_monopoly-economics_.html

Unit 07: Production Analysis

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the meaning of production
- identify the different factors of production in order to produce one unit of output
- differentiate between short run production function and long run production function
- identify the techniques and technology involved in production
- understand the production function with one factor input
- Identify different stages of production and the reasons behind it.
- understand the production strategy undertaken by the entrepreneurs depending upon the time period.
- learn and discuss the production function with two factor inputs

Introduction

The production analysis of the firm brings into focus the process of production and related costsof production. We must take inputs into consideration applied for production and resultinginto output. There are different methods to produce a commodity. The firm has to identify thetechnically efficient production processes for avoiding any wastage of resources. These technicallyefficient production processes provide a choice for choosing the least-cost process.Major portion of goods and services consumed in a modern economy are produced by firms. Afirm is an organization that combines and organizes resources for the purpose of producing goodsand

services for sale at a profit. The most important reason for a firm or business enterprises existis that firms are specialized organization devoted to managing the process of production

7.1 Meaning of Production and Types of Inputs used in Production

Production refers to the transformation of inputs or resources into outputs or goods and services. Production is a process in which economic resources or inputs (composed of natural resources like labor, land and capital equipment) are combined by entrepreneurs to create economic goods and services (outputs or products).

Firms are required to take different but interrelated production decisions like:

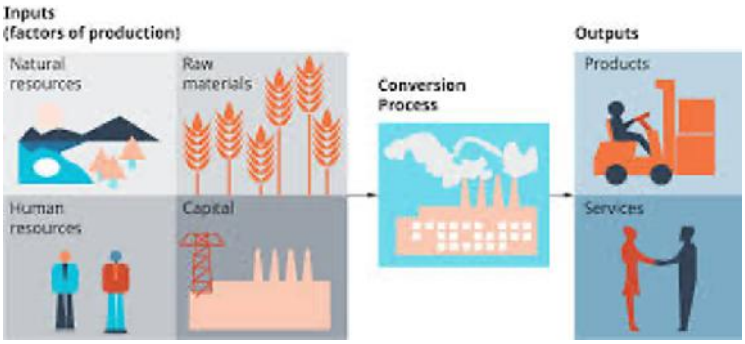
1. Whether or not to actually produce or shut down?

2. How much to produce?

3. What input combination to use?

4. What type of technology to use?

Figure 7.1: Production Process



In fact, production theory is just an application of constrained optimization technique. The firm tries either to minimize cost of production at a given level of output or maximize the output achievable with a given level of cost.

Figure 7.1 shows that inputs are the resources used in the production of goods and services and are generally classified into three broad categories – labour, capital and land or natural resources. They may be fixed or variable. Fixed Inputs are those that cannot be quickly changed during the time period under consideration except, perhaps at a very great expense, (e.g., a firms' plant).Variable Inputs are those that can be changed easily and on very short notice (e.g., most raw materials and unskilled labour).

The time period during which at least one input is fixed is called the short run, while the time

period when all inputs are variable is called, the long run. The length of the long run depends on the type of industry, e.g., the long run for a dry-cleaning business may be a few weeks or months. Generally, a firm operates in the short run and plans increases or reductions in its scale. of operation in the long run. In the long run, technology generally improves so that more output can be obtained from a given quantity of inputs, or the same output can be obtained from fewer inputs.

Production Function

A production function is a function that specifies the output of a firm, an industry, or an entire economy for all combinations of inputs. In other words, it shows the functional relationship between the inputs used and the output produced.

Mathematically, the production function can be shown as:

Q = f (X1, X2 .....XK)

Where,

Q = Output,

X1..... XK = Inputs used.

For purposes of analysis, the equation can be reduced to two inputs X and Y. Restating,

Q = f (X, Y)

where,

Q = Output

X = Labour

Y = Capital

A more complete definition of production function can be, "A production function defines the relationship between inputs and the maximum amount that can be produced within a given period of time with a given level of technology". A production function can be stated in the form of a table, schedule or mathematical equation.

But before doing that, two special features of a production function are given below:

1. Labour and capital are both unavoidable inputs to produce any quantity of a good, and

2. Labour and capital are substitutes to each other in production

Before further discussion it is necessary to conceptualize three terms: total product, averageproduct and marginal product.

1. Total product is the total quantity produced by that many units of a variable factor(i.e., labour). For example, if on a farm 2000 Kg. of wheat were produced by 10 men, thetotal product would be 2000 Kg.

2. Average product is the total output divided by the number of units of the variable factor(or the number of men). Thus AP = TP/L. On the same farm, the average product wouldbe 2000/10 = 200 Kg.

3. Marginal product is the change in total output resulting from the change (using one more or one less unit) of the variable factor. If an eleventh man is now added to this farm and the output rose to 2,100 Kg, the marginal product (of labour) would be 100 Kg. Thus, MP = d(TP)/ dL

For a two-input production process, the Total Product of Labour (TP_L) is defined as the maximum rate of output coming up from combining varying rates of labour input with a fixed capital input

(K). (Note: A bar over K or over any other variable means, that variable has been fixed, and therefore is no more variable)TP_L = f (K,L)and total product of capital function is TP_L = f (K,L).

Marginal Product (MP) is the change in output per unit change in the variable input. Thus the

Marginal product of labour and capital is

$$MP_L = \frac{\Delta Q}{\Delta L}$$

$$MP_K = \frac{\Delta Q}{\Delta K}$$

By holding capital constant at one unit (K = 1) and increasing units oflabour used from 0 to 6 units, we get total product of labour as in column (2) below inTable

(1) Labour (No. of workers)	(2) Output or TP	(3) MP of Labour	(4) AP of Labour
0	0	-	-
1	3	3	3
2	8	5	4
3	12	4	4
4	14	2	3.5
5	14	0	2.8
6	12	-2	2

Marginal Product of Labour (MPL) is the change in total product or extra output per unit change in labour used. Average Product of Labour (APL) equals total product divided by the quantity of Labour used.

$$MP_L = \frac{\Delta TP}{\Delta L}$$

$$AP_L = \frac{TP}{L}$$

Technique and technology, stages of production

A fundamental issue in developing country planning is deciding between alternative production approaches. This is because a given manufacturing strategy has an impact on both the size of employment and the rate of economic growth. A commodity can be produced via a variety of ways, each of which differs in terms of the quantity of capital required.To put it another way, the various methodologies differ in terms of capital intensity, which is assessed by the magnitude of the capital-labor ratio (K/L).

As a result, the higher the capital intensity, the more capital will be utilised to achieve a comparable amount of production in comparison to labour.On the other side, the lower the capital intensity, the more jobs are created for labour. As a result, decreased capital intensity equals increased labourintensity. As a result, in labor-scarce emerging countries, it is widely assumed that labor-intensive (i.e., less capital-intensive) practices should be favoured for rapid job creation.

7.2 Short- Period Production Function and Long Period Production Function

The time period in which some factors of production are fixed while some factors of production are variable, is known as short period. It explains the technical relationship between outputs and inputs in the short run. The fixed factor is land and the variable factor is capital. It is also known as Variable proportions type production function.

Basis of Difference	Short Period Production Function	Long Period Production Function
MEANING	It explains the technical relationship between outputs and inputs in the short run.	It explains the technical relationship between inputs and outputs in the long run.
KNOWN AS	The short period production function is also known as variable proportions type production function as in this the capital- labour ratio changes.	The long period production function is also known as constant proportions type production function as in this capital- labor ratio remains constant and do not change.
LAW APPLICABLE	The short run production function can be explained with the help of Law of returns to factor.	The long run production function can be explained with the help of Law of Returns to scale.

CURVE	The curve of short period production function is straight line parallel to horizontal axis.	The curve of long run production function is upward sloping curve.
NATURE OF FACTORS	In this, One factor 'land' is fixed and other factor 'labour' is variable.	In this, both factors are variable.

Short run the production function can be written as:

Q =ä(K , L)

Where: Q = Output

L = Labour

K = Capital (fixed)

7.3 Law of variable Proportions

The law of variable proportions states that as the quantity of one factor is increased, keeping the other factors fixed, the marginal product of that factor will eventually decline. This means that up to the use of a certain amount of variable factor, marginal product of the factor may increase and after a certain stage it starts diminishing. When the variable factor becomes relatively abundant, the marginal product may become negative.

Law of Variable Proportions is also known as 'Law of Returns' or 'Law of Returns to Factor' or 'Returns to Variable factor' or ***Law of Diminishing Returns***According to Stigler, "As equal increments of one input are added, the inputs of other productive services being held constant, beyond a certain point, the resulting increments of produce will decrease i.e., the marginal product will diminish".

Assumptions of the Law

1. Constant Technology: First, the state of technology is assumed to be given and unchanged. If there is improvement in the technology, then the marginal product may rise instead of diminishing.

2. Fixed amount of some factors: Secondly, there must be some inputs whose quantity is kept fixed. It is only in this way that we can alter the factor proportions and know its effects on output. The law does not apply if all factors are proportionately varied.

3. Possibility of varying factor proportions: Thirdly, the law is based upon the possibility of varying the proportions in which the various factors can be combined to produce a product. The law does not apply if the factors must be used in fixed proportions to yield a product.

Illustration of the Law: The law of variable proportion is illustrated in the following table and figure. Suppose there is a given amount of land in which more and more labour (variable factor) is used to produce wheat.

Capital (Fixed input)	Labour (Variable input)	Total Product	Marginal Product	Average Product	Stages of Production
10	0	0	0	0	STAGE I
10	1	8	8	8	
10	2	20	12	10	
10	3	33	13	11	
10	4	44	11	11	
10	5	50	6	10	STAGE II
10	6	54	4	9	
10	7	56	2	8	
10	8	56	0	7	
10	9	54	-2	6	STAGE III
10	10	50	-4	5	

MP = 54 - 56

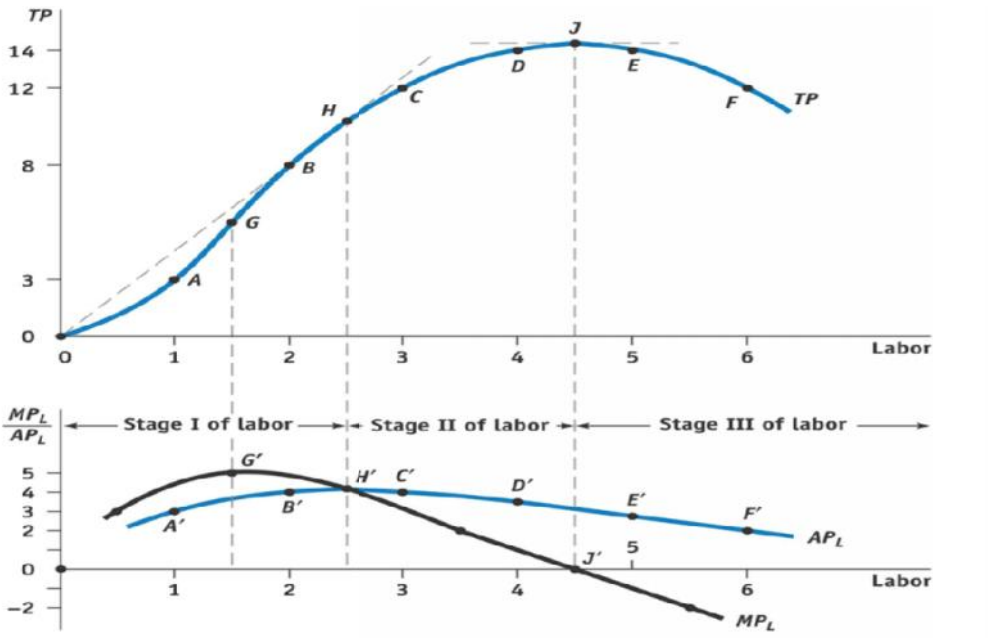
9 - 8

AP = 56

8

= 7

7.4 Stages of Production Function



Three Stages of the Law of Variable Proportions :These stages are illustrated in the following figure where labour is measured on the X-axis and output on the Y-axis.

Stage 1: Stage of Increasing Returns: In this stage, total product increases at an increasing rate up to a point. This is because the efficiency of the fixed factors increases as additional units of the variable factors are added to it. In the figure, from the origin to the point G, slope of the total product curve TP is increasing i.e. the curve TP is concave upwards up to the point G, which means that the marginal product MP of labour rises. The point G where the total product stops increasing at an increasing rate and starts increasing at a diminishing rate is called the point of inflection. Corresponding vertically to this point of inflection marginal product of labour is maximum, after which it diminishes. This stage is called the stage of increasing returns because the average product of the variable factor increases throughout this stage. This stage ends at the point where the average product curve reaches its highest point.

Stage 2: Stage of Diminishing Returns: In this stage, total product continues to increase but at a diminishing rate until it reaches its maximum point J where the second stage ends. In this stage both the marginal product and average product of labour are diminishing but are positive. This is because the fixed factor becomes inadequate relative to the quantity of the variable factor. At the end of the second stage, i.e., at point J' marginal product of labour is zero which corresponds to the maximum point J of the total product curve TP. This stage is important because the firm will seek to produce in this range.

Stage 3: Stage of Negative Returns: In stage 3, total product declines and therefore the TP curve slopes downward. As a result, marginal product of labour is negative and the MP curve falls below the X-axis. In this stage the variable factor (labour) is too much relative to the fixed factor.

7.5 Reasons for Law of Variable Proportions

The various reasons for three phases of law of variable proportions are:

a) Reasons for Increasing Returns to a Factor (Phase 1):There are three important reasons for the operation of increasing returns to a factor:

1. Better Utilization of the Fixed Factor:

In the first phase, the supply of the fixed factor (say, land) is too large, whereas variable factors are too few. So, the fixed factor is not fully utilised. When variable factors are increased and combined with fixed factor, then fixed factor is better utilised and output increases at an increasing rate.

2. Increased Efficiency of Variable Factor:

When variable factors are increased and combined with the fixed factor, then former is utilised in a more efficient manner. At the same time, there is greater cooperation and high degree of specialization between different units of the variable factor.

3. Indivisibility of Fixed Factor:

Generally, the fixed factors which are combined with variable factors are indivisible. Such factors cannot be divided into smaller units. Once an investment is made in an indivisible fixed factor, then addition of more and more units of variable factor, improves the utilisation of fixed factor. The

increasing returns apply as long as optimum level of combination between variable and fixed factor is achieved.

b) Reasons for Diminishing Returns to a Factor (Phase 2):The main reasons for occurrence of diminishing returns to a factor are:

1. Optimum Combination of Factors:

Among the different combinations between variable and fixed factor, there is one optimum combination, at which total product (TP) is maximum. After making the optimum use of fixed factor, the marginal return of variable factor begins to diminish. For example, if a machinery (fixed factor) is at its optimum use, when 4 labours are employed, then addition of one more labour will increase TP by very less amount and MP will start diminishing.

2. Imperfect Substitutes:

Diminishing returns to a factor occurs because fixed and variable factors are imperfect substitutes of one another. There is a limit to the extent of which one factor of production can be substituted for another.

For example, labour can be substituted in place of capital or capital can be substituted in place of labour till a particular limit. But, beyond the optimum limit, they become imperfect substitutes of one another, which leads to diminishing returns.

c) Reasons for Negative Returns to a Factor (Phase 3):The main reasons for occurrence of negative returns to a factor are:

1. Limitation of Fixed Factor:

The negative returns to a factor apply because some factors of production are of fixed nature, which cannot be increased with increase in variable factor in the short run.

2. Poor Coordination between Variable and Fixed Factor:

When variable factor becomes too excessive in relation to fixed factor, then they obstruct each other. It leads to poor coordination between variable and fixed factor. As a result, total output falls instead of rising and marginal product becomes negative.

3. Decrease in Efficiency of Variable Factor:

With continuous increase in variable factor, the advantages of specialization and division of labour start diminishing. It results in inefficiencies of variable factor, which is another reason for the negative returns to eventually set in.

Applicability of the Law of Variable Proportion

Law of variable proportions applies to all fields of production, like agriculture, industry, etc. This law applies to any field of production where some factors are fixed and other are variable. That is the reason, why it is called law of universal application.

1. Application to Agriculture
2. Application to Industry

Production Function with two Variable Inputs

A firm may increase its output by using more of two variable inputs that are substitutes for each other, e.g., labour and capital. There may be various technical possibilities of producing a

given output by using different factor combinations. Which particular factor combination will be actually, selected by the firm depends both on the technical possibilities of factor substitution as well as on the prices of the factors of production. In two variable input, all inputs are variable in long run. For simplicity, we can assume only two inputs are used

Q= f(K,L)

K= capital

L= Labour

The table7.1 shows the combination of labour and capital is required to produce an output.40 units of capital and 6 units of labour is used. But in order to increase the unit of labour, allocation to capital has to be reduced as is represented in the table i.e more and more units of capital is sacrificed to hire more units of labour and this process goes on. The same is pictographically represented in fig 7.2

Table 7.1: Combination of Labour and Capital

Capital (Rs. crore)	Labour ('00 units)
40	6
28	7
18	8
12	9
8	10

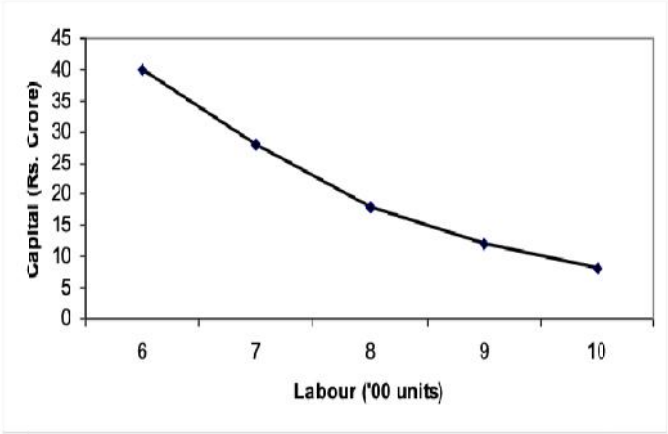


Fig 7.2: Combination of Labour and Capital

Production strategy, production functions

A firm may increase its output by using more of two variable inputs that are substitutes for eachother, e.g., labour and capital. There may be various technical possibilities of producing a givenoutput by using different factor combinations. Which particular factor combination will beactually selected by the firm depends both on the technical possibilities of factor substitution aswell as on the prices of the factors of production.The technical possibilities of producing an output level by various combinations of the twofactors can be graphically represented in terms of Isoquants

Isoquant

Isoquants are a geometric representation of the production function. The same level of outputcan be produced by various combinations of factor inputs. Imagining continuous variation in thepossible combination of labour and capital, we can draw a curve by plotting all these alternativecombinations for a given level of output. This curve which is the locus of all possible combinationis called the 'isoquant'.Any quantity of a good can be produced by using many different combinations of labour andcapital (assuming both can be substituted for each other). An isoquant or an iso-product curveis the line which joins together different combinations of the factors of production (L, K) that arephysically able to produce a given amount of output.

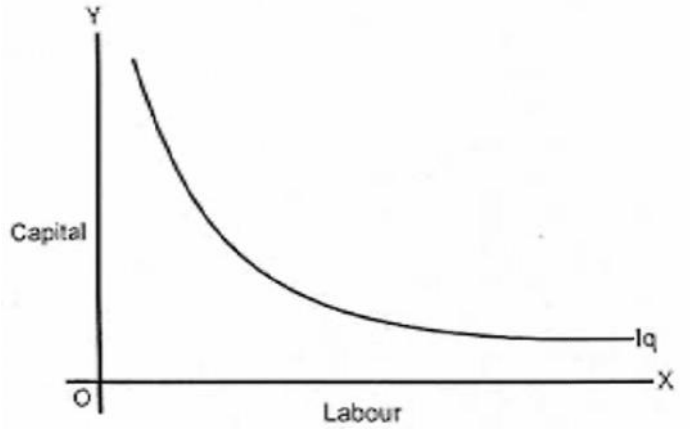
Suppose isoquant refers to 100 Kg. of output. This output can be produced by a large number of different combinations of labour and capital. All the different combinations for the same amount of output would lie on the same isoquant.

40 units of capital and 6 units of labour (A) provide the same output as 3 units

of capital and 20 units of labour input (B). The firm can choose any one of these combinations

(A or B) or any other combination which lies on the same isoquant to get 100 Kg. of output. The isoquant does not tell us the combination of factor inputs the firm actually uses; (that combination is based on process of the factors) but shows the technically possible combinations of factor inputs that are required to produce a given level of output. Isoquant I has been drawn by joining these combinations of labour and capital inputs which give out the same amount of total produce i.e., 100 Kg. Points like A which require more capital but less labour represent capital intensive methods of production. Points like B, which require less capital and more labour represent labourintensive methods of production.

For movements along an isoquant, the level of output remains constant and the ratio of capital to labour changes continuously. However, a movement from the isoquant to another means that the level of output changes.

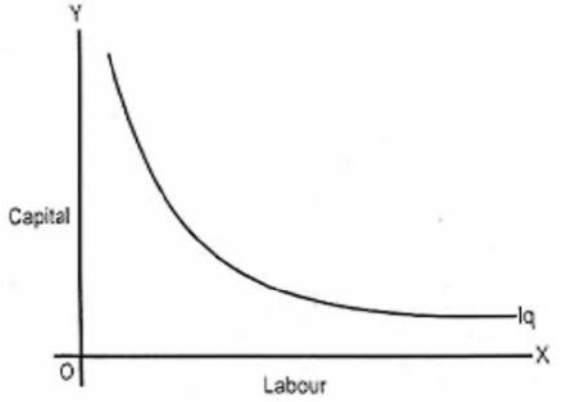


Characteristics of an Isoquant

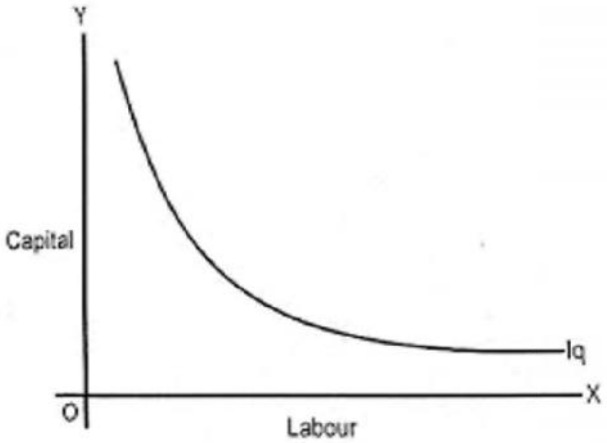
1. Convex to the origin: An isoquant slopes downward from left to right or is negatively sloped

Such a shape implies that if a firm employs more of labour, it will employ less of capital or vice versa, in order to maintain the level of output.

Such a shape of isoquant also means that the marginal factor productivities are positive, that is more of a factor will make a positive contribution in production and less of other factor will make a negative contribution.

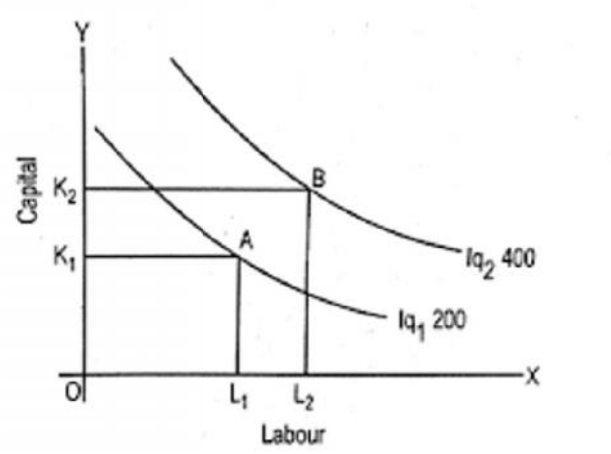


2. Convex to the Origin: This characteristic of isoquant means that the producer is willing to sacrifice fewer and fewer units of capital for every additional unit of labour and vice versa.



3. A higher isoquant represents a higher output

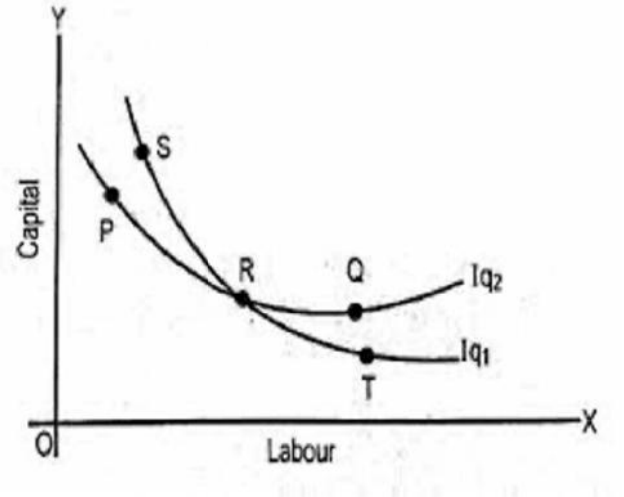
Another basic characteristic of an isoquant is that greater its distance from the point of origin, higheroutput level it will represent. This is shown in the figure where combination B on isoquant IQ_2 (OL_2 +OK_2) shows more of both factors as compared to point A on isoquant IQ_1 (OL_1 + OK_1).



4. Two Isoquants do not intersect

Two isoquants representing different levels of output can never intersect. If they do so, it will produce an absurd result. To show this, we have drawn two isoquants IQ_1 (= 100 units) and IQ_2 (= 200 units) intersecting each other at point R

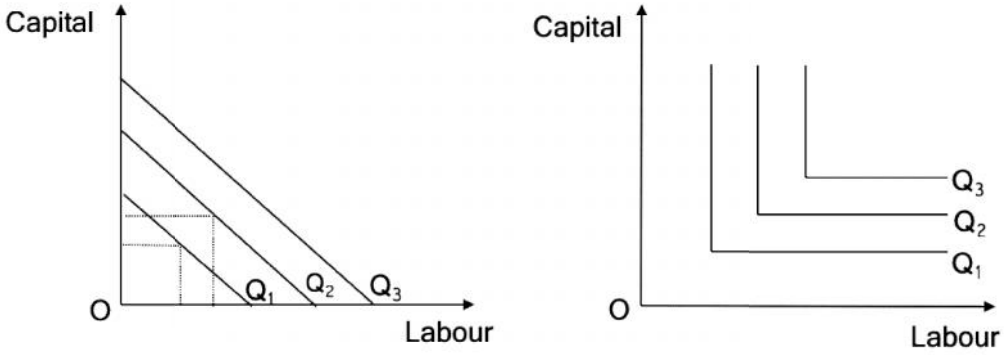
It means that at the point of intersection the factor combination, OK + OL can produce 100 units as well as 200 units of output. Such a situation makes no sense as one factor combination can produce only one level of output.



The isoquant may assume various shapes depending upon the degree of substitutability of factors. While a smooth and convex isoquant is its normal shape, there are a few exceptional shapes as well, two of which are Linear Shaped Isoquants and Right-Angled shaped IQ's This type of isoquant are depicted by a straight line sloping downward from left to right, as shown in the downward sloping IQ. It indicated a perfect and unlimited substitutability between two factors

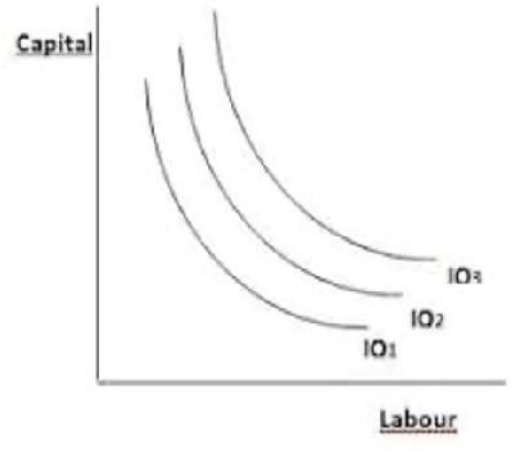
implying that the product may be produced even by using only capital or labour or by infinite combinations of the two factors.Perfect substitutability between two factors. Isoquants are downward sloping straight lines where MRTS is Constant Whereas the other IQ which is of L shaped IQ is also known as Right angled isoquant. In this, Capital is a perfect complement for labour. There arises nonexistence of any substitutability between the two factors

Special Shapes of Isoquant:



Isoquant Map

An Isoquant map can be defined as the set of isoquant curves that show technically efficientcombinations of inputs that can produce different levels of output. In other we can say that IQ mapis a cluster of isoquants, each one of which represents production of a specific quantity of output. Aswe move on an isoquant map, away from the point of origin or on a higher isoquant, it will show a higher level of output.An isoquant closer to the point of origin will indicate a lower level of output. In the figure, isoquant IQ_1 represents a lower level of output as compared to isoquant IQ_2 and IQ_3.



Marginal Rate of Technical Substitution:

The principle of marginal rate of technical substitution (MRTS or MRS) is based on the production function where two factors can be substituted in variable proportions in such a way as to produce a constant level of output.Marginal rate of technical substitution indicates the rate at which factors can be substituted at the margin without altering the level of output.Marginal rate of technical substitution of labour for capital = slope = (-) $\Delta K/\Delta L$

The slope of the isoquant has a technical name- marginal rate of technical substitution (MRTSw), or sometimes, the marginal rate of substitution in production. Thus, in terms of inputs of capital services K and labour L. An important characteristic of marginal rate of technical substitution is that it diminishes as more and more of labour is substituted for capital.

Comb	Labour Units	Capital	Change in labour	Change in Capital	MRTS (L,K)
A	1	14	-	-	-
B	2	10	1	(-)4	4:1
C	3	7	1	(-)3	3:1
D	4	5	1	(-)2	2:1
E	5	4	1	(-)1	1:1

Table 7.2 Combination of Labour and Capital

The table 7.2 shows that in order to produce from combination A to B, additional unit of labour is hired, and capital is sacrificedthus, MRTS is 4. Firm hires another unit of labour and moves from point (b) to (c), the firm can reduce its use of capital (K) by 3 units but remains on the same isoquant, and the MRTS is 3 and this process goes on. In other words, as the quantity of labour used is increased and the quantity of capital employed reduced, the amount of capital that is required to be replaced by an additional unit of labour so as to keep the output constant will diminish.

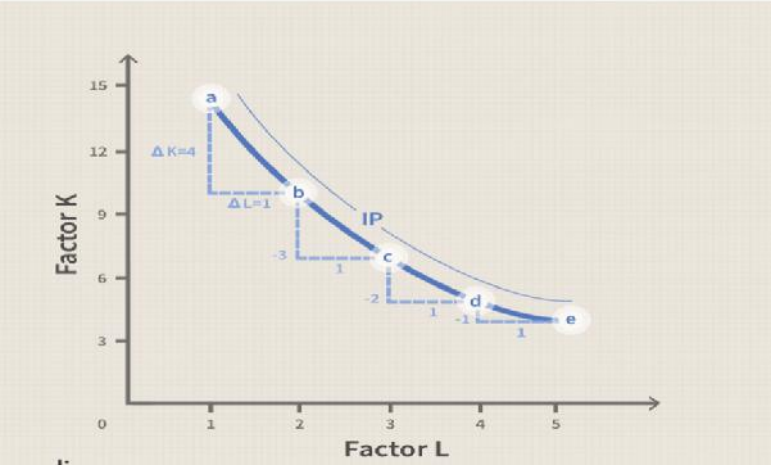


Figure 7.3 Slope of Isoquant

The figure above shows that when a firm moves down from point (a) to point (b) and it uses one additional unit of labour, the firm can give up 4 units of capital (K) and yet remains on the same isoquant at point (b). So the MRTS is 4. If the firm hires another unit of labor and moves from point (b) to (c), the firm can reduce its use of capital (K) by 3 units but remains on the same isoquant, and the MRTS is 3.

Iso-cost Lines

If a firm uses only labour and capital, the total cost or expenditure of the firm can be represented

by:

C = wL + rK

where,

C = Total cost

w = Wage rate of labour

L = Quantity of labour used

r = Rental price of capital

K = Quantity of capital used

The equation shows that the total cost of the firm (C) is equal to the sum of its expenditures on labour (wL) and capital (rK). This equation is a general one of the firm's isocost line or equal-cost line. It shows the various combinations of labour and capital that the firm can hire or rent at a given total cost.

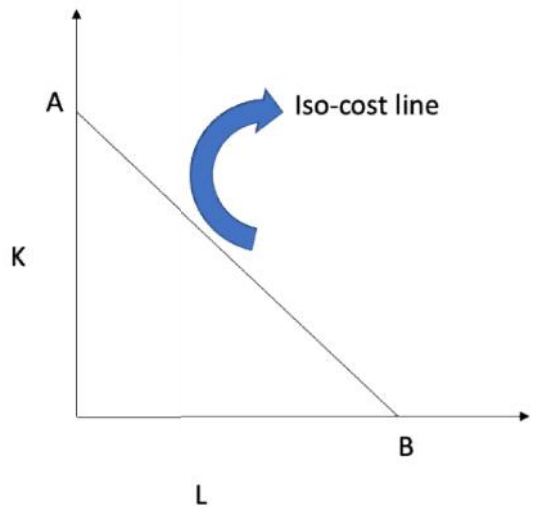
Iso-cost line is also known as

a) Factor Price Line

b) Outlay Line

c) Firm's Budget

Now, If the firm spends its entire outlay on labour, then nothing will be spent on capital and production which can be attained with the help of labour will be OB. If the firm spends its entire outlay on capital, then nothing will be spent on labour and production which can be attained with the help of capital will be OA. Thus, by Joining points A and B by a straight line we get the iso-cost line which shows the combinations of labour and capital that the firm can purchase at given factor prices. In other words, slope of iso-cost line will be ratio of two factor prices (P_L/P_K) i.e. w/r



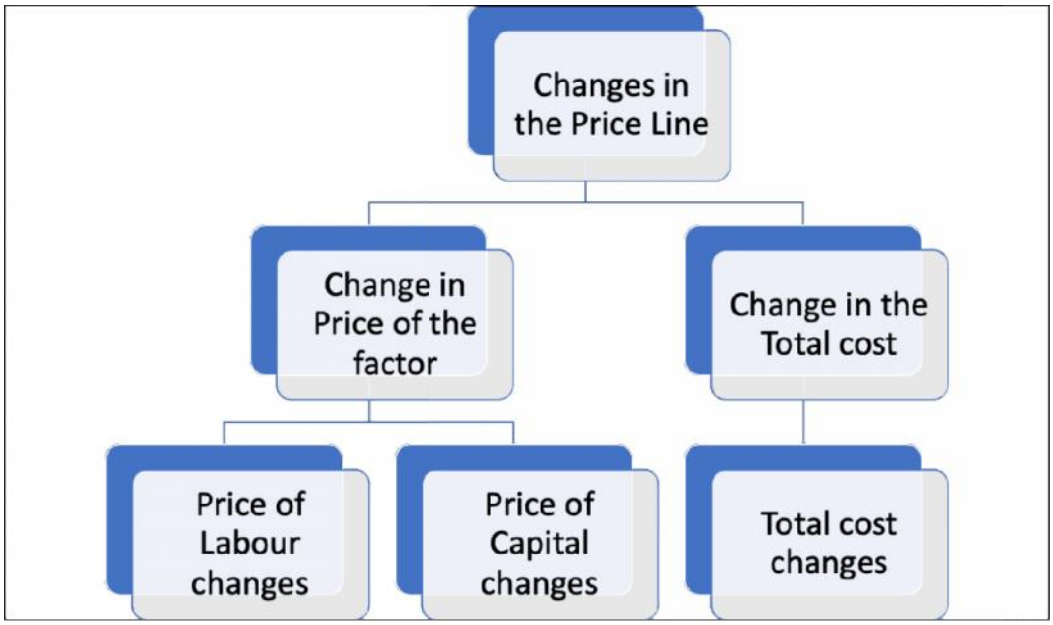
C= wL +rK

where C= Total Cost
L= Labour
K= Capital
w=wages paid to labor
r=interest on the capital

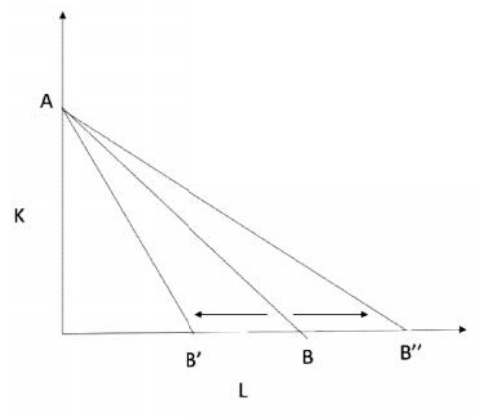
Slope of Iso-cost line= Ratio of input prices = w/r

Change in Price Line:

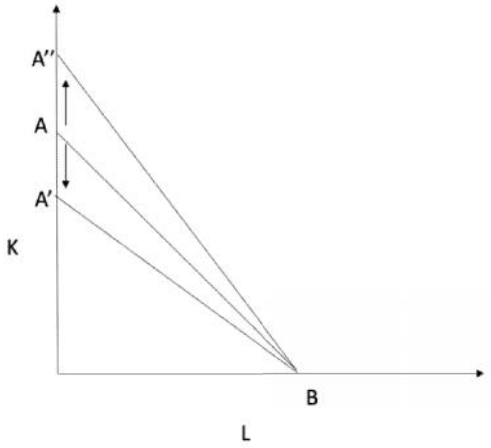
An iso-cost line is drawn on two assumptions – First, at given total outlay of the firm and, second, at given factor prices. Thus, an iso-cost line will shift either because of a change in total outlay or a change in factor prices. A change in price of labour (wage rate) or capital (interest) or both will result into a change in the slope of the iso-cost line making it flatter or steeper depending upon the nature of change in factor prices.If the wage rate declines, for example, without any change in the interest rate or in the total outlay, the firm can buy more of labour and, hence the iso-cost line will become flatter. Similarly, if labour becomes expensive the line will become steeper. So, you can see the movement from AB to AB′ or AB′′In the same manner, slope of iso-cost line willchange when interest rate changes and it may become steeper or flatter. The iso-cost line (AB) becomes flatter (A′B) when interest rate increases and becomes steeper (AB′′) when the interest rate falls.A change in total outlay will cause a parallel shift in the iso-cost line, as there will be no change in its slope, factor prices being constant. If the total outlay increases, the iso-cost line will shift upward, away from the point of origin, and if the total outlay decreases, the line will shift downward or towards the origin. You can visualise the moment from AB to A′B′ and AB to A′′′ B′′′



Change in Price of one Factor

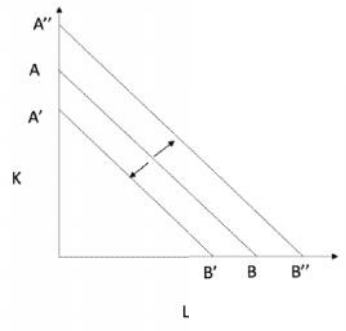


Price of Labour changes and price of Capital remains constant



Price of Capital changes and price of Labour remains same

Change in Total Cost



7.6 Producer's Equilibrium

The theory of production may be viewed from two angles which are dual to each other. A firmmay decide to produce a particular level of output and then attempt to minimize the cost of totalinputs or it may attempt to maximise its output subject to a cost constraint.A firm spends money on two inputs only, X and Y. It decides its budget and knows the price ofeach of the inputs which remains constant. If the firm spends all its budget it can buy either OB

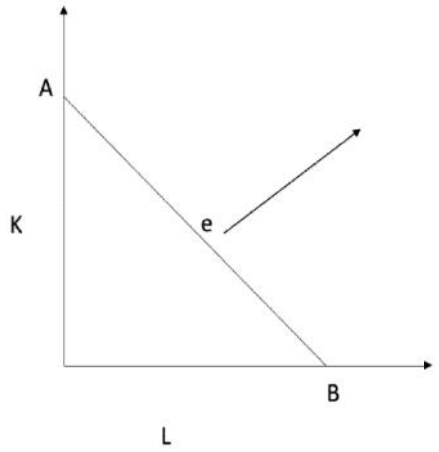
units of input X or OA units of input Y or a combination of X and Y represented by a point lying

on the straight line AB in Figure. The line AB is the budget line of the firm.

Two conditions must be satisfied:

a) IQ must be convex to the origin

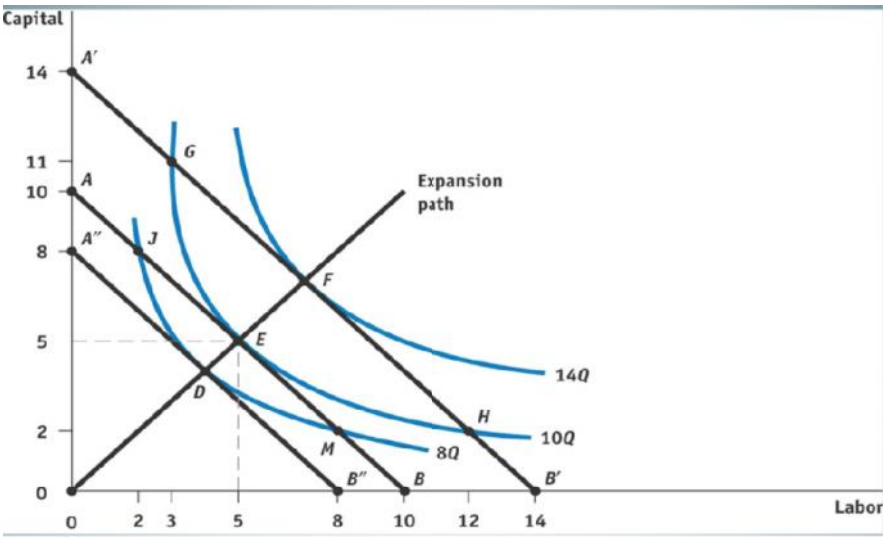
b) Slope of IQ= Slope of Iso-cost line



Slope of Iso-cost Line = Slope of Isoquant

Expansion Path

It is the line formed by joining the tangency points between various isocost lines and the corresponding highest attainable Isoquants.The case of a firm producing 1000 units of output using 10 units of capital and 10 units of labour(at point a) with input prices w=2 and r=2 is shown in Figure 7.4 using Isoquants and isocosts.Thus the cost of this input combination is 40 units. At point a, the 1000 unit isoquant is tangentto the 40 unit isocost line. If the firm wants to increase its output or expand its production, it willmove to point b if 1500 units are to be produced and then to point c if 1750 units of output are tobe produced. In general, the firm expands by moving from one tangency or efficient production point to another. These efficient points represent the expansion path.



7.7 Returns to Scale

In the long run all factors of production are variable. No factor is fixed. Accordingly, the scale of production can be changed by changing the quantity of all factors of production.

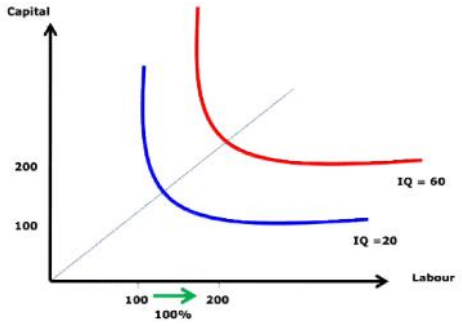
"The term returns to scale refers to the changes in output as all factors change by the same proportion." Koutsoyiannis

"Returns to scale relates to the behaviour of total output as all inputs are varied and is a long run concept". Leibhafsky

Returns to scale are of the following three types:

1. Increasing Returns to scale:

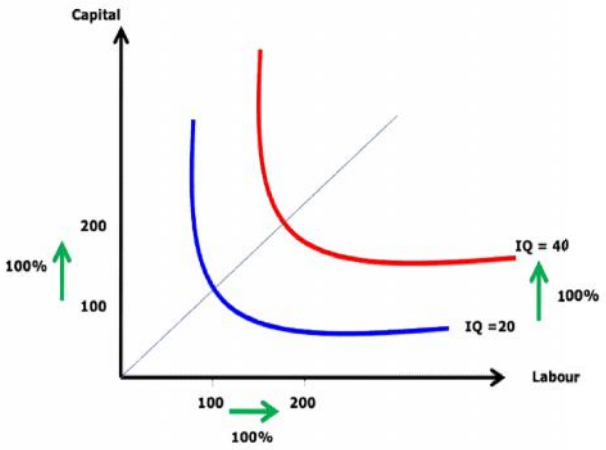
Increasing returns to scale or diminishing cost refers to a situation when all factors of production are increased, output increases at a higher rate. It means if all inputs are doubled, output will also increase at the faster rate than double. Hence, it is said to be increasing returns to scale. This increase is due to many reasons like division external economies of scale. Increasing returns to scale can be illustrated with the help of a diagram which implies that ***All the factors of production are increased in a given proportion, output would increase by a greater proportion.***



2. Constant Returns to Scale:

Constant returns to scale or constant cost refers to the production situation in which output increases exactly in the same proportion in which factors of production are increased. In simple terms, if factors of production are doubled output will also be doubled.

In this case internal and external economies are exactly equal to internal and external diseconomies. This situation arises when after reaching a certain level of production, economies of scale are balanced by diseconomies of scale.

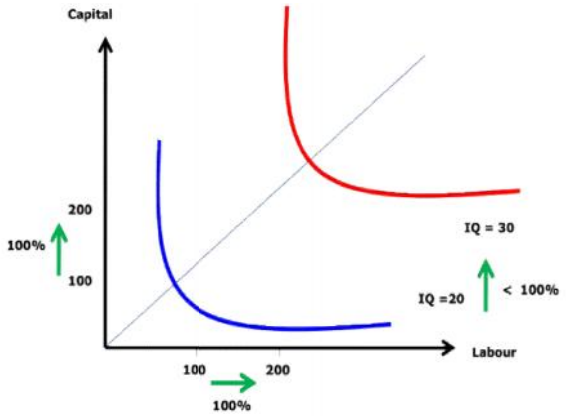


This implies that ***all the factors of production are increased in a given proportion, output would increase by same proportion.***

3. Diminishing Returns to Scale:

Diminishing returns or increasing costs refer to that production situation, where if all the factors of production are increased in a given proportion, output increases in a smaller proportion. It means, if inputs are doubled, output will be less than doubled. If 20 percent increase in labour and capital

is followed by 10 percent increase in output, then it is an instance of diminishing returns to scale.The main cause of the operation of diminishing returns to scale is that internal and external economies are less than internal and external diseconomies which implies that ***all the factors of production are increased in a given proportion, output would increase by a smaller proportion***



Summary

- Production means conversion of inputs or resources into usable commodities or services.
- Inputs are the resources used in the production of goods and services and are generally classified into three broad categories — labour, capital and land or natural resources.
- Production is a process in which economic resources or inputs are combined by entrepreneurs to create economic goods and services.
- Isoquants are a geometric representation of the production function. Various combinations of factor inputs can produce the same level of output.
- The marginal rate of technical substitution of L for K (denoted by MRTS (L,K) is defined as the number of units of input K that a producer is willing to sacrifice for an additional unit for L so as to maintain the same level of output
- An expansion path is formally defined as the set of combinations of capital and labour that meet the efficiency condition.
- This means that upto the use of a certain amount of variable factor, marginal product of the factor may increase and after a certain stage it starts diminishing. When the variable factor becomes relatively abundant, the marginal product may become negative.
- The law of variable proportion of says that as more and more of the factor input is employed, all other input quantities remaining constant, a point will eventually be reached where additional quantities of varying input will yield diminishing marginal contributions to total product.
- Returns to scale are classified as: Increasing Returns to Scale (IRS), Constant Returns to Scale (CRS) and Decreasing Returns to Scale (DRS).
- Increasing Returns to Scale occurs if a proportional increase in all inputs under the control of a firm results in a greater than proportional increase in production.
- Decreasing Returns to Scale occurs if a proportional increase in all inputs under the control of a firm results in a less than proportional increase in production.

- Constant Returns to Scale occurs if a proportional increase in all inputsunder the control of a firm results in an equal proportional increase in production.

Keywords

- Production: Transformation of inputs into output
- Inputs: Resources used in the production of goods and services.
- Isoquants: These are a geometric representation of the production function.
- Law of variable proportions refers to how the marginal production of a factor of productionstarts to progressively decrease as the factor is increased, in contrast to the increase that wouldotherwise be normally expected
- Law of returns to scale: it explains the changes in production that occur when all resources areproportionately changed in the long run
- Long-run: The time period when all inputs become variable.
- Production function: A function that states the maximum amount of an output that can beproduced with a certain combination of inputs, within a given period and with a givenlevel of technology.
- Short run: The time period during which at least one input is fixed.
- Variable inputs: Inputs that can be varied easily and on very short notice.

Self Assessment

1. _____ refers to the factors of production that a firm use in the production process?

A. Input
B. Output
C. Processing
D. None of the above

2. _____ shows the overall output generated at a given level of input:

A. Cost function
B. Production function
C. Iso cost
D. None of the above

3. Which of the following is an example of an intermediate product:

A. A personal computer
B. A sports car
C. A house
D. A barrel of crude oil

4. _____ input is an input in which the quantity doesnot change according to the amount of output:

A. Variable
B. Fixed

C. Marginal
D. None of the above

5. Which factors among following we find in short-run production process?

A. Fixed factors
B. Variable factors
C. Both (a) and (b)
D. None of the above

6. The marginal product curve is above the average product curve when the average product is:

A. Increasing
B. Decreasing
C. Constant
D. None

7. Law of variable proportion is valid when:

A. All factors are kept constant
B. All inputs are varied in the same proportion
C. Only one input is fixed and all other inputs are kept variable
D. None of the above

8. If the marginal product of labour is below the average product of labour. It must be true that:

A. Marginal product of labour is negative
B. Marginal product of labour is zero.
C. Average product of labour is falling
D. Average product of labour is negative

9. The marginal product curve is above the average product curve when the average product is :

A. Decreasing
B. Increasing
C. Constant
D. None of the above

10. In which stage of production a rational producer likes to operate in the short-run production ?

A. First stage
B. Second stage
C. Third stage
D. None of these

11. Long-run production function is related to:

A. Law of demand

B. Law of Increasing Returns

C. Laws of Returns to Scale

D. Elasticity of demand

12. At which time all the factors of production may be changed?

A. Short run

B. Long run

C. Very Long run

D. All of the above

13. An active factor of production is:

A. Capital

B. Land

C. Labour

D. None of these

14. If all the factors of production are increased by same proportion and as a result output increases by a greater proportion than it is called:

A. Increasing returns to scale

B. Constant returns to scale

C. Decreasing returns to scale

D. None of the above

15. Isoquants are equal to:

A. Total utility lines

B. Cost lines

C. Revenue lines

D. Product lines

Answers for Self Assessment

1.	A	2.	B	3.	D	4.	B	5.	C
6.	A	7.	C	8.	C	9.	B	10.	B
11.	C	12.	B	13.	C	14.	A	15	D

Review Questions

1. Can isoquants be drawn in different shapes? Examine their characteristics.

2. State and explain the law of diminishing marginal returns.

3. Explain the law of returns to scale using a graph.

4. What does production function mean? What are the differences between short run and long run production functions?

5. Examine the importance of the law of diminishing returns. What do you think to be itscauses and effects?

6. Explain the factors of production with examples.

7. What is an isocost line? Explain how the isocost line is drawn using examples.

8. Give your comment on second stage of production

9 Explain the relationship between marginal product and average product using a graph

10. Discuss returns to scale with the help of examples.

Further Readings

Dr. Atmanand, Managerial Economics, Excel Books, Delhi.

H.CraigPatersen, Managerial Economics, Prentice Hall.

Samuel Bowles, Microeconomics: Behavior, Institutions and Evolution, Oxford.

Sampat Mukherjee, Microeconomics, Prentice Hall

Web Links

ingrimayne.com/econ/TheFirm/ProductionFunct.html

faculty.lebow.drexel.edu/McCainR/top/Prin/txt/MPCh/firm4a.html

http://www.docshare.com/doc/211217/PRODUCER-EQUILIBRIUM

Unit 08: Revenue and Cost Analysis

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the concept of cost and different types of costs
- learn different shapes of cost curves
- differentiate between short run cost and long run cost
- understand the concept of revenue and its various concepts
- learn different shapes of revenue under different perfect market structure and imperfect market structure.
- discuss the approaches of profit maximization
- learn and analyse the relationship between cost, revenue and production

Introduction

Cost is one of the most important considerations for suppliers or producers.It plays a very important role in decisions involving a selection between alternative courses of action. Costs enter into almost every economic decision, and it is important to use the right analysis of cost. Even in your routine decisions, analysis of cost is involved.

Example: For producing a motorcycle, producer needs spare parts, labour, transport etc. All of them have their own price which is the cost for the producer.

It is necessary for the proper understanding of the price theory to know the various concepts of cost that are often employed. When an entrepreneur starts producing a product, he must pay prices for the inputs he uses to make the product. He pays salary to the workers, raw material prices, fuel and electricity prices, rent for the building he rents for the production process, and the interest rate on the money he borrows to run his firm. All these are included in his cost of production. However, an economist's perspective on cost is somewhat different. In most cases, the entrepreneur spends a portion of his own money capital in his profitable enterprise. If the money the entrepreneur put into his own business had been invested somewhere else, it would have produced interest or dividends.

Furthermore, an entrepreneur devotes time to his own production activity and contributes his managerial and entrepreneurial skills to it. If the entrepreneur had not established his own company, he would have offered his services to others for a profit.

Determinants of Cost: Although it is very difficult to determine in general the factors influencing the cost as they widely differ from firm to firm and even industry to industry, some factors considering them as general determinants of costs are:

1. Price of Inputs: Higher market prices of various factor inputs result in higher cost of production and vice-versa but the impact of price of a given factor would depend upon the contribution which that factor of production makes to the total product.

2. Productivity of inputs: Higher productivity and efficiency of factors of production would lead to lower production costs and vice-versa.

3. Technology: Technology has a big influence on cost of production. Modern technology leads to optimum utilization of resources, avoid all kinds of wastages, saving of time, reduction in production costs and resulting in higher output. On the other hand, primitive technology would lead to higher production costs. In fact, most technological innovation aims at reducing cost.

4. Level of Output: Stability in production would lead to optimum utilisation of the existing capacity of plants and machinery. It also brings savings of various kinds of hidden costs of interruption and learning leading to higher output and reduction in production costs.

5. Time period: In the short run, cost will be relatively high and in the long run, it will be low as it is possible to make all kinds of adjustments and readjustments in production process.

Therefore, cost function can be re-written as:

$$C= f(P_f, E_f, T, Q, Tm)$$

8.1 Cost Concept

Cost is something of value, usually an amount of money, given up in exchange for something else, usually goods or services. In other words, Cost is the value that must be given up to acquire or produce a good or service. All expenses are costs, but not all costs are expenses. (An expense is the cost of resources used to produce revenue.) As a verb, cost means to estimate the amount of money needed to produce a product or perform a service. There are many different types of costs, as discussed in following subsection.

1) Monetary Cost: Monetary costs are the things associated with the job on which you must spend money. Monetary costs could include a new wardrobe, transportation, additional training, or maybe supplies you are required to provide for yourself.
2) Real Cost: The cost of producing a good or service, including the cost of all resources used and the cost of not employing those resources in alternative uses. Marshall made a distinction between the cost of production and the expenses (expenditures) of production by saying that, "All the efforts and sacrifices made by the producer is the real cost of production while the money paid to other factors of production for these efforts is termed as the expenses of production".

3) Accounting or Business Cost:The Business Cost includes all the costs (fixed, variable, direct and indirect) incurred in carrying out the operations of the business. It is similar to the real or actual costs that include all the payments and contractual obligations along with the book cost of depreciation on both the plant and equipment.
4) Opportunity Cost: The opportunity cost is time spent studying and that money to spend on something else. A farmer chooses to plant wheat; the opportunity cost is planting a different crop, or an alternate use of the resources (land and farm equipment). A commuter takes the train to work instead of driving.
5) Economic Cost:Economic cost is the combination of losses of any goods that have a value attached to them by any one individual. Economic cost is used mainly by economists as means to compare the prudence of one course of action with that of another.
6) Social Cost:Social costs include both the private costs and any other external costs to society arising from the production or consumption of a good or service.
7) Private Cost:Private costs are paid by the firm or consumer and must be included in production and consumption decisions. In a competitive market, considering only the private costs will lead to a socially efficient rate of output only if there are no external costs.
8) Explicit Cost: Explicit costs are business operating costs, or expenses, that are easily quantifiable and identifiable. Also referred to as accounting costs, the explicit costs of a company are recorded in its books (accounting ledgers) and become listed expenses on the company's financial statements – such as its balance sheet and income statement.Salaries, wages, bonuses, commissions, and any other form of compensation dispensed to company employees etc are the examples of explicit cost.
9) Implicit Cost: An implicit cost is any cost that has already occurred but not necessarily shown or reported as a separate expense. It represents an opportunity cost that arises when a company uses internal resources toward a project without any explicit compensation for the utilization of resources. This means when a company allocates its resources, it always forgoes the ability to earn money off the use of the resources elsewhere, so there's no exchange of cash. Put simply, an implicit cost comes from the use of an asset, rather than renting or buying it.

8.2 Short Run and Long Run Costs

The short run is a period of time in which the output can be increased or decreased by changing only the amount of variable factors such as labour, raw materials, chemicals, etc. In the short run the firm cannot build a new plant or abandon an old one. If the firm wants to increase output in the short run, it can only do so by using more labour and more raw materials. Long run, on the other hand, is defined as the period of time in which the quantities of all factors may be varied. All factors being variable in the long run, the fixed and variable factors dichotomy holds good only in the short run. In other words, it is that time-span in which all adjustments and changes are possible to realise. Short run costs are those costs that can vary with the degree of utilisation of plant and other fixed factors. In other words, these costs relate to the variation in output, given plant capacity. Short run costs are therefore, of two types: fixed costs and variable costs. In the short run, fixed costs remain unchanged while variable costs fluctuate with output. Long run costs in contrast are costs that can vary with the size of the plant and with other facilities normally regarded as fixed in the short run. In fact, in the long run there are no fixed inputs and therefore, no fixed costs, i.e., all costs are variable.

Costs in Short Run: The short run cost-output relationship refers to a particular scale of operation or to a fixed plant.

That is, it indicates variations in cost over output for the plant of a given capacity and theirRelationship will vary with plants of varying capacity. For decision-making, one needs to know not only the relationship between total cost and output but also separately between

various types of costs and output. Thus, the short run cost-output relationship needs to be discussed in terms of:

1. Total cost

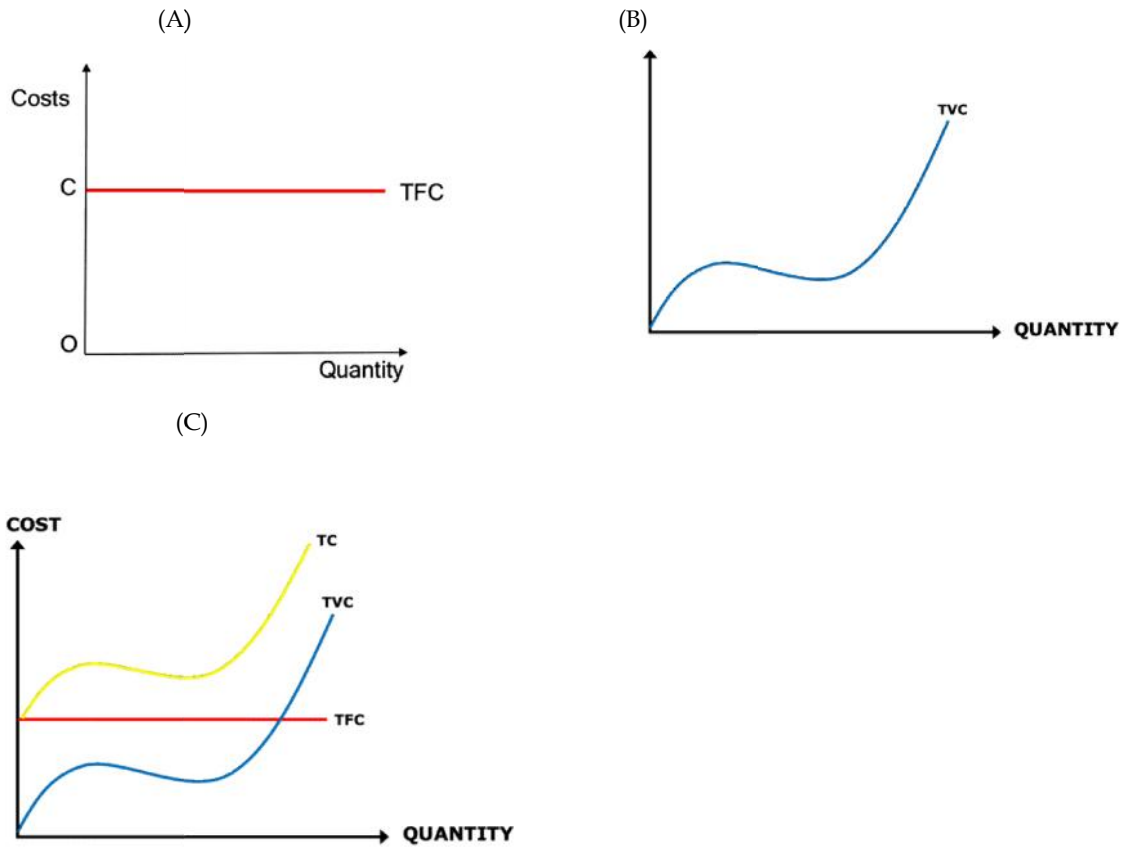
2. Average costs

3. Marginal cost

1. Total Cost:

Total cost, in economics, is the sum of all costs incurred by a firm in producing a certain level of output. It is typically expressed as the combination of all fixed costs (e.g., the costs of a building lease and of heavy machinery), which do not change with the quantity of output produced, and all variable costs(e.g., the costs of labour and of raw materials), which do change with the level of output. If fixed costs are not altered (e.g., by obtaining a larger building or by acquiring more heavy machinery), the rate of increase of variable costs with increasing output will be progressively greater in the long run, owing to diminishing returns on additional units of output.

Fig 8.1 Shape of Fixed cost, Variable cost and Total Cost



The panel (A) of fig 8.1 shows the Fixed cost where the cost remains fixed with the change in output whereas in part (B) of the figure, the cost varies with the level of output and such kind of cost is known as variable cost. Part (C) of the fig.8.1 shows the total cost which is defined as sum of fixed cost and variable cost. It is important to mention that TC never starts from origin because TFC is never zero. In the initial start of TC, the gap between TC and TVC is more and goes on decreasing with every increase in quantity and then later on the gap keeps on reducing.

2. Average Cost:

However, the cost y concept is more frequently used both by businessmen and economists in the form of cost per unit, or average costs rather than as total costs.

i. Average Fixed Cost (AFC)

Average fixed cost is the total fixed cost divided by the number of units of output produced.Therefore,

AFC = TFC/Q

Where,Q represents the number of units of output produced.

Thus, average fixed cost is the fixed cost per unit of output. Since total fixed cost is a constantquantity, average fixed cost will steadily fall as output increases. Therefore, average fixed costcurve slopes downward throughout its length. As output increases, the total fixed cost spreadsover more and more units and, therefore, average fixed cost becomes less and less. When outputbecomes very large, average fixed cost approaches zero.

ii. Average Variable Cost (AVC)

Average variable cost is the total variable cost divided by the number of units of output produced.

Therefore,

AVC = TVC/ Q

Thus, average variable cost is the variable cost per unit of output.

iii. Average Total Cost (ATC)

The average total cost or what is called simply average cost is the total cost divided by the number

of units of output produced. Therefore,

ATC = TC/Q

Since the total cost is the sum of total variable cost and total fixed cost, the average total cost is the sum of average variable cost and average fixed cost

The behaviour of the average total cost curve will depend on the behaviour of the averagevariable cost curve and average fixed cost curve. In the beginning both AVC and AFC curvesfall. The ATC curve, therefore, falls sharply in the beginning. When AVC curve begins rising, butAFC curve is falling steadily, the ATC curve continues to fall. But as output increases, there is asharp rise in AVC which more than offsets the fall in AFC.

3. Marginal Cost:

Marginal cost of production is an important concept in managerial accounting, as it can help an organization optimize their production through economies of scale.

The marginal cost of production is an economics concept that plays an important role in business management. It refers to the incremental cost of adding one more unit of production, such as producing one more product or delivering one more service to customers. It is generally associated with manufacturing businesses, although the concept can be applied to other types of businesses as well.

According to Ferguson, "Marginal cost is the addition to total cost due to the addition of one unit of output."

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

or $MC = TC_n - TC_{n-1}$

Why SAC is U-Shaped?

1. Basis of Average Fixed Cost (AFC):

AC includes AFC and AFC falls continuously with the increase in the output. Once, it has reached the minimum point, it starts rising. Similarly, AC also includes AVC which falls at the beginning and after some point, it starts rising. Therefore, the SAC curve is 'U' shaped.

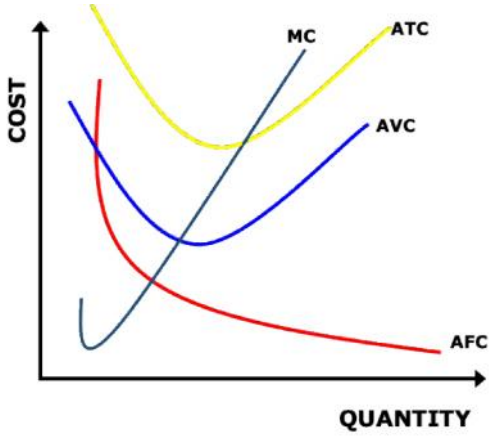
2. Basis of Law of Variable Proportions:

The 'U' shaped of AVC curve is due to the applicability of the law of variable proportion on production in the short run. This law states that when the variable factor is combined with a fixed factor, the production increases at an increasing rate, causing AC to fall. After some point, because of inefficiency and dis-economizing of the resources, AC starts to incline again. Therefore, the SAC is 'U' shaped.

3. Indivisibility of factors:

SAC curve is 'U' shaped due to the indivisibility of factors of production. In the short run, as a firm increases the output, it enjoys certain internal economies due to the indivisibility of some fixed factors of production which results to fall in SAC. Later on, due to some internal and external factors, the production efficiency goes down and the cost rises. Therefore, SAC is 'U' shaped as shown in Fig 8.2

Fig 8.2 Different shapes of cost curves in short period

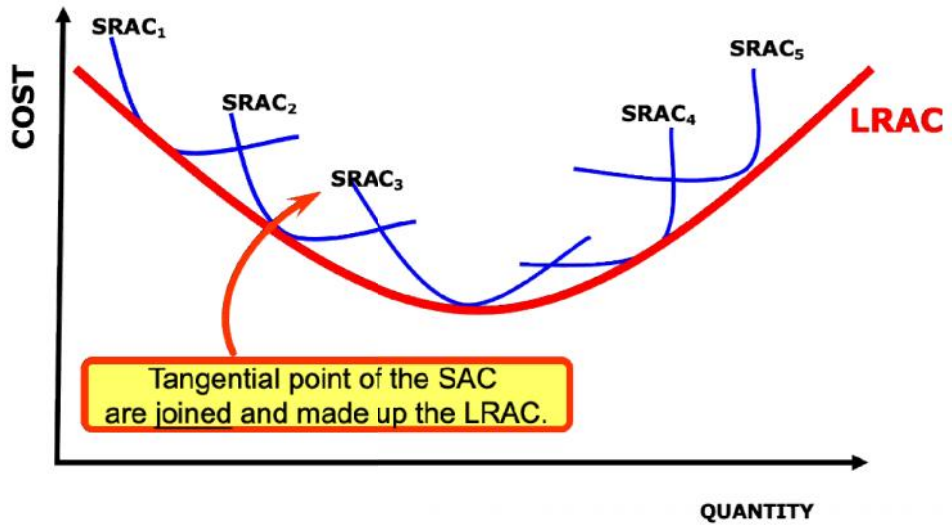


Costs in Long Run:

It has already been discussed in production theory that the long run does not refer to 'some date in the future. Instead, the long run simply refers to a period of time during which all inputs can be varied. The long run is a period of time during which the firm can vary all its inputs. None of the factorsis fixed and all can be varied to expand output. Long run is a period of time sufficiently longto permit changes in the plant, that is, in capital equipment, machinery, land, etc., in order to expand or contract output. The long run cost of production is the least possible cost of productionof producing any given level of output when all inputs are variable including the size of theplant. In the long run there is no fixed factor of production and hence there is no fixed cost.

Therefore, a decision has to be made by the owner and/or manager of the firm about the scale of operation, that is, the size of the firm. In order to be able to make this decision the manager must have knowledge about the cost of producing each relevant level of output. We shall now discover how to determine these long-run costs.'

Fig 8.3: Long Run Cost Curve



The above figure 8.3 highlights the following:

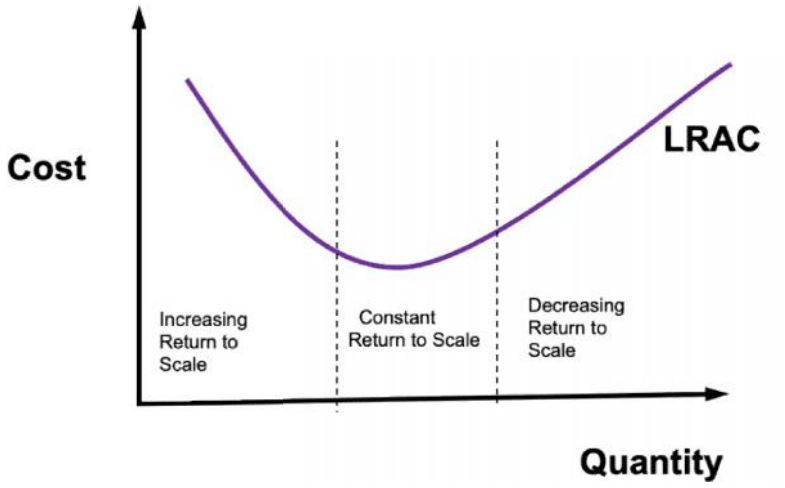
1. When returns to scale are increasing, inputs are increasing less than in proportion toincreases in output. It follows that total cost also must be increasing less than in proportionto output.

2. When returns to scale are decreasing, total cost increases at a faster rate than does output.

3. When returns to scale are constant, total cost and output move in the same direction andsame proportion

Long run average cost curve (LRAC) is **"U–Shaped"** due to the Law of Returns to Scale.**Law of Returns to Scale** states that as the firm expand its size or scale of production, its long run average cost (LRAC) shown in fig 8.4 will decrease and increase at later stage.

Fig 8.4: Shape of LRAC



The LTC curve gives the least total cost for various levels of output when all the factors of production are variable. Its shape is such that the curve is first concave and then convex as looked from the output axis. In fig 8.5the relationship between LAC and LMC that of LTC curve has been shown, Both LAC and LMC are U-shaped. Further, the following relationships hold good

1. At the point of inflection on LTC curve (A), LMC takes the minimum value.

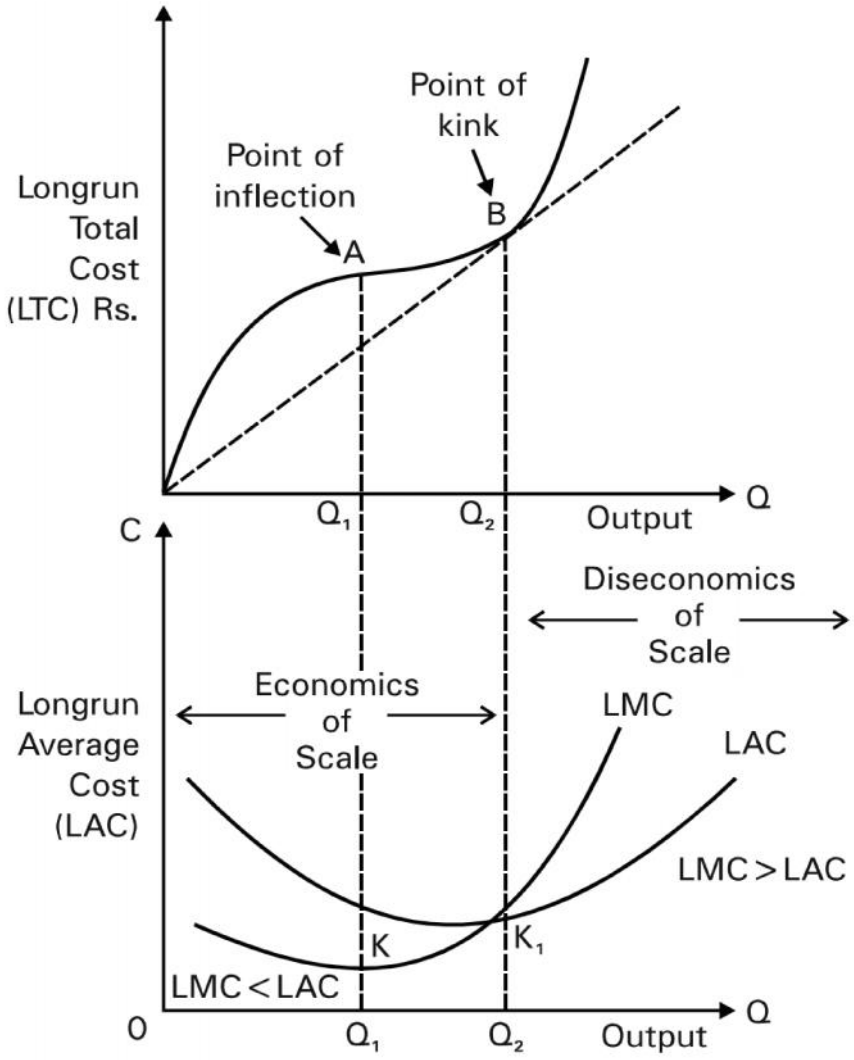
2. At the point of kink of LTC curve (B) – where the slope of the straight line from origin to the LTC curve is the minimum – LAC assumes the minimum value.

3. LAC is the least when LMC = LAC.

4. LAC curve is falling when LMC < LAC.

5. LAC curve is rising when LMC > LAC.

Fig 8.5 Relationship between LAC, LMC and LTC



8.3 Revenue Concept, Average Revenue, Marginal Revenue and Total Revenue

According to Dooley, "The revenue of afirm is its sales, receipts or income." To know your total income, we just need to multiply the sellingquantity of ice cream into the cost of ice cream. Suppose that you have a factory to make ice cream. You made 1000 ice creams daily. You have earned1,000

by selling these ice creams. In economics, this 1,000 is called your income. Thus, by selling aproduct whatever a firm earns, is the revenue of that firm.

1. Total Revenue:

Total revenue is called the money which is earned by a firm after selling a fixed quantity of product.

For example, if on 5 a product has sold its 6 units, then total income is 5 * 6 = 30. To get total

revenue, either we can multiply the average revenue with selling quantity or add all the marginal units.

Means

$$TR = P \times Q \text{ or } TR = \sum MR$$

Here TR = Total Revenue; P = Price; Q = Quantity; $\sum$ = Sign of Summation; MR = Marginal Revenue

2. Average Revenue:

Average Revenue is the term which is nothing but price per unit. Means the price of product andaverage revenue are same. It means the average revenue is defined as per unit revenue of product.

According to McConnell, "Average revenue is the per unit revenue received from the sale of one unit

of commodity." Average revenue is the ratio of total revenue from selling quantity of product. The

average revenue can be got by division of total selling quantity by total revenue.

$AR = TR/Q = P \times Q/Q = P$

Here AR = Average Revenue; TR = Total Revenue; Q = Selling Quantity; P = Price

So, the meaning of average revenue is price of product. If we get 30 by selling 6 units of product then

average revenue or price would be $30 \div 6 = 5$

3. Marginal Revenue:

Marginal revenue is nothing but the difference of total revenue of product by selling one more or one less product. According to Ferguson, "Marginal Revenue is the change in total revenue which resultsfrom the sale of one more or one less unit of output." —Ferguson

To know marginal revenue, either we can divide the change in total revenue (ΔTR) from change in

product quantity (ΔQ) or by subtracting total revenue of n products from the total revenue of n – 1products

$$MR = \frac{\text{Change in Total revenue/ Income.}}{\text{Change in Quantity Sold}} = \Delta TR/\Delta Q$$

or $MR = TRn - TRn{-}1$

Here, MR = marginal amount; Δ = change in; TR = total amount; Q = production or sales volume.

TRn= n the units total income; TRn–1 = n – 1 the units total income, n is the number of units sold.

Revenue should not be understood as profit. Revenue means the income of producer by selling his items. In contrast, profit is the difference between total revenue and total cost

8.4 Concepts of Revenue under Different Market Conditions:

The nature of concept of revenue depends upon the nature of those market competitions where theproduct is going to sell. Broadly there are two market conditions which are:

(i) Perfect Competition;
(ii) Imperfect Competition

Concepts of Revenue under Perfect Competition

Perfect competition is the state of market where there are lots of sellers and buyers of a unique product and all sellers sell the product at a similar price. From Table 1 and Fig. 8.1, all 3 conceptions of revenue in perfect competitions are described, means (i) Total Revenue; (ii) Average Revenue and

(iii) Marginal Revenue.

Table 1: Different Concepts of Revenue under Perfect Competition

Sold Quantity Q	Total Revenue TR= AR * Q	Average Revenue AR= TR/Q	Marginal Revenue MR= TRn-TRn-1
1	5	5	5
2	10	5	5
3	15	5	5
4	20	5	5

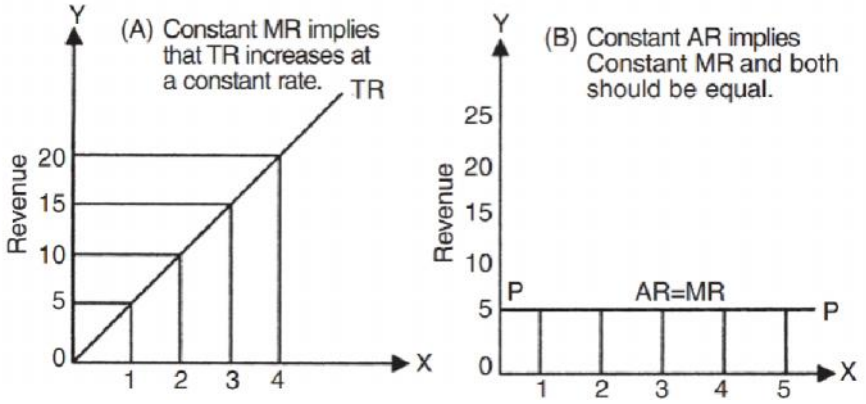
i. **Total Revenue**: From Table 1, it indicates that the price of product is stable in perfect competition, so the total revenue increased at a stable rate. For example, on price 5, the total revenue of 2 units is 10 and for 3 units it is 15. The total revenue is increasing by 5 constantly by selling per extra unit.

ii. **Average Revenue**: Table 1 makes it clear that full competition changes to the amount sold along with the average price change proceeds or not. As per above table, it would be 5 either the firm sells one unit or 4 units. The reason behind this is in perfect competition, the price of product is determined by industry and firm can sell numerous quantity of that product.

iii. **Marginal Revenue**: Marginal Revenue: From Table 1 it is clear that the marginal revenue of firm in perfect competition is stable (means 5) even it sells as much as products. In fact, the price or average revenue is stable, so the marginal revenue is also stable because by selling per extra unit, the firm gets equal amount. So in perfect competition, average revenue and marginal revenue are always same (AR = MR). To get marginal revenue, we can divide the changes happened with total revenue (ΔTR) by changes in sold quantity (ΔQ) i.e., MR=ΔTR/ΔQ . From Table 1, it has been identified that by selling 2nd unit, change in
total revenue is 10 – 5 = 5 and the quantity of sold product has changed to 2 – 1 = 1 unit.

So the marginal revenue is 5 /1. Thus, the marginal revenue for the 3rd, 4th and other units would 5. In Fig. 8.6 the conception of Total Revenue (TR), Average Revenue (AR) and Marginal Revenue (MR) has been described.

Fig. 8.6: Revenue Curves Under Perfect Competition



In Fig. 8.6 (A) and (B) revenue is on axis OY while output is on axis OX. In Fig. 8.6 (A), TR curve istotal revenue curve. This is a straight line whose slope is upward. This proves that the total revenue isincreasing at a constant level. In Fig. 8.6 (B), the vertical line PP which is parallel to axis OX representsboth Average Revenue and Marginal Revenue. This indicates that AR is stable means equal to 5 andAR = MR.

Example:The marginal revenue is nothing but the difference between the total revenue by sellingone more or one less unit

8.5 Concepts of Revenue under ImperfectCompetition

Imperfect competition is an economic concept used to describe marketplace conditions that render a market less than perfectly competitive, creating market inefficiencies that result in losses of economic value. In the real world, markets are nearly always in a condition of imperfect competition to some extent.

The concept of revenue under monopoly and monopolistic competitions i.e. (i) Total Revenue,

(ii) Average Revenue and (iii) Marginal Revenue are described by Table 2 and Fig. 8.2

Table 2: Different Concepts of Revenue Under Imperfect Competition

Sold Quantity Q	Total Revenue TR= AR * Q	Average Revenue AR= TR/Q	Marginal Revenue MR= TRn-TRn-1
1	10	10	10
2	18	9	8
3	24	8	6
4	28	7	4

(i) Total Revenue: Table 2 indicates that in monopolistic condition, total revenue is increasing but ata decreasing rate. We have already learned that in perfect competition, a producer can sell anyquantity of product by given price. So the total revenue increases at a stable rate. But in monopolyor monopolistic competition, the producer can only sell the product by its fewer price. So as soon

as a product selling is increased, the price (AR)of it gets low. If price (AR) gets low then themarginal revenue (MR) also decreases. So, inmonopoly or monopolistic competition, the totalrevenue (TR) increases at a decreasing rate.

> Decrease Marginal Revenue means Total Revenueis increasing but decrease rate. Decrease averagerevenue means the marginal revenue is decreasingby more that it.

In Fig. 8.7 (A), TR curve indicates total revenue. TR curve is expanding but at a decreasing rate. Itmeans that as soon as the selling of product increases, the slope of TR curve decreases.

(ii). Average Revenue: Table 2, indicates that in monopoly or monopolistic competition, average revenueor price lessens if sale of that product is high. When monopoly sells one Q wheat then the priceis 10, if sale is 2 Q, (quintal) the price drops by 9 and in 3 Q, it comes on 8. It means that the

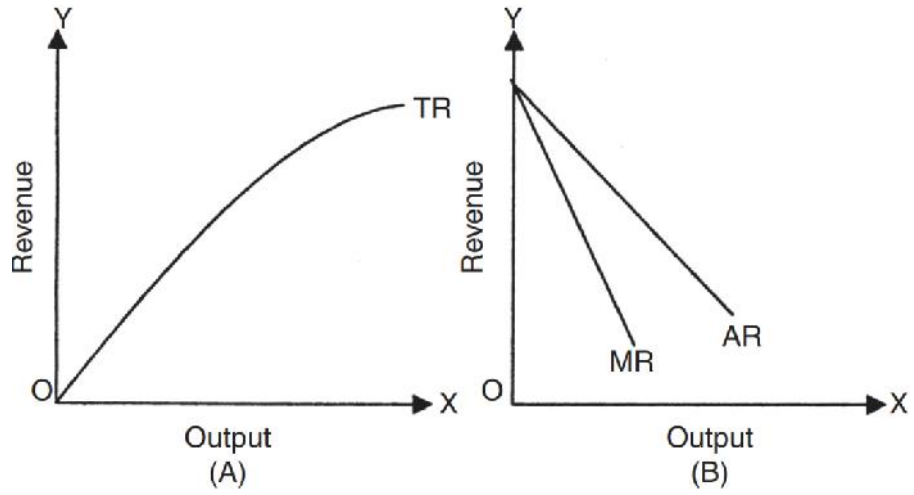
Monopolist cannot control both quantity of selling and price of the product. He can sell more only

by decreasing the price of product.

(iii) Marginal Revenue: Table 2 indicates that in monopoly or monopolistic competition, the marginalrevenue gets down. When monopolistic sells is 2Q then the marginal revenue is 8, the marginalrevenue for 3rd Q is 6 and 4th Q is 4. The marginalrevenue and average revenue (MR = AR) are equal inperfect competition.

> As MR decreases at a faster rate than AR, so MR curve is under the left side of the AR curve.

Fig 8.7: Revenue curves under Imperfect Competition



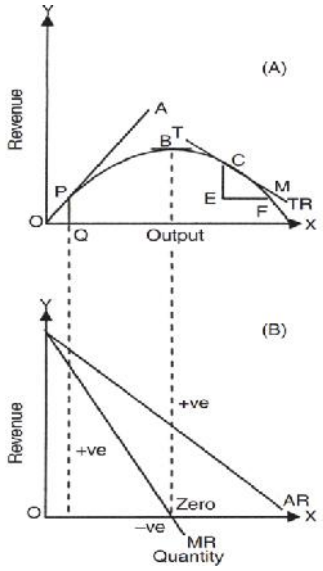
But in monopoly or monopolisticcompetition, marginal revenue and average revenueare different to each other. The marginal revenue is less than average revenue (MR < AR). This is thereason that when average revenue is less than the marginal revenue also lessens, and the marginalrevenue gets smaller than average revenue.n Fig. 8.7, the total revenue, average revenue and marginal revenue are shown in monopoly and monopolistic competition. In Fig. 8.7 (B) average revenue Curve (AR) andmarginal revenue curve (MR) are drawn. Both curves areseparate and downwards. It means the monopolistsneed to decrease the product price to increase sell.Figure 8.7(B) indicates that the MR Curve is belowthan AR Curve. This means that the decrement ofmarginal revenue is greater than average revenue.

8.6 Relation between Total Revenue, Marginal Revenue and Average Revenue curves

The relation between total revenue, average revenue and marginal revenue is clear by Table 3 andFig. 8.8

Table 3: Different Concepts of Revenue			
Units	Total Revenue	Average Revenue	Marginal Revenue
1	10	10	10
2	18	9	8
3	24	8	6
4	28	7	4
5	30	6	2
6	30	5	0
7	28	4	-2

From Table 3 we can know that the total revenue is increasing from the sixth unit of product. After thatit has started increasing. As soon as more units of product are sold, the average revenue and marginalrevenue get lower. Average revenue is always positive but marginal revenue can be positive, zero ornegative. Table 3 shows that the marginal revenue for the sixth unit is zero and negative for seventhunit.



All the three concepts of revenue can be described by Fig. 8.8. In Fig. 8.8 (A) the total revenue curveand in 8.8 (B) average and marginal revenue curves are indicated. On the OX axis both (A) and (B), units of product have shown while revenue is displayed on OY axis. Fig. 8.8 (A) identifies that totalrevenue is increasing from point O to B. When the total revenue is maximum in point B then as perFig. 8.8 (B), the marginal revenue is zero. After point B, the curve of total average falls. It means thathowever the product has been sold in large number but the total average decreases. In this condition,marginal revenue is negative. In Fig. 8.8 (B) it is shown that AR is average revenue

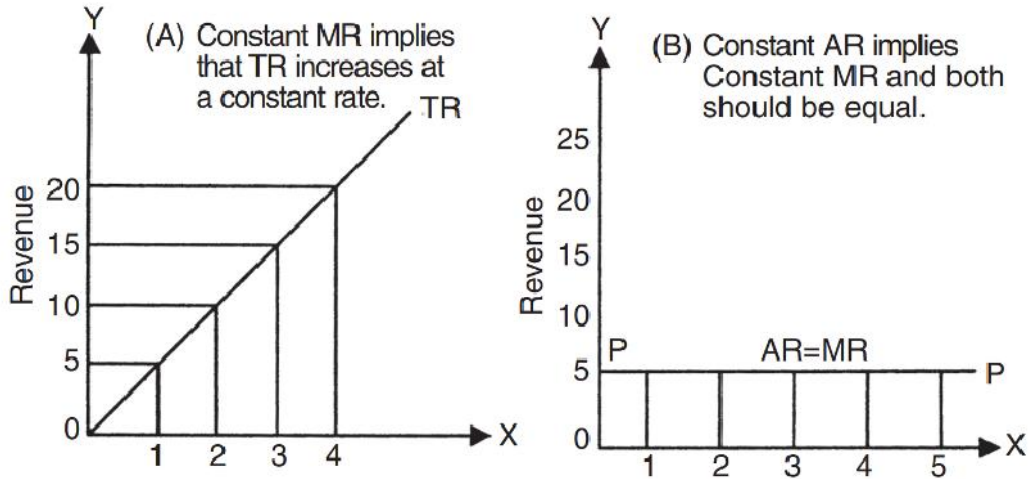
curve. The slopeof this curve is downward. It is proved that to sell more units, average revenue or price would be low.In Fig. 8.8(B), MR is marginal revenue curve. The slope of this curve is also downward. It meansthat however the products are sold in greater quantity, but the marginal revenue would be low. Themarginal revenue for sixth unit is zero and seventh unit is negative. We can see that when averagerevenue and marginal revenue are falling then marginal revenue is lower than average revenue.

(i) It must be known that average revenue or price is represented by the slope of O and TR curve is represented by a straight line. For example, in Fig. 8.8 (A) the slope of line OA is PQ/PQ on the point P on TR line.

(ii) Any slope of tangent line of any point of TR curve represents marginal revenue. For example, in Fig. 8.8(A) the slope of tangent line TM represented as CE/ EF marginal revenue on C point of TR.

8.7 Relationship among Cost, Revenue and Production

Firm is a technical unit in which commodities are produced for sale.The firm may assume various forms of business organisations, such as individual proprietorship, partnership or any corporation.Success of every business organization depends upon the business decision taken by the entrepreneur. An objective is something that the firm wants to achieve over a specific period of time. It is presumed that business has the only objective of earning profit.



Broadly there are traditional and modern approaches for meeting the objectives of the firm. The traditional economic theory assumed profit maximisation as the sole objective of a business firm. But the modern economists have found that the objective of business form are many and vary from firm to firm. The objective of business firms can have revenue/sales maximization, growth maximisation, maximisation of satisfaction, maximisation of managerial utility.So, we can mention that in the conventional theory of the firm, the principal objective of a business firm is profit maximisation. Under the assumptions of given tastes and technology, price and output of a given product under perfect competition are determined with the sole objective of maximising profits. The basis of the difference between the objectives of the modern corporation arises from the fact that the profit maximisation objective relates to the entrepreneurial behaviour while modem corporations are motivated by different objectives because of the separate roles of shareholders and managersin the latter, shareholders have practically no influence over the actions of the managers. So, we can say that the objective of the firm differs

Approaches of Producer's Equilibrium:

There are two approaches of Producer Equilibrium:

1. Total Revenue and Total Cost Approach

2. Marginal Revenue and Marginal Cost Approach

1. Total Revenue and Total Cost Approach: According to this approach, the producer's equilibrium has two conditions: The difference between TR and TC is maximum. Even if one more unit of output is produced, then the profit falls.

Two conditions must be satisfied:

1. Total Cost = Total Revenue
2. Slope of TC > Slope of TR

Fig 8.9: TR- TC approach to Equilibrium

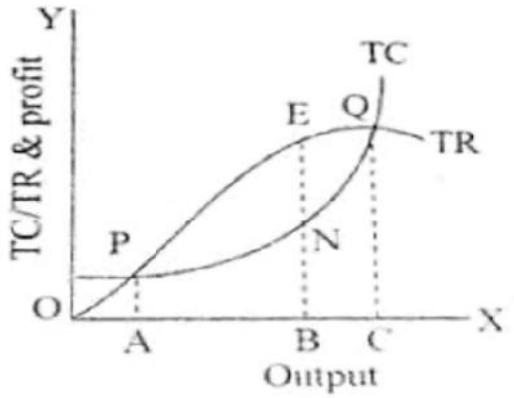


Fig 8.9 shows that the TC curve starts from the point which lies above the origin. This means that costs are positive even if no output is produced. Such costs are called fixed costs of a firm. Below the level of output OA, the firm incurs a loss since TC exceeds TR. Only at the OA output level, TR equals TC and the firm earns only normal profit. Thus, point P is called break-even point. Now, if firm produces more than OA but less than OC then TR will exceed total cost and the firm will earn supernormal profit.Beyond OC if TC exceeds TR, the firm incurs a loss. Now the profit curve has again entered the negative quadrant, so firm earns losses.

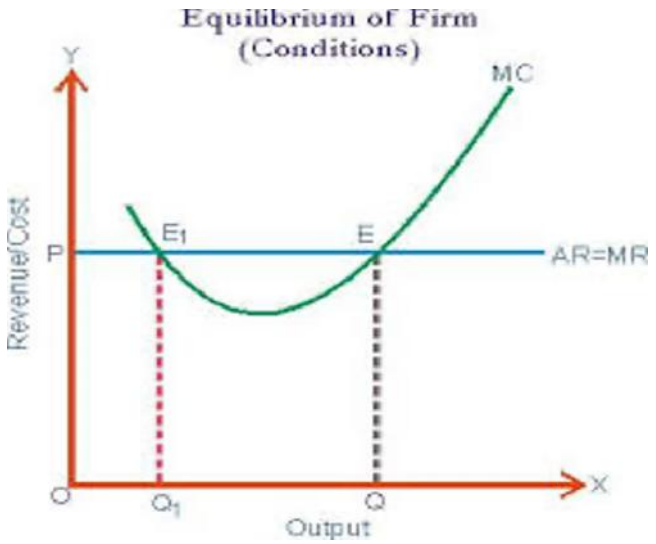
2. Marginal revenue- Marginal cost approach: Irrespective of the market conditions, a firm will stop production if total revenue falls short of total variable cost. Thus, the Profit will be maximized at that point where MR and MC are equal to each other. For any output MR > MC, the firm will expand output.MR is the addition to TR from the sale of one more unit. Thus, when MR=MC, TR-TC becomes maximum for maximum profit. If MR exceeds MC, then the producer will continue producing as it will add to his profits. On the contrary, if MR<MC then benefit will be less than cost.

Thus, under this approach two conditions must be satisfied:

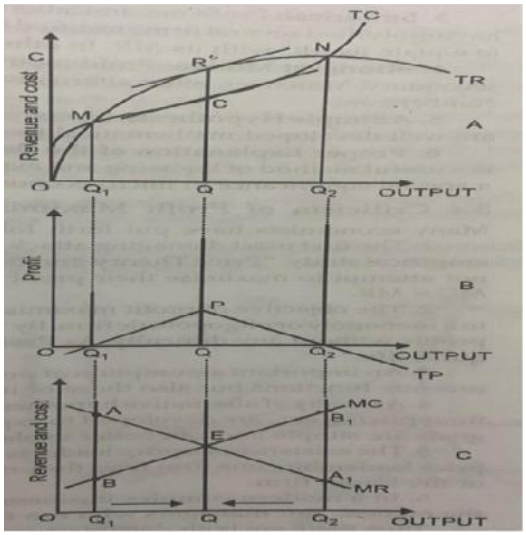
1. Marginal Cost = Marginal Revenue
2. Slope of MC > Slope of MR

MC = MR at points E1 and E. Thus, these are the two points where profit is maximized. One of the important properties of equilibrium is uniqueness. In other words, there cannot be more than one equilibrium point. At point E1, though MR = MC, it does not correspond to profit-maximizing situation.If the firm expands output beyond OQ1, it will add more revenue than to its costs, since MR > MC. It will enjoy more profit by producing more output. Only at output OQ profit will be maximized when MR = MC. So, the Production beyond ON will entail a loss since MC > MR. So, a profit-maximizing firm always changes output toward the level at which MR = MC.

Fig 8.10:MR- MC approach to Equilibrium



The relationship between production, revenue and cost is shown and explained inFig 8.10. The figure has three panels Panel A shows the relationship between TR and TC.There are two break even points i.e. Pt M and Pt N. and the corresponding output is Q1 and Q2 respectively. Firm earns losses if it prefers to produce below Q1 and beyond Q2. The RC distance (which you can visualize) is maximum also represents maximum profit.The panel B which is linked with panel A shows the total profitcurve.In panel A when firm is producing OQ1 and OQ2 there is no profit which is shown in panel B i.e. profit curve is on X-axis showing that profits are zero as Profit curve is the difference between TR and TC. It is important to highlight that as revenue increases profit also increases and as revenue decreases profit also decreases. The, total profit curve is maximum i.e at point P which shows that the point P is maximum because of the maximum difference between two curves i.e.R and C. Panel C shows that the profits are maximum where both the conditions i.e. MR= MC and Slope of MC> Slope of MR are satisfied. Now, if firm produces less than OQ output i.e. OQ1, then its MR is AQ1 and MC is BQ1 which shows that firm's MR is more which is because of increased TR. So it will give an incentive to the producer to produce more.Hence the firm will produce more output than OQ1 and its profit will increase on the other hand, if firm produces output more than OQ say OQ2, then its MC i.e B1Q2 will be more than its MR i.e A1Q2. Hence the firm will bear loss equal to B1A1.The firm will produce less than OQ2.It means firm gets maximum profits by producing OQ output alone where both the conditions of of maximum profit are satisfied.



Thus, in order to be successful a firm must focus on both the output and revenue. The quantity of goods produced must meet public demand , but the company must also be able to sell those goods in order to generate revenue. The production of goods carries a cost, so companies want to find a level of output that maximizes profit, not revenue.

Summary

Total cost is the sum of total fixed cost and total variable cost used to produce goods and services.

- Social cost is the total cost of production of a good which society has to pay for the output of the good.
- Marginal cost is the change in total cost that results from producing another unit of output.
- Average total cost curve is U-shaped due to the combined influences of average fixed cost and average variable cost.
- The long-run average cost curve is a curve that shows the minimum cost of producing any given output when all inputs are variables
- The LRAC is also U-shaped due to law of Returns to Scale
- Firm is a technical unit in which commodities are produced for sale.
- Revenue is the sale receipt of the quantity of output produced by a firm
- Total Revenue is the value of a firm's sales.
- Average Revenue is the total revenue per unit of output sold.
- Marginal revenue refers to the changes in total revenue, resulting from a one-unit increase in quantity sold.

Keywords

- Cost of production: is the amount of expenses incurred to produce a particular quantity of output by a producer.
- Implicit Cost: is the value of input services used in production, but not purchased in a market.
- Explicit Cost: is the value of resources purchased for production.
- Opportunity Cost: is defined as the value of a resource in its next best use.
- Total Fixed Cost: is the cost of inputs that is independent of output. Total fixed cost remains constant throughout the production period, even though output changes.

Self Assessment

1. Opportunity cost

A. Direct cost
B. Total cost
C. Accounting cost
D. Cost of foregone opportunity

2. As output increases, total fixed cost:

A. Starts falling
B. Start rising
C. Remains constant
D. None of the above

3. Which of the following cost curves is never 'U' shaped?

A. Average cost curve
B. Marginal cost curve
C. Total cost curve
D. Fixed cost curve

4. U-shaped average cost curve is based on:

A. Law of increasing cost
B. Law of decreasing cost
C. Law of constant returns to scale
D. Law of variable proportions

5. AFC is:

A. Convex and downward sloping
B. Concave and downward sloping
C. Convex and upward sloping
D. Concave and upward rising

6. Average revenue is:

A. Marginal Revenue/ Output
B. Total Revenue / Output
C. Total Revenue/ Price
D. Marginal Revenue/ Price

7. Total revenue is:

A. Price * Quantity
B. Price * Average Cost
C. Price/ Quantity
D. None of the above

8. _____ refers to the receipts obtained by a firm or seller from the sale of certain quantity of a commodity

A. Cost
B. Revenue
C. Demand
D. Supply

9. Marginal revenue can be calculated as :

A. Total revenue/ Total output
B. Average revenue/output
C. Change in Total Revenue/ Change in Total Output
D. None of the above

10. When Total revenue is maximum, MR is

A. Downward sloping
B. Zero
C. Negative
D. None of these

11. What does break-even point indicate?

A. TR > TC
B. TR < TC
C. TR = TC
D. TC= 0

12. When TR > TC, there is

A. Super normal profit
B. Normal profit
C. Shut down point
D. Negative profit

13. If MC is more than MR at a particular level of output, how will the producer react to maximize the profits:

A. Decrease production
B. Increase production
C. Increase revenue
D. None of these

14. When MC is equal to MR, while maximizing profit, then:

A. MC must be falling
B. MC must be rising
C. MC must be constant
D. None of the above

15. What is the relation between price and marginal cost at equilibrium, when price remains constant with the rise in output

A. Price< Marginal cost
B. Price > Marginal cost
C. Price = Marginal cost
D. None of the above

Answers for Self Assessment

1.	D	2.	C	3.	D	4.	D	5.	A
6.	B	7.	C	8.	B	9.	C	10.	B
11.	C	12.	A	13.	A	14.	B	15.	C

Review Questions

1. Differentiate between fixed cost and variable cost.

2. Explain the relationship between marginal cost and average cost,using a graph.

3. Using a graph, discuss why the long-run average cost curve of a firm is U-shaped?

4. Explain the relationship between cost and productivity in the long run.

5. Discuss why short run average cost curve is U-shaped?

6. Derive the long-run cost curve given the short-run average cost curves.

7. Explain the revenue curve in perfect competition by using a suitable graph.

8. What is the shape of revenue curves under monopoly and monopolistic competition? Explain it by using suitable graph.

9. Explain short run cost curves, using graph.

10. How implicit costs are different from explicit costs? Explain with the help of an example.

Further Readings

1. Microeconomics: An Advanced Treatise—S. P. S. Chauhan, PHI Learning.
2. Microeconomics: Behaviour, Institutions and Evolutions —Sampool Bowels, Oxford
3. University Press, 2004.
4. Microeconomics: Principles, Applications and Tools—Sanjay Basotiya, DND Publications,2010

Web Links

https://harappa.education/harappa-diaries/business-environment/http://www.referenceforbusiness.com/encyclopedia/Man-Mix/Ma

Economics.html

http://bilder.buecher.de/zusatz/14/14727/14727814_vorw_1.pdf

https://www.yourarticlelibrary com/economics/production-cost-different-types-of-costs-of-production/32823

Unit 09: Macroeconomics Environment of Business

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the basics of Macroeconomics
- define business environment
- learn the importance of business environment
- identify the economic factors affecting business environment
- Identify different stages of production and the reasons behind it.
- Identify and understand the non-economic factors affecting business environment
- understand the association between economic and non-economic environment

Introduction:

Macroeconomics has been taken from Greek word 'Macros' which means 'large'. Macroeconomics is a branch of economics that studies how an overall economy—the market or other systems that operate on a large scale—behaves. Macroeconomics attempts to measure how well an economy is performing, to understand what forces drive it, and to project how performance can improve.

According to Shapiro – "Macroeconomics deals with the functioning of the economy as awhole."

In Ackley Gardner's words – "Macroeconomics concerns with such variables as the aggregatevolume 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 prize level."In words of M.H. Spencer – "Macroeconomics is concerned with the economy as a whole orlarge segments of it . In

macroeconomics attention is focused on such problems as the level ofunemployment, the rate of inflation, the nation's total output and other matters of economywide significance."

We can say that microeconomics and macroeconomics differs with each other as in microeconomics, economic problems are studied at individual level (like – an individual family, an individual firm, an individual industry, an individual market etc.) whereas in macroeconomics economic problems are studied at the level of economy as a whole.

9.1 A Necessary Caution

Generally, it is said that macroeconomics is the study of aggregates not of "individual units", which are studied only in microeconomics. To understand this difference caution is needed. Regarding this following two points are needed to be considered:

(i) Macroeconomics is the study of aggregates and that is only at whole economy level. Therefore,

when we mention about demand in macroeconomics then we refer to aggregate demand.

Whose vested meaning is all goods and services for whole economy's by all sectors as

(all families), all friends and government demand).

(ii) There is no doubt that in microeconomics individual units are studied, but it does not mean

that individual unit aggregates are not studied in it.

Notes: In both 'micro' and 'macro' economics, supply/demand are added. But in microeconomics, it is limited to aggregate of any one goods or one market (as a market of cricket balls), whereas in macroeconomics all those goods and services are added which are produced by an economy, whether it is cricket balls or hens or chicken.

When we talk about supply and demand of textbooks of economics then we mean only market ofeconomics textbooks, rather than in it total demand and total supply are included, whether this total demand of economics textbooks which students buy or total economics textbooks which seller sells.

9.2 Scope of Macroeconomics

The scope of macroeconomics involves economic problems and issues which are to be included in macroeconomics. Its knowledge is essential to understand its contents. Widely, in scope of macroeconomics study, following are included:

1. Theory of National Income: In macroeconomics different concepts of national income, its

different factors, methods to measure it and social accounting are studied.

2. Theory of Employment: In macroeconomics, employment and unemployment related problemsare studied. Different factors that determine level of employment as an effective demand, totalsupply, total investment, total savings etc. are studied in it.

3. Theory of Money: Change in demand and supply of money affect employment level to a greatextent. In macroeconomics function of money and related theories are studied. Banking systemand other financial institutions are also studied in this context.

4. Theory of General Price Level: The study of change in general price level is the main problem of macroeconomics. Inflation (general increment in price) and deflation (general decreasein prices) are the main problems in this context.

5. Theory of Economic Growth: In macroeconomics, economic growth means increment in realper capital income, related problems are studied. Underdeveloped economies growth relatedproblems are studied specially. Government's monetary and Financial Policies are studied inthis also.

6. Theory of International Trade: In macroeconomics, trade between different countries isstudied also. Theories of international trade, tariff, protection etc., are the most important topicof macroeconomics.

7. Macro Theory of Distribution: The macro theory of distribution deals with the determination ofthe aggregate rewards of various factors in national income. It explains the share of the total nationalincome that each factor of production receives.

8. Theory of Trade Cycles: It deals with the fluctuations in the level of employment, expenditure and general price level, and how these business fluctuations can be controlled. It also explains the turning points in economy from depression to boom and vice versa.

9.3 Concepts of Macroeconomics

Why we need macroeconomics? Is microeconomics not sufficient to understand the economic problems and their analysis and solutions? Certainty not. We study microeconomics, economic problem as an individual economic unit like food industries, production of fruits or cloths. But some problems are of the type which are related to all industries or generally all production units, like infrastructural facilities in which much electricity (or other means of energy) is needed, besides credit and other facilities, efficient communication and transport facilities are needed. These facilities are needed in each industry. In fact, these are the fundamental necessities of production process. The solutions of these problems are sought at whole economy level. Investment is the compulsion of study of macroeconomics. Some macroeconomics related problems are mentioned ahead, it is clear from that study of macroeconomics as a special branch is necessary

1. Growth: Growth and development are the two important factors of microeconomics or macroeconomics related policies. 'Growth and development' have become the focus of study of macroeconomics of different countries' economy in this age of globalization. The continuous growth of economic policies is essential, and this growth (in the form of flow goods and services) is necessary in the form of increasing standard of living of common people or otherwise total improvement in the quality of life should be there. Growth should be transformed into development. Its meaning is that the gap between the rich and the poor should be reduced in course of time. In fact, the problem of growth and development has got much importance in recent past. Attainment of economic growth should not be done by(i) downfall of environment and (ii) natural resources (particularly non-renewable resources) excessive exploitation because by this future generations production potentiality may be reduced. Only in this context economist talks about 'sustainable development' and this is the rising problem of today's macroeconomics. In fact, planner and politicians are cautioned that they should formulate such types of macroeconomics related policies that could confirm consistent economic growth (in the form of continuing availability of goods and services increasing) and social justice (means in the form of equal distribution of wealth and income) and neither decay of environment nor future generations' production potentiality should decrease by any means.

2. Business Cycle: Economic activities always have ups and downs. The changes which occurred are not steady. When economic activities go down then it is called stage of recession when it reaches to its lowest position then it is called stage of great depression. When it improves then it is called stage of recovery and when it reaches at its topmost position then it is called stage of boom. Recession and great depression are the stages of low profit. In this condition marginal firms are closed, huge cut in quantity of investment and unemployment takes dreadful form. Just its contrary boom condition is such a condition where profit is increasing in which quantity of investment and means of production of demand increases continuously. Business cycle is not limited to a special firm or a particular commercial activity. This is a macro phenomenon which takes into its grip, all

production units of country. In fact, at times it becomes a global phenomenon, like great depression in 1930. It is a matter of fact to pay attention that the origin of microeconomics as a separate branch is given to 1930's great depression. During this period, capitalist economies of world, particularly in U.K. excessive employment was found. In U.K. economy unemployment level reached at the rate of 25%. In such a time great economist of world Lord Keynes had propagated theory of income and employment and deficiency of aggregate demand, caused occurred problems of unemployment's global remedy.

In fact, an economy's cyclic circulation in itself is a great macroeconomics related problem whose solution is to be sought not only by producer but also by government. Producer follows such a strategy by which recession and boom's condition can be faced. Government is to formulate such a policy by which effect of business cycle can be minimal and economic growth's fixed path can be made certain.

3. Unemployment: In the decade of 1930, whole world was in the grip of Great Depression. Economic activities became very slow. The demand of goods and services fell. As a result, there arises massive fall in commercial benefit, cut down in investment at large level and spread of unemployment. If in the production field a large percentage of active population faces unemployment, then it becomes such a problem whose solution at the whole economy level becomes very essential. This is an important problem of macroeconomics. In India, unemployment continues to be a dreadful problem. Unskilled laborers at great scale have suffered from rural unemployment. In urban areas too in skilled artisans found amazing amount of unemployment and under employment. In developing country like India, unemployment problem is so vast and long termed that government has subjected to give reservation in government jobs. This reservation is trying to implement in private sector also. In fact, why reservation will be needed if all those who are ready to work on given wages, great number of jobs is created? It can be said certainly that our country is not developing at that rate on which whole manpower of country can be employed. Unemployment is not a characteristic of underdeveloped country like India only. This is a serious problem of developed countries like U.K. and U.S.A. In developed and underdeveloped countries only, difference found in nature of unemployment. In underdeveloped countries its nature is chronic, and its reason is shortage in production potentialities. Just its contrary, in developed countries its nature is cyclical for that reason there is decrease in the demand of goods and services. Still, an important problem of macroeconomics is unemployment, and it is related to all economies of world.

4. Inflation: Inflation is called such a condition in which at general price level (Average cost of all goods and services of economy) within a given period of time finds tendencies of continuously increasing. As a result, value of money decreases and people's real purchase power decrease. This is also a macroeconomics related problem, whose understanding and solution is very necessary. Normal increment in price is helpful in economic growth. It causes increment in investment and whole level of economic activities is initiated. But inflation sometimes takes the form of galloping inflation of hyperinflation. In the condition of hyperinflation, factors of production become costly. Specially in investments' interest rate got tendency of heavy increment. As a result of this cost of production increases much and business competitiveness is becoming less, especially in world market. When the tendency of decrease in demand and rise in production cost are got then obstacles occur in production process. In such a case economy move towards boom to recession and great depression.

Common man suffers seriously due to inflationas a result ofwhich purchasing power decreases and the dissatisfaction towards government increases. General dissatisfaction finally takes the form of social restlessness. In fact, price control charity has become a part of election manifesto in countries like India. As a result, most welfare states have given priority on inflation controlling strategies.

9.4 Use of Macroeconomics

1. **Helpful in Understanding the Functioning of an Economy**: Knowing, how the economy works requires a thorough understanding of macroeconomic variables. The behavior of total income, output, employment, and the overall price level in the economy are our main economic challenges. These variables are statistically measurable, making it easier to analyse the consequences on the economy's functioning. Macroeconomic principles, as Tinbergen points out, aid in "making the elimination process intelligible and transparent." For example, while there may be disagreements about the appropriate method for assessing individual prices, the overall price level is useful in determining the economy's character.

2. **Helpful in the Formulation and Implementation of economic Policies:** From the standpoint of economic policy, macroeconomics is immensely useful. Modern governments, particularly those in developing economies, are presented with a plethora of national issues. Overpopulation, inflation, the balance of payments, general underproduction, and other issues are among them. These governments' primary responsibilities include the regulation and control of overpopulation, general prices, general trade volume, general outputs, and so on. "Working with macroeconomic principles is a bare requirement in order to contribute to the answers of our time's significant problems," Tinbergen argues.

3. **Study of Economic Development**: Macroeconomics is of special importance for the capital poor countries in understanding their basic problems and suggesting various ways and means to reach the destination of economic development.

4. **Study of National Income**: 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.

5. **Study of Economic Fluctuations**: Macroeconomics is the branch of economics that studies the behaviour and performance of an economy as a whole. It focuses on the aggregate changes in the economy such as unemployment, growth rate, gross domestic product and inflation. Macroeconomics analyzes all aggregate indicators and the microeconomic factors that influence the economy. Government and corporations use macroeconomic models to help in formulating of economic policies and strategies.

6. Full Employment: The use of macro analysis has become important in these days, when studying lakhs of individual units has become nearly impossible and the government's role in the economy through expansionary monetary and fiscal actions. Correct macroeconomic policies have enabled the regulation of business cycles (inflation and deflation), and as a result, violent booms and depressions have become a thing of the past. Macroeconomics, in an appropriately adjusted version, is the foundation of all economic development strategies for developing economies. Economists are now boldly investigating the options and methods for sustaining economic development and full employment. More than anything else, macroeconomic thought has enabled us to properly organise, collect and analyse the data about national income and coordinate international economic policies.

7. Inflationary Gaps and Deflationary Gaps: Macroeconomics or economics of aggregates is of great help in understanding inflationary gaps and then how to fill up both these gaps.

8. Suitable to all Economic Systems: Macroeconomics analysis is suitable to all systems i.e., Capitalistic, Socialistic and mixed economic systems are making use of macroeconomics.

9. Solution to Economic Problems: Macroeconomics provide modern governments, a solution to the problems of an economy like unemployment, rising and falling prices, problem of over production etc.

9.5 Difference between Microeconomics and Macroeconomics

Salient points on the Difference between Microeconomics and Macroeconomics are as follows:

1. Degree of Aggregation: There is the difference in economic factors of microeconomics andmacroeconomics. Microeconomics studies those economic problems which are related tosingle economic unit as a single firm or small group of economic units as a single industry.Microeconomics studies economic problems of firms of an economy. Microeconomics studiesonly a small part of economic factors whereas macroeconomics studies important aggregatesof economic variables.

2. Focus of Study: The focus of study of microeconomics theory is related to optimum distributionof factors and, study of problems and policies. Just its contrary macroeconomics focuses onstudy of employment status of resources tends in economy, resources development relatedtheory, study of problems and policies.

3. Basic Parameters of Subject matter Difference: In microeconomics and macroeconomicsexplaining basic parameter, Prof. G. Thimmah has said that the main determiner ofmicroeconomics problem is price whereas the main determiner of macroeconomics problemis income. In microeconomics, consumer, producer, factor of production etc. economic unitstake their prices on different market basis. Just its contrary in macroeconomics total investment,total savings etc. related decisions are taken mainly on rational income's basis.

4. Methods of Study: At the time of formation of microeconomics' theories we assume, "Otherthings being equal". For example, in law of demand, we study about relation between priceand quantity ofdemand. Other factors affecting demand, as a consumer's income, his habit,his interest, price of related goods etc. effects assume constant. This method of study iscalled Practical Equilibrium Analysis. Just its contrary in macroeconomics, economic factorsare classified in important aggregates, as total demand, total supply, total investment etc.interdependence of these factors is focus of study of macroeconomics. The meaning of thismethod of study is called – Quasi General Equilibrium Analysis. Microeconomics and macroeconomics are based on group of variousassumptions. In microeconomics generally it is assumed that in country full employment'sconditions are found. Total production and total expenditures are also assumed constant. Onthe basis of these assumptions, it is tried to determine, how is optimum allocation of resourcesand how various economic units get equilibrium condition. Just its contrary, it is generalassumption of macroeconomics that allocation of resources is optimum. On this assumption,it is tried to know that how national resources get full employment.

Micro –Macro Paradox

The matter which is right at individual levels perhaps is not right for whole economy : For example,

(1) If a person saves major part of his income, it may be beneficial for him, but if whole society

will save more than before then its result will decrease in total consumption, decrease in total

demand, decrease in total supply and decrease in national income. Similarly, more savings will be destructive for whole society.

(2) If a person withdraws all his deposits from bank, then it will no loss to bank; but if all depositors withdraw all their deposits from bank, then bank will be failed.

(3) If a labourer accepts to work on low wage, then he will get a job, but if all labourers decrease their wages rate, then their income will decrease also. Their total demand will be decreased; therefore, total production will decrease too. As a result of this, level of

employment will decrease rather than increasing. Such a paradox is the difference between microeconomics and macroeconomics.

9.6 Introduction to Business Environment

The term "business environment" refers to the totality of all people, organisations, and other forces that are not under the control of industry yet may have an impact on its output. As a result, the financial, cultural, governmental, technological, and other elements that operate outside of a company are considered part of its environment. Individual customers or competing businesses, as well as management, customer groups, opponents, the media, courts, and other external entities, make up an enterprise's environment.

Importance of Business Environment:

Business processes, like individuals, do not thrive in confinement. Every business does not exist in a vacuum; it exists, persists, and evolves in the context of the events and forces that surround it. While a single business can make minute changes or manage these factors, it has little choice but to react or adjust in response to them. Business managers with a good understanding of the environment may not only recognize and assess external factors, but also respond to them. Consider the following aspects to gain a better understanding of the importance of the business environment and how managers perceive it:

1. Enables to Identify Business Opportunities: Opportunities refer to the positive external trends and changes that will help to improve a firm's performance. The environment provides numerous opportunities for business success. Early identification of opportunities helps the firm to be first to exploit them instead of losing them to competitors.
2. Helps in Tapping Useful Resources: A business firm assembles various resources called inputs like finance, machines, raw materials, power and water, labor, etc. environment including fisheries, government, return on financial investment to investors, and from its so on. Because the enterprise depends on the environment as a source of inputs or resources and as an outlet for outputs, the enterprise designs policies that allow it to get the resources that it needs so that it can convert those resources into outputs that the environment desires.
3. Coping with Changes: Today's business environmentis getting increasingly dynamic where changes are taking place at a fastpace. All sizes and all types of enterprises are facing an increasinglydynamic environment. Turbulent market conditions, less brand loyalty,divisions and sub-divisions (fragmentation) of markets, more demandingcustomers, rapid changes in technology, and intense global competition arejust a few of the images used to describe today's business environment. Toeffectively cope with these significant changes, managers must understandand examine the environment and develop suitable courses of action.
4. Assistance in Planning: Since the business environment provides both opportunities and threats for the firm, its understanding and analysis can be the basis for deciding the future course of action or training guidelines for decision- making.
5. Helps in Improving Performance: The firms which continuously monitor their environment and develop a suitable course of action not only improve their present performance but also continue to succeed in the market for a longer period.

9.2 Economic Environment of Business

The dynamic economic climate that exists in the market has an impact on all enterprises, whether domestic or foreign. Interest rates, demand and supply, recession, inflation, and other economic conditions all have an impact on company.

The economic environment consists of external factors in a business market and the broader economy that can influence a business.The microeconomic environment, which affects business decision-making - such as individual actions of enterprises and consumers - and the macroeconomic environment, which affects a complete economy and all of its participants, are two types of economic environments. Many economic factors function as external restraints on your company, meaning we have little or no control over them. Let's take a closer look at both of these big elements.

1. **Demand and Supply:**

Demand and supply are two major economic aspects that influence how well business models perform. Demand refers to a customer's willingness and ability to buy what a company has to offer, while supply refers to the company's ability to make what the customer wants available. For example, when a mobile phone with cutting-edge technology is launched to the market, it commands a higher price due to high market demand, and prices remain high as long as demand exceeds supply.

2. **Marginal and Total Utility:**

Utility refers to the level of satisfaction that consumers obtain from the number of products they own. After a period of continuous and successive consumption of the same things, the consumer's sense of fulfillment begins to deteriorate. This causes a short-term or long-term drop in the company's sales. Most businesses plan for the launch of a new brand before the utility and sales of their current one plummet. The launch of a new brand assures that the company's revenue trend does not deteriorate. One of the economic variables influencing firms is the decline in utility. When we **purchase a pizza**, the first few pieces give us great satisfaction. Nonetheless, there is a down fall in the satisfaction levels when we continue eating the rest of the pizza. Suppose the marginal utility derived on consuming the first slice was 90%. Nonetheless, due to the dwindling of utility, the second piece had the score of 80% and the third piece had 70%. The satisfaction derived on consumption will be in a deteriorating order.

3. **Money and Banking:**

Banking facilitates monetary and fiscal policies that have an impact on business, the economy, and business customers. Consumer demand is determined by the amount of money in circulation. The banking facility, on the other hand, determines the borrowing capacity of both individuals and businesses. Banking policies have a significant impact on the pricing of products and interest rates, as well as the prices of assets and investments. The monetary policies of a specific country have an impact on the economy's activities and inflation. The monetary policy transmission mechanism refers to the entire dynamic environment.

4. **Economic growth and development:**

The quantity of money invested in long-term improvement channels and the finances of people living in the society at large in a given country is determined by the country's economic growth. Development is the most important of all the economic elements that influence company. As a firm, you must meet the expectations of a powerful economic climate. During an economic upswing, for example, luxury brands perform far better than firms whose end product is vital products.

5. Income and Employment

Another crucial aspect of the economy that affects a business operation, are the rate of income and employment varsity in a particular country. The density of employment determines the rate of demand in a company and even the country including the purchasing power of individuals.

Example: During an economic upswing, opportunities for work are available to enable people to generate income and have a stronger purchasing power. Nonetheless, the purchasing power of most people goes down, as employment density and the rate of income goes up during therecession period in a given **economic environment**.

6. General Price Level:

Commodity price levels in general are another important economic issue that affects enterprises and contributes significantly to their growth. In every economic climate, the cost of raw materials for commodity manufacturing, the paying power of potential clients, the cost of production, and transportation rates are some of the most essential aspects that end up adding to the retail price, diminishing a business's earnings.

In most **economic environments**, when prices go up, the total revenue generated has a high chance to go down because there might be a decrease in demand. Assuming consumers have bought sixteen pizzas for the price of $4. But because of increase in price of the pizzas, the consumers may only be able to afford 8 pizzas for a higher cost of $6.

7. Trade Cycles:

This, too, affects the price of goods and services sold by a company. Depression, recession, recovery, and prosperity are some of the cycles that might occur. All of these phases make up a business cycle, which determines demand and supply for all goods and services, as well as overall prices for all commodities, whether essential or non-essential.

8. Inflation:

Inflation usually arises when the supply of money in the economy grows too quickly without being matched by an equal supply of goods and services. There is a lot of information moving around in this situation right now. In order to keep firms afloat, products prices must rise in one manner or another. As a result, the cost of raw materials used in manufacturing has increased. The increase in the cost of raw materials is clearly reflected in the selling price.The buying power of consumer decreases, their incomes remain constant, but the prices of products and services shoots up. This will definitely affect the businesses in that, the demand for the goods is directly dependent on its availability and its price.

9. Recession:

During a recession, businesses frequently lose a lot of money and see a drop in sales and earnings. And, in order to save expenses, most of them turn to layoffs, retrenchment, and firing, as well as lowering capital investment, advertising expenditures, and research and development operations. Of course, this applies to businesses and organisations of all sizes, regardless of their economic circumstances.

It is another matter of fact that the business sector has economic relations with the government, capital market, and household sector. These different sectors together influence the trends and structure of the economy. Individually business firms can do little to change their economic environment. But collectively business firms can do a lot to make economic environment conducive to their activities. Now business firms organise the associations to influence the policies of the government. Thus, we can say that Economic forces must be studied and understood in order to create effective company plans. Economic dynamics affect all businesses, albeit some are more sensitive than others. The corporation will be able to create appropriate strategies by anticipating future economic situations. The government's economic policy has a significant impact on business. Government policy has a positive impact on some types of businesses while having a negative impact on others. In any case, the government's concern for economic power should be felt throughout the country.Therefore, the economic factors discussed above have a strong effect on the environment of the business.

9.7 Non- Economic Environment of Business

The non-economic environment refers to the circumstances, factors, or aspects in which a country'scorporate institutions must operate. In other words, the non-economic environment encompasses allof the aspects or circumstances that a firm must consider when establishing and operating. The non-economic environment has a significant impact on company. In India, noneconomic environmental elements are typically the determining factors in all types of

commercial activity.Physical, social, cultural, political, legal, technical, educational, historical, ethical, environmental, and international issues are just some of them.

We'll go over each one individually now.

1. Physical Environment: The physical environment is crucial to entrepreneurial behaviour and business operations. It establishes the natural boundaries. The two worlds of business and nature are inextricably linked. Geographical and ecological factors play a significant effect in the establishment of a business and the choice of its shape. As a result, the entrepreneurs determine the location of their business by keeping all of these factors in mind.Following elements are included in the physical environment.

a. Natural Resources

b. Climate

c. Infrastructure

d. Public Utilities

The nature of demand, production, commodity mix, marketing mix, environmental balance, cost composition, prices, and supply, among other things, are all affected by the aforementioned physical factors.

Hence, the entrepreneur keeps the physical condition into consideration, before taking the decisions.

2. Socio-Cultural Environment: Belief systems and practises, habits, traditions, and behaviours of all people in a specific country, fashion trends, and market activity are all social and cultural elements that influence actions and decisions. One of the most essential factors impacting marketing managers' decisions and strategic goals when entering new overseas markets is socio-cultural perspective.

In the modern age, new social recognition and values have been established. These include the high quality of life, feelings of respect for people, love for knowledge and education, faith in authorities and feelings of competition.It should be noted that legal factors affecting business is also considered as one of the major socio-cultural factors that can influence companies. Proper identification of this factor during strategic analysis (PEST analysis, STEEP analysis, SWOT analysis, TOWS analysis) could lead to better strategic alignment of company to society.It is necessary to keep these in view, in the management and operation of the business.

3. Political Environment: The political climate of a country has an impact on businesses, and it may add a risk factor that causes them to lose money. The political environment may alter as a result of government activities and policies at all levels, from the municipal to the federal. Businesses must account for the fact that government policy and laws might change at any time.

The political environment in a country affects its economic environment. The economic environment, in turn, affects the performance of a business organization. In the United States, for instance, there are significant differences in Democratic and Republican policies. This has implications for factors such as taxes and government spending, which in turn affect the country's economy in every aspect.

Therefore, it has been correctly said that political decisions may change even the direction of the business.

4. Legal Environment: The legal environment in which firms operate plays a critical role in determining their performance around the world. Taxes and other regulatory measures implemented by the government help to encourage economic progress while also protecting consumers from exploitation and other illegal factors. As a result, before starting a business or during the course of running one. Understanding the significance of regional tax measures, legal considerations that affect company, and regulatory measures in determining how your business is affected is critical.

5. Technological Environment: Technological change is improvement in the 'art' of making products or developing processes.. A technological product is just something that man created using the application of knowledge to improve a person's life, environment or society.Changes in the technology environment have an impact on businesses. Businesses face risks, opportunities, and challenges as a result of technological change. Some businesses can take use of evolving technology to improve their goods and processes, or even create new ones that will grow their markets and earnings.

The important factors operating in the technological environment are as follows:

(i) Sources of technology like company sources, external sources and foreign sources, cost of technology acquisition, collaboration in and transfer of technology.

(ii) Technological development, stages of development, rate of change of technology and research and development.

(iii) Impact of technology on human beings, the man-machine system and the environmental effects of technology.

(iv) Communication and infrastructure technology and technology in management.

In India, we observe that the status of technological advancement differs greatly amongst different industries. Customers' wants and government policy, in general, are seen to influence the technology side of competition. On a grand scale, in India, foreign technical collaborations are widespread, but they are governed by tight rules about indigenization, impact on local technological growth, and employment export obligations, among other things.Normally, technological advancement always leads to improvement in the process of production, transportation and communication. Change in technology is mostly associated with better service and cost efficiency.

In recent years, information processing and storage with the use of computers and telecommunication facilities have developed rapidly. People now prefer to use mobile phones in place of landline phones. Now a day's electronic appliances have replaced electrical equipment vary widely.

Business activities are bond to suffer if enterprises do not adopt up-to-date technology as and when necessary. So the business firms are very much required to pay attention to the changing technological environment and to see as to how new technologies can serve best to the human needs

6. Educational Environment: The educational environment has a significant impact on the business's progress and development.

The educational system, interest in education, educational level, professional availability, level of higher education, management courses, research level, administrative education arrangements, level of vocational education, and relations between education and employment are all prevalent in society.

It establishes a learning atmosphere. When all of these components are readily available in a society, the level of education rises dramatically, and a favourable climate emerges.

It also provides opportunities for the development of new techniques in the business and the path of innovations and creativity in the business gets broader.

7. Historical Environment: Any country's historical context has an impact on business. Historical glory, historical events, historical concepts, national history, and other historical facts play a significant impact in determining corporate policies and decisions. As a result, any country's history of wars, mutinies, movements, battle for national freedom, political instability, and so on have a significant impact on corporate decisions.

8. Ethical Environment: Managers in today's digital business activities are guided by ethical concepts, beliefs, models, ideals, and codes of conduct, among other things. As a result, entrepreneurs and businesspeople must adhere to society's ethical standards. Health, safety, labour welfare, social security, working conditions, competitive prices, advertisements, sales, income distribution, quality control, purchase sales, import-export, shareholder and debtor issues, societal costs, and honorarium payment are all examples of ethical conduct.

Hence, a businessman is required to manage and operate the business organization, by keeping these in view.

9. Cultural Environment: A nation's culture is represented in its art, literature, and habits, among other things. People's attitudes and mental growth are also described by culture. The nation's cultural growth has an impact on public opinion, and trends toward movement, drug culture, and Hippyism, among other things, are on the rise. These cultural beliefs have an impact on commodity and market demand. Furthermore, businessmen establish and revise their company practises in accordance with cultural value. Cultural considerations have a significant impact on business. Employees' values and priorities have an impact on how they are managed. It also has an impact on the marketing, sales, and distribution departments. It can have an impact on how a company analyses and decides how to join a new market.As a result, the cultural environment has an impact on commercial activity.

10. Ecological Environment:'Ecology' is a science telling about the relationship of all living beings (i.e., human beings, animals and plants), with non-living beings (air, water, soil, rivers, land and mountains). 'Eco System' is a complex and wider term denoting the relationship between living and non-living things as a whole in a particular region. To preserve the society, it is important to protect the environment. Therefore, every business must take measures to protect the environment rather than damaging it. Nature has given us: air, land including mountains, hills, forests etc. and water in the form of rivers, lakes, sea etc. It will create an environment to live. Our health is largely dependent on the quality of such environment. However, it is observed that the quality of this environment is deteriorating day by day. We are getting neither pure water to drink nor clean air to breathe. We are also suffering from various diseases because of such lower quality of environment. When the quality of environment deteriorates, it is said that the environment is getting polluted. Thus, environmental pollution refers to contamination of environment by various substances that have adverse effects on living and non-living matters. Ecological factors influencing

business are connected to actions and processes necessary to protect natural environment and in the same time maintain or increase efficiency of the corporation. There are several ecological factors influencing management decision, business and environment goals. There are several ecological factors influencing management decision, business and environment goals. Proper identification of natural environment and its influences during strategic analysis (SWOT analysis) could lead to better strategic alignment of company to ecosystem and state regulations.

11. International Environment: International business environment has many positive aspects in spite of various issues, such as it contributes new technology, infrastructure development, managerial skills, creating jobs, providing better services, and bringing in investment capital from other countries by exporting products.

It is evident that the business environment is influenced by non-economic factors also, Accepting this fact, the planning commission has observed, The problem of developing countries is not that of molding economic activities in existing social and economic structure, but is to so mold this structure itself that people's expectations may be fulfilled.

Thus, identifying and studying the non-economic environment factors are very relevant to the present business

9.8 Economic and Non- Economic Environment Interaction

Business's economic environment has a significant impact on its non-economic environment, just as the non-economic environment has an impact on the economic environment. The non-economic environment determines as well as being determined by the economic environment, which is both exogenous and indigenous. Let's take a look at a few specific exchanges.

The social environment influences and is influenced by the commercial economic environment.Social attitudes towards business and management determine how many people get attracted to private business as an activity and to management as a career. If business gets social sanction as a respectable profession, the occupational structure of a country will reflect a sizable category of professional managers. On the other hand, if more and more of the active labour force joins professional management, the social attitude towards business and its management also changes. For Example, The economic system is heavily determined by social movements. To deal with industrial disorder, a repressive economic system may be required if workers acquire a confrontational rather than cooperative attitude toward management. If, on the other hand, rapid economic growth is the goal, management must implement a labour productivity revolution, and wages may be determined by labour productivity rather than business profitability. To work on a productivity-based wage system, you must cooperate with a system of incentives and favourable labour attitudes. As a result, a unique social mindset and discipline are required to achieve specific economic goals.

The educational and cultural environments, as well as the economic and corporate environments, are inextricably linked. The state of economic development is a deciding factor in selecting an educational system. Only a very high-income country, for example, can afford to provide expensive higher education in science and technology. On the other side, the educational system may be to blame for the current economic climate. For example, in many nations, the emphasis on arts education and a lack of vocational courses may be blamed for the economic problem of unemployment.At the corporate level, the interdependence between educational and economic environmental factor may at times take the form of a vicious circle. For example, a business concern with low profits firm may not find resources of finance management training or executive development programme. As a result, there may be a shortage of highly qualified and trained management personnel. Thus, lack of trained competent managers may lead to business inefficiency.

The politico-legal and economic environments of company are so intertwined that we sometimes refer to them as political economy business. Business firms are more likely to emerge in an environment of political stability, and businesspeople are more ready to take economic risks. However, when there is political instability, business concerns increase, and entrepreneurs may be hesitant to start new businesses.On the other hand, sometimes a series of political legislations may be necessary to cope with the economic environment. To fight economic and industrial recession, the strategy of streamlining the administration and simplifying the procedure may be adopted. In fact, different legislations of the Government (like MRTP Act, FERA, and Urban Land Ceiling Act) are often politico-economic in character. This is borne out by an analysis of the content and intent of different legislations and political announcements. Also, the state of economic environment decides the continuity or discontinuity of a particular political administrating. The state of the political environment, in its turn, decides the pattern of economic legislations.

The historical and economic environments in which businesses operate are also intertwined. Business's print (economic) environment might be thought of as a legacy of its previous (historical) environment. Every company has a narrative to tell, and every storey has a lesson to impart. As a result, the repent is a reflection of the past, and it may be dealt with in terms of prior experiences.Therefore, we can say that, history is a record of events and a storehouse of lessons which can provide guidelines for present economy policy decisions. The achievements of the Plans in the past may provide a direction to the formulation and implementation of the future Plan of an economy. The present performance of a plan will decide the future course of planning. It suggests that the environments factors are interrelated on the time scale too.

Finally, we'll look at the relationship between a country's physical environment and its economic environmental business. Many countries have passed legislation to conserve natural resources and protect the physical environment. These environmental issues may limit the expansion of a particular commercial concern, such as a factory. The size of a plant, the scale of output, the organisation of enterprises, the structure and action of industries, on the other hand, may be at the root of environmental improvement or delay. As a result, today's social responsibility of business entails considering the environmental consequences of various economic and technological activities. If this social obligation is not met, rules governing business and industry will progressively become laws governing the physical environment in which businesses operate.From the standpoint, one may feel that in that in addition to the existing functional areas of management (prod finance, personnel and marketing), we are soon going to have a few area of environment. The point remains that the physical environment as a factor is becoming so significant day by day that it may be treated as a critical element within the economic environment of business.

Summary

- Macroeconomics studies at whole economic level economic problems or issues, asunemployment, rate of inflation, business cycle, etc.
- Economic environment refers to all the external economic factors that influence buying habits of consumers and businesses and therefore affect the performance of a company.
- Non-Economic Environment means the surroundings or factors or elements under which the business institutions of any country have to function.
- The economic environment of business exercises a strong influence on the non-economic environment of business just as the non-economic environment influences the economic environment
- The economic environment is, thus, both exogenous and endogenous, it determines as well as it is determined by non-economic environment

Keywords

- Macroeconomics – It studies at whole economic level economic problems or issues, as\ unemployment, rate of inflation, business cycle, etc.
- Principal Points of Difference between Micro and Macro Economics – (i) Microeconomicsstudies an individual economic unit as a single family or one firm related economicproblems/issues. Macroeconomics studies economy related economic problems/issues. (ii)Microeconomics is centred on optimum allocation of resources, whereas macroeconomic iscentred on production and employment level. (iii) In the contents of microeconomics "price" isthe main parameter, whereas in macroeconomics it is "National Income". (iv) Microeconomicsis based on "partial equilibrium" analysis whereas macroeconomics is based on "quasi generalequilibrium" analysis.
- Areas of Macroeconomic study – (i) Theory of national income, (ii) Theory of employment,(iii) Theory of money, (iv) Theory of general price level (v) Theory of economic development(vi) Theory of international trade.
- Major Macroeconomic Issues – (i) Growth and development (ii) Employment (iii) Business cycle (iv) Inflation (v) Budgetary deficit and fiscal policy (vi) Interest rates and monetary policy.Growth and development, issues of the employment and business cycles are considered to betarget of macroeconomics.
- Business Environment – refers to the totality of all people, organisations, and other forces that are not under the control of industry yet may have an impact on its output.
- Economic Environment- The economic environment consists of external factors in a business market and the broader economy that can influence a business
- Non-Economic Environment- Non-Economic Environment means those surroundings or factors or elements under which the business institutions of any country have to function.

Self Assessment

1. Micro environment is also called as _____
A. General environment
B. Operating environment
C. Economics environment
D. Political environment

2. Macro environment is also called as _____
A. General environment
B. Operating environment
C. Economics environment
D. Political environment

3. Business includes:

A. Non-economic activities
B. Economic activities
C. Social activities
D. Production activities

4. Macroeconomics deals with:

A. Business cycles
B. Unemployment
C. Individual firm
D. Both (a) and (b)

5. The term business environment refers to _____ factors which impact functioning of a firm

A. External

B. Internal
C. Management related
D. Internal and external

6. _____ involves all those activities encompassing the trade in goods and services

A. Business
B. Economic activity
C. Commerce
D. Trading

7. Economic environment refers to all forces which are _____ in nature

A. Political
B. Social
C. Economic
D. None of the above

8. Business environment consists of :

A. Political system
B. Culture of the society
C. Demographic factors
D. All of the above

9. A stable and dynamic political environment is indispensable for

A. Business growth
B. Enhance the export
C. Both (a) and (b)
D. None of these

10. Macro environment consist of _____ environment.

A. Public
B. Political and legal
C. Suppliers
D. Customers

11. Identification of companies technological assets that may provide _____ in new business:

A. Failure
B. Development
C. Opportunities
D. None of these

12. Environment refers to all _____ which have a bearing on the functioning of business:

A. Internal forces
B. External forces
C. Mutual forces
D. Economic forces

13. _____ refers to all external forces which have a bearing on the functioning of business.

A. Technology
B. Climate
C. Force
D. Environment

14. Environment analysis provide inputs for strategies in _____ making.

A. Decision
B. Mission
C. Vision
D. Role

15. Population is a component of the total _____ environment:

A. Natural
B. Social
C. Technology
D. Economic

Answers for Self Assessment

1.	B	2.	A	3.	B	4.	D	5.	D
6.	B	7.	C	8.	D	9.	A	10.	B
11.	C	12.	B	13.	D	14.	A	15.	D

Review Questions

1. What is business environment?

2. Write main points of macroeconomics.

2. What is dealt in macroeconomics?

3. How microeconomics is different from macroeconomics?

4. Discuss the economic factors that affect business environment .

5. What do you understand by the economic environment of a business?

6. Briefly discuss the non-economic factors that affect the overall working of the business.

7. What do you understand by the non-economic environment of a business?

8. Explain why it is important to study business environment.

9. How economic environment of business affects non economic environment?

10. What concepts are covered in macroeconomics.

Further Readings

1. Atmanand, Managerial Economics, Excel Books

2. G.S. Maddala, Microeconomics: Theory and Application, Tata McGraw-Hill

3. Samuel Bowles, Microeconomics: Behavior, Institutions, and Evolution, Oxford

4. Jeffrey M. Perloff, Microeconomics, Pearson Education

5. Veena Keshav Pailwar, Business Environemnt, PHI Learning

Web Links

https://harappa.education/harappa-diaries/business-environment/http://www.referenceforbusiness.com/encyclopedia/Man-Mix/Ma

Economics.html

http://bilder.buecher.de/zusatz/14/14727/14727814_vorw_1.pdf

https://www.toppr.com/guides/business-environment/

https://egyankosh.ac.in/bitstream/123456789/7100/1/Unit-1.pdf

Unit 10: Income Determination

CONTENTS

Objectives

After studying this unit, you will be able to:

- Describe the concept of national income;
- Explain and calculate various national aggregates;
- Discuss the methods of calculating national income;
- State the problems in measuring national income;
- Realise the circular flow of income in 2, 3 and 4 sector model.

Introduction:

Circular flow of income model shows the flow of income between the producers and thehouseholds who buy their goods or services. Circular flow of income refers to the economic modeldescribing the circular movement of money between Firms/Producers and households. Such amodel is also called a two-sector economy, as it only considers two sectors, household and firms.Inthe real world, many additional players like the government, national income and foreign marketsare taken into account. This drastically increases the complexity, but the end result still is a circularflow of income.To overcome the drawbacks of the two-sector economy, other models are used as areference to understand the flow of money at the macro level. These models are a three-sectormodel of economy and four-sector model of the economy.

10.1 Circular flow of money

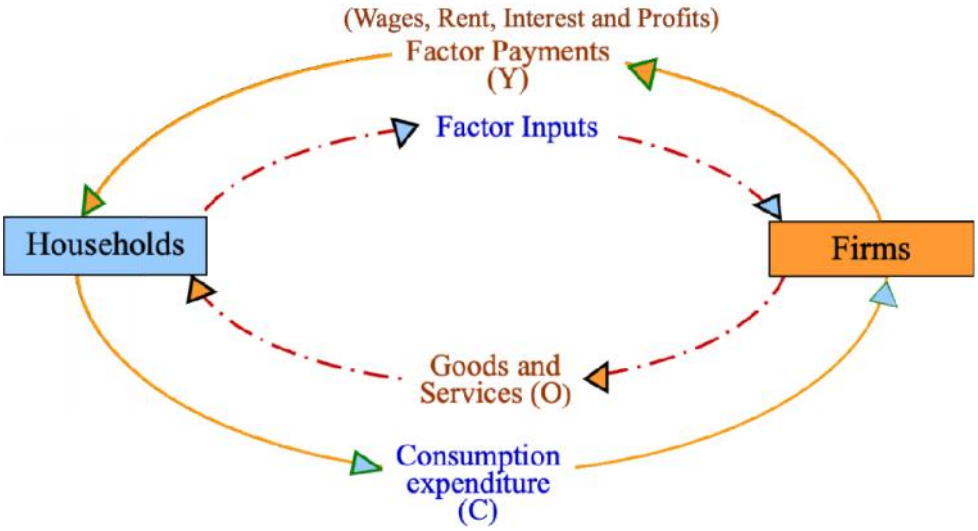
The circular flow of income is an integral concept in economics as it describes the foundation of the transactions that build an economy. The basic model of the circular flow of income considers only two sectors, the firms and the households, which is why it is called the two-sector economy model.Income moves from households to producers asthe households purchase goods or services and income moves from producers to households inthe form of wages or profits.The various components of national income and expenditure such as saving, investment,taxation, government

expenditure, exports, imports, etc. are shown on diagrams in the form ofcurrents and cross-currents in such a manner that national income equals national expenditure.

Circular Flow of Income in a 2 Sector Model

One of the most important insights about the aggregate economy is that it is a circular flow inwhich output and input are interrelated (Figure 10.1). Household's expenditures (consumptionand saving) and firm's expenditures (wages, rents, etc.) are household's income. **Firms**require various factors of production to produce these goods and services and produce and supply the goods and services. Households include a set of individuals living in the same house and provides services in terms of factor inputs to the firm. Households are paid for these services by firms which households spend on consumption. Thus, money flows from firms to households as factor payments and from households to firms as expenditure on goods and services. *It is a circular flow of money or income.*

Fig 10.1: Circular Flow of Income in a 2 Sector Model without Financial Market



The circular flow of income model is a model used to show the flow of income through aneconomy. Through showing the leakages in the economy and theinjections, the different factorsaffecting the economic activities are apparent. Just like a leakage in a bucket leads to decrease inthe level of water, a leakage in the economy leads to a decrease in economic activity. And justlike an injection into the bucket where the water level rises, an injection in an economy leads toan increase in economic activity.

a. *Injection:* Injections are types of expenditure on goods and services that have any origin other than the household consumption.

b. *Leakage:* Instead of spending all of the income immediately on consumption, part of household income "leaks out" from the economy, which is called leakage.

Basic Assumptions of a Simple Circular Flow of Income Model

The economy consists of two sectors: households and firms.

a) Households spend all of their income (Y) on goods and services or consumption (C). Thereis no saving (S).

b) All output (O) produced by firms is purchased by households through their expenditure(E).

c) There is no financial sector.

d) There is no government sector.

e) There is no overseas sector.

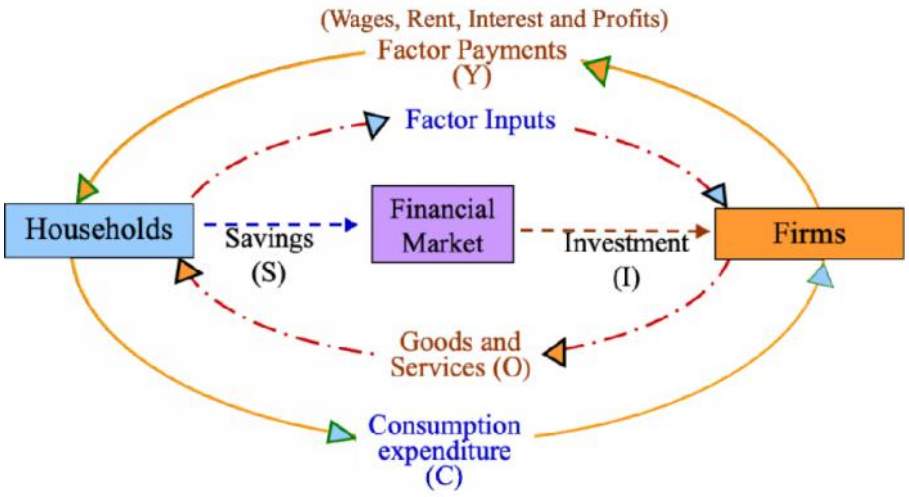
In the simple two sector circular flow of income model the state of equilibrium is defined as asituation in which there is no tendency for the levels of income (Y), expenditure (E) and output

(O) to change, that is: Y = E = O.This means that all household income (Y) is spent (E) on the output (O) of firms, which is equalin value to the payments for productive resources purchased by firms from households.

Two Sector Model with Financial Market

Financial institutions act as intermediaries between savers and investors. All the lending andborrowings are carried on in the financial or capital market. All that is earned by the householdsisnot spent on consumption; a part of it is saved. This saving is deposited in the financial marketleading to a money flow from the household to the financial market. On the other hand, the firmsaves to meet its depreciation expenses and expansion. The savings of the firm going into thefinancial market and borrowings made by the firm from the financial market also create moneyflows.

Fig 10.2Circular Flow of Income in a 2 Sector Model with Financial Market



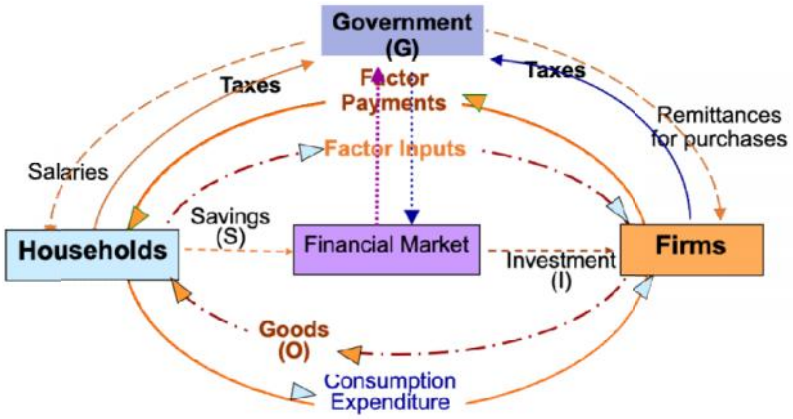
Therefore, we can say that the savings by households and firms are leakages and borrowings by

the firms act as injections into the circular flow of income.

Circular Flow of Income in a 3 Sector Model

In this model, we introduce the government sector as well that purchases goods from firms andfactors services from households. Between households and the government money flows fromgovernment to the household when the government makes transfer payments. Like old agepension, scholarship and factors payments of the households. Money flows back to the governmentwhen it collects direct taxes from the households.Similarly, there are flows of money between the government sector and firm sector. Moneyflows from firms to government when the government realizes corporate taxes from the firms.Money flows from the government to the firms in form of subsidies and payment made for thegoods purchased.

Fig 10.3Circular Flow of Income in a Three Sector Model with Financial Market



Identity Equation:

Y = C + I + G

Where,

Y = Income or Output

C = Household consumption expenditure

I=Investment expenditure

G = Government expenditure

Circular Flow of Income in a 4 Sector Model

So far the circular flow of income and expenditure has been shown in the case of a closed economy. But the actual economy is an open one where foreign trade plays an important role. In a four sector model, an economy moves from being a closed economy to an open economy.In an open economy imports and exports are made.Exports are an injection or inflows into the economy. They create incomes for the domestic firms. When foreigners buy goods and services produced by domestic firms, they are exports in the circular flow of income. On the other hand, imports are leakages from the circular flow. They are expenditures incurred by the household sector to purchase goods from foreign countries. These exports and imports in the circular flow are shown in Figure 10.3Take the inflows and outflows of the household, business and government sectors in relation to the foreign sector. The household sector buys goods imported from abroad and makes payment for them which is a leakage from the circular flow. The households may receive transfer payments from the foreign sector for the services rendered by them in foreign countries.

Fig 10.3 Circular Flow of Income in a Four Sector Model

National Income = C + I + G+(X-M)

In a 4 sector model, we have,

Y = C + I + G + (X-M)

Where, Y = Income or Output

C = Household consumption expenditure

I = Investment expenditure

G = Government expenditure

X-M = Exports minus Imports

10.2 National Income

You have learnt in the previous units that the study of Macro Economics is concerned with thedetermination of the economy's total output, the price level, the level of employment, interestrates and other variables. A necessary step in understanding how these variables are determinedis "national incomeaccounting". The national income accounts give us regular estimates of GNP- the basic measure of the economy's performance in producing goods and services.

National income is the most comprehensive measure of the level of the aggregate economicactivity in an economy. It is the total income of a nation as against the income of an individualbut you must note that the term national income is not as simple and self-explanatory as theconcept of individual income maybe.

You cannot include all the income received by individuals during a givenperiod in the national income, similarly not all the income that is generated in the process ofproduction in an economy during a given period is received by the individuals in the economy.The well-known writer, Paul Studenski, writes: "National income is both a flow of goods andservices and a flow of money incomes. It is therefore called national product as often as nationalincome".The flow of national income begins when production units combine capital and labour and turnout goods and services. We call this Gross National Product GNP. It is the value of all final goodsand services produced bydomestically owned factors of production within a given period.

It may be noted from above that:

- National Income is an Aggregative Value Concept: It makes use of the value determinedby the measuring rod of money as the common denominator for the purpose ofaggregating the diverse output resulting from different types of economic activities.
- National Income is a Flow Concept: It represents a given amount of aggregate productionper unit of time, conventionally represented by one year. Thus, national income usuallyrelates to a particular year and indicates the output during that year.
- National income represents the aggregate value of final products rather than the totalvalue of all kinds of products produced in the economy. The insistence on final goods andservices is simply to make sure that we do not double count.

It includes the value of goods produced such as houses and food grains and thevalue of services such as broker's services and economist's lectures. The output of each of theseis valued at its market price and the values are added together to give GNP.At the same time, the production units which produce goods and services, distribute moneyincomes to all who help in production in the form of wages, rent, interest and profit - we call thisas Gross National Income (GNI).GNI comprises the total value produced within a country, together with itsincome receivedfrom other countries less similar payments made to othercountries

National Aggregates (Important Concepts)

For the purpose of measurement and analysis, national income can be viewed asan aggregate ofvarious component flows. Generally, these component flows represent the intersect oraltransactions which describe the broad structure of theeconomic system. Accordingly, there existseveral measures of aggregate incomesvarying in their scope and coverage.To begin with let us consider the mostcomprehensive and broad-based measure of aggregateincome widely known asGross National Product at market prices or GNPMP. It shows themarket value ofthe aggregate final product before the deduction of provisions for theconsumptionof fixed capital, attributable to the factors of production supplied by the normalresidents of a country.Two important words are "gross" and "national". Similarly, the phrase "at market prices" is alsosignificant because it specifies the criterion of valuation. The main alternatives to these threespecifications are 'net', 'domestic' and at 'factor cost'.

Let's discuss these important concepts first.

a) **Gross and Net Concepts**

Gross emphasises that no allowance for capital consumption has been made or that depreciationhas yet to be deducted.Net indicates that provision for capital consumption has already been made or that depreciationhas already been deducted.

Thus, the difference between the gross aggregate and the net aggregate is depreciation

i.e.,GNP at market price/factor cost = NNP at market price/factor + depreciation

b) National and Domestic Concepts

The concept of national versus domestic arises because of the fact that the economy is not closedin the sense that it has transactions with the rest of the world in the form of exports and importsgifts, loans, factor income flows, etc.National income or product is that income or product which accrues to the economic agents whoare resident of the country. Most of the national income is derived from economic activitywithin the country. But some income arises due to the activities of the residents outside thecountry. Similarly, some of the product or income arising in the country may be due to theactivities of the non-residents. The difference between these two flows is referred to as net factorincome from abroad.The measure of production arising out of the activities of economic agents within the country istermed as domestic product even if a part of that income accrues to non-residents. Whenadjustments are made to this product by deducting the income of non-residents within thecountry and adding the income of residents abroad, the national productis obtained.

Hence, the difference between the national and domestic concept is the net factorincomefrom abroad and in a closed economy national and domestic incomes aresynonymous.

GNP at market price/factor cost = GDP at market price/factor cost + Net factor income fromabroad

NNP at market price/factor cost = NDP at market price/factor cost + Net factor income from abroad

Net factor income from abroad = Factor income received from abroad - Factor income paidfrom abroad.

c) **Market Prices and Factor Costs**

The valuation of the national product at market prices indicates the total amount actually paidby the final buyers while the valuation of national product at factor cost is a measure of the totalamountearned by the factors of production for their contribution to the final output.

GNP_{MP}= GNP at factor costs + indirect taxes-Subsidies.

(Note: GNP at factor costs can also be written as GNPFC)

NNP_{MP} = NNPFC+ indirect taxes-Subsidies.

If it's not mentioned that whether the aggregate is at market price or factor costand simplythe aggregate is mentioned, we consider it to be at market prices. For example,if only GNP

is written, we consider it as GNP_{MP}

Now after learning these concepts, let's discuss the aggregates one by one, discussed in following subsections.

Gross Domestic Product (GDP)

For some purposes we need to find the total income generated from production within the territorial boundaries of an economy, irrespective of whether it belongs to the residents of that nation or not. Such an income is known as Gross Domestic Product (GDP) and found as:

GDP = GNP – Net factor income from abroad

If in 2010-2011, the GNP is 8,00,000 million, the income (including tax on such

incomes) received and paid 60,000 million, and 70,000 million respectively, then, the GDP in

2010-2011 would be:

= 8,00,000 - (70,000 - 60,000)

= 7,90,000 million

Gross National Product (GNP)

It is market value of final goods and services produced in a year by the residents of the countrywithin the domestic territory as well as abroad. GNP is the value of goods and services that thecountry's citizens produce regardless of their location.

Expenditure on final products in an economy can be classified into the following categories:

Personal Consumption Expenditure (c): The sum of expenditure on both the durable andnon-durable goods as well as services for consumption purposes.

Gross Private Investment (Ig) is the total expenditure incurred for the replacement ofcapital goods and for additional investment.

Government Expenditure (G) is the sum of expenditure on consumption and capital goodsby the government, and

Net Exports (Exports - Imports) (X - M) constitute the difference between the expenditureor rest of the world on output of the national economy and the expenditure of the nationaleconomy on output of the rest of the world.

GNP=GDP+NFIA or,

GNP=C+I+G+(X-M) +NFIA

Where,

C=Consumption

I=Investment

G=Government expenditure

(X-M) =Export minus import

NFIA= Net factor income from abroad.

Net National Product (NNP)

The NNP is an alternative and closely related measure of the national income. It differs fromGNP in only one respect. GNP is the sum of final products. It includes consumption goods plusgross investment plus government expenditures on goods and services plus net exports. HereGross Investment (GI) is the increase in investment plus fixed assets like buildings and equipmentand thus exceed Net Investment (NI) by depreciation.

Thus, we can say that it is the market value of net output of final goods and services produced by an economy during a year and net factor income from abroad. **NNP=GNP-Depreciation**
or, **NNP=C+I+G+(X-M) +NFIA- IT-Depreciation**

Where,
C=Consumption
I = Investment

G = Government expenditure

(X-M) =Export minus import

NFIA= Net factor income from abroad.

IT= Indirect Taxes

NNPFC (or National Income)

Goods and services are produced with the help of factors of production. National income orNNP at factor cost is the sum of all the income payments received by these factors of production.National Income = GNP – Depreciation – Indirect taxes + SubsidiesSince factors receive subsidies, they are added while indirect taxes are subtracted as these do notform part of the factor income.

$NNP_{FC} = NNP_{MP}$ - Indirect taxes + Subsidies

Personal Income

Is the total money income received by individuals and households of a country from all possible sources before direct taxes. Therefore, personal income can be expressed as follows: **PI=NI-Corporate Income Taxes-Undistributed Corporate Profits- Social Security Contribution +Transfer Payments.**

Disposable Income (DI)

It is the income left with the individuals after the payment of direct taxes from personal income. It is the actual income left for disposal or that can be spent for consumption by individuals.

Thus, it can be expressed as:

DI=PI-Direct Taxes

Methods of Measuring National Income

There are three methods of measuring national income because national income is capableofbeingviewed from three dimensions-total output, total income or total expenditure. National income can be defined from any of these three dimensions.We have already discussed circular flow of income of the household, firm, the governmentand the rest of the world. From the circular flow, we can derive the following dimensions,assuming there are no leakages:

a) All household income must be equal to household expenditure on goods and services.

b) Value of output must be equal to total expenditure on goods and services.

c) Household income must be equal to value of output.

Therefore,

Income = Product = Expenditure

This fundamental identity of Income = Product = Expenditure gives the same result when we measure national income. The three methods measure the same flow.

National Income can be calculated using three approaches:

(i) Product approach

(ii) Income approach

(iii) Expenditure approach

Let's discuss these methods one by one in following subsections.

Product Method

In this method two approaches-final product approach and value added approach are adopted.

Final Product Approach

It is expressed in terms of GDP. According to final product approach, sum total of market value of all final goods and services produced by all productive units in the domestic economy in an accounting year is estimated by multiplying the gross product with market prices.

Being gross it includes depreciation, being at market price, it includes net indirect taxes and being domestic, it includes production by all production units within domestic territory of a country. It includes value of only final goods and services.

Value Added Approach

This method measures contribution of each producing enterprise to production in the domestic territory of a country in an accounting year. According to this method net value added at factor cost by all the producing units during an accounting year within the domestic territory is Summed up. This gives us value of net domestic product at factor cost or domestic income.

Steps Involved

1. Identifying all the producing units in the domestic economy and classifyingthem into theindustrial sectors such as primary, secondary, tertiary sector on the basis of similarity ofactivities.

2. Estimating net value added at factor cost by each producing unit deductingintermediateconsumption, depreciation and net indirect taxes from value of output.

3. Estimating net value added of each industrial sector by summing up net valueadded at FCof all producing units falling in each industrial sector.

4. Computing domestic income by adding up NVA at FC of all industrial sectors.

5. Estimating net factor income from abroad which is added to domestic income for derivingnational income

In Calculating gross domesticproduct under the product approach, only themoney value of final goods and services are included in the calculation. The valueof raw materials of finalgoods are subtracted from the value of gross domestic product to avoid double counting.

In India, there are three sectors contributing to the gross domestic product (GDP).

1. Primary sector comprising Mining and Quarrying: Agriculture, Forestry and Fishing.

2. The Secondary sector comprising Manufacturing and Construction

3. The Tertiary sector comprising Electricity, Gas and Water: Wholesale and RetailTrade: Finance, Insurance, Real Estate and Business Services; Transport, Storage andCommunication; Government services and other services.

Final products from all these sectors are added up to obtain Gross Domestic Product GDP) under the Product Approach or the Value Added Approach.

GDP = Final products in the economy

The following are the formulae to calculate national income and disposable personal

income.

1. GDP_{MP} = All final products in the economy

2. GNP_{MP} = GDPP + net factor income abroad

3. GNP_{FC}= GNP_{MP} - indirect taxes + subsidies

4. National Income = GNP_{FCP}- Depreciation

corporate income

5 Personal Income (PI) = National income + transfer payments – corporate income taxes – retained earnings - social security contributions - insurance premium

6 Disposable Personal Income (DPI) = Personal income - personal income tax

- Imputed rent of owner occupied houses is also included in calculation of nationalincome.
- Imputed value of goods and services produced for self consumption are included.
- Value of own account production of fixed assets by enterprises, government and the households.

Thus according to value added method,

GNP = (value of output in primary sector - intermediate consumption) + (Value of output insecondary sector - intermediate consumption) + (Value of output in tertiary sector – intermediateconsumption) + Net factor income from abroad.

10.3 Income Method

Income approach measures national income by adding all the various types of income paid to firms and households in the form of wages for labour, rent for land, interest for capital and profits to entrepreneurs.

In the income approach, all the figures are in factor cost because only earnings of factors of production can be calculated. The major income components in national are:

1. ***Wages and salaries***: Wages and salaries are the incomes received by labour from the firms for services rendered. The income also includes fringe benefits, such as social security or pension fund contributions.

2. ***Net Interest***: Net interest is the difference between total interest payments received by households for borrowed funds that finance investment purchases and total interest payments made by households on their borrowing for investment purposes.

3. ***Rental Income***: Rental income is the payment for rented inputs. The supplier can earn an income from supplying land and buildings for the use of others.

4. ***Profits***: Profits refer to corporate profits earned by business corporations or payments of dividends to shareholders.

So, income method measures national income from the side of payments made to the primaryfactors of production for their productive services in an accounting year. Thus according toincome method, national income is calculated by summing up of factor incomes of all thenormal residents of a country earned within and outside the country during a period of oneyear. The income generated is nothing but the net value added at factor cost by factors ofproduction, which is distributed in the form of money income amongst them. Thus, if factorincomes of all the producing units generated within the domestic economy are added up, theresulting total will be domestic income or net domestic product at factor cost (NDPFC). Byadding net factor income from abroad to domestic income we get NNPFC.GNP is the addition of all factor incomes generated in production of goods and services. Whilemeasuring GDP we must include only those income flows that originate with the production ofthe goods and services within the particular time period. The components of factor income are:

(i) Employees' Compensation,
(ii) Profits,
(iii) Rent,
(iv) Interest,
(v) Mixed Income, and
(vi) Royalty

Profit, rent, interest and other mixed income are jointly known as operating surplus. Thus,

National Income = compensation of employees + operating surplus.

Steps Involved

1. Identifying enterprises which employ factors of production (labour, capital andentrepreneur).

2. Classifying various types of factor payments like rent, interest, profit and mixed income.

3. Estimating amount of factor payments made by each enterprise.

4. Summing up of all factors payments within domestic territory to get domestic income.

5. Estimating net factor income from abroad which is added to the domestic income toderive national income

In the income method, Gross Domestic Product (GDP) is calculated by adding up

all the items of income earned from factors of production.

GDP = wages + salaries + rent + profit + interest + dividend

The following are the formulae to calculate national income and disposable

Income using the income approach.

1. GDP = wages + salaries + rent + profit + interest + dividend

2. GNP = GDP + net factor income abroad

3 National Income = GNP - Depreciation

4. Personal Income (P) = National income + transfer payments - corporate income

taxes - retained earnings - social security contributions

insurance premium – undistributed profit

5. Disposable Personal Income (DPI) = Personal income – personal income tax

- Sale and purchase of secondhand goods are excluded.
- Imputed rent of owneroccupied houses and production for self-consumption areincluded.
- Incomes from illegal activities are not included.
- Direct taxes such as Income tax are paid by employees from their salaries are included.

- **Expenditure Method**

GDP can be measured by taking into account all final expenditures in the economy. There arethree distinct types of expenditures as they are committed by households, firms and Governmentrespectively. These expenditures are classified into following types:

1. **Private consumption expenditure (C):**Privateconsumption includes the purchase of goods and services produced by firms,individuals or households. The goods that are purchased by individuals or householdswould include items such as personal computers, shoes, compact disks, etc. as well as

services such as paying insurance premiums, obtaining legal advice, seeking medicalservices, etc.The purchase of stocks and bonds by individuals or households are not includedin personal consumption because these are included under investments. Personalconsumption includes only spending that is incurred by individuals or households fortheir own personal use.

2. **Government expenditure (G)**: Government spending is the expenditures made by federal, state and local governmentsfor final goods and services. The purchase of government goods and services includesthe cost of providing national defence, construction of new buildings such as schoolsand hospitals, and the payment of salaries to public servants.Transfer payment is not included in government expenditure because it does notrepresent the purchase of goods and services. Rather it is a transfer of income from thegovernment to individuals or households.

3. **Investment expenditure (I)**: Investments refer to the purchase of capital goods by firms for use in production and alsochanges in the firms' inventories. Inventories refer to the stocks of raw materials, semi-finished products and unsold final products that are retained by the firms

4. **Net exports (X-M):**Net export is the difference between what a country, say India, earns by exporting goodsforand services to other countries (Singapore, United States, China, etc) and what it paysgoods and services that are imported from other countries. In other words, we can saythat net exports are the difference between the value of exports and the value of imports.

Thus, GDP = C + I + G + (X - M)

Steps Involved

1. Identification of economic units incurring final expenditure

2. Classification of final expenditure into following components:

(a) Private final consumption expenditure

(b) Government final consumption expenditure

(c) Gross final capital formation

(d) Change in stocks

(e) Net exports.

3. Measurement of final expenditure on the above components.

4. Estimation of net factor income from abroad which is added to NDPFC.

The following are the formulae for calculating national income and disposable personal income

1. $GDP_{MP} = C + I + G + (X - M)$

2. $GNP = GDP_{MP}$ + net factor income abroad

3. $GNP_{FC} = GNP_{MP}$ - indirect taxes + subsidies

4. National Income= GNP_{FC} - Depreciation

5 Personal Income (PI)= National income + transfer payments - corporate income taxes - retained earnings - social security contributions insurance premium

6 Disposable Personal Income (DPI) = Personal income - personal income tax

- Avoid double counting of goods.
- Expenditure on purchase of second hand goods is excluded.
- Expenditure on purchase of old share is excluded.
- Government expenditure on all transfer payment is excluded.

Items	Rs (million)
Exports	500
Personal consumption expenditure	1400
Changesin stock	(-) 40
Indirect business tax	30
Government expenditure	990
Investment	1000
Personal income tax	80
Subsidies	50

Imports	400
Factor income paid abroad	80
Depreciation	40
Factor income received from abroad	90

Calculate the:

a) Gross Domestic Product at Market Price

b) Gross Domestic Product at Factor Cost

c) Gross National Product at factor Cost

d) National Income

10.4 Uses of National Income

The national income data have the following importance:

1. For the Economy:

National income data are of great importance for the economy of a country. These days the national income data are regarded as accounts of the economy, which are known as social accounts. These refer to net national income and net national expenditure, which ultimately equal each other. Social accounts tell us how the aggregates of a nation's income, output and product result from the income of different individuals, products of industries and transactions of international trade. Their main constituents are inter-related and each particular account can be used to verify the correctness of any other account.

2. National Policies:

National income data form the basis of national policies such as employment policy, because thesefigures enable us to know the direction in which the industrial output, investment and savings, etc.change, and proper measures can be adopted to bring the economy to the right path.

3. Economic Planning:

In the present age of planning, the national data are of great importance. For economic planning, itis essential that the data pertaining to a country's gross income, output, saving and consumptionfrom different sources should be available. Without these, planning is not possible.

4. Economic Models:

The economists propound short-run as well as long-run economic models or long-run investment models in which the national income data are very widely used.

5. Research:

The national income data are also made use of by the research scholars of economics. They make use of the various data of the country's input, output, income, saving, consumption, investment, employment, etc., which are obtained from social accounts.

6. Per Capita Income:

National income data are significant for a country's per capita income which reflects the economic welfare of the country. The higher the per capita income, the higher the economic welfare of the country.

7. Distribution of Income:

National income statistics enable us to know about the distribution of income in the country. From the data pertaining to wages, rent, interest and profits, we learn of the disparities in the incomes of different sections of the society. Similarly, the regional distribution of income is revealed.

It is only on the basis of these that the government can adopt measures to remove the inequalities in income distribution and to restore regional equilibrium. With a view to removing these personal and regional disequibria, the decisions to levy more taxes and increase public expenditure also rest on national income statistics.

10.5 Difficulties in Measuring National Income

There are many conceptual and statistical problems involved in measuring national income by the income method, product method, and expenditure method.

We discuss them separately in the light of the three methods:
(A) Problems in Income Method:
The following problems arise in the computation of National Income by income method:

1. Owner-occupied Houses:
A person who rents a house to another earns rental income, but if he occupies the house himself, will the services of the house-owner be included in national income. The services of the owner-occupied house are included in national income as if the owner sells to himself as a tenant its services.

For the purpose of national income accounts, the amount of imputed rent is estimated as the sum for which the owner-occupied house could have been rented. The imputed net rent is calculated as that portion of the amount that would have accrued to the house-owner after deducting all expenses.

2. Self-employed Persons:
Another problem arises with regard to the income of self-employed persons. In their case, it is very difficult to find out the different inputs provided by the owner himself. He might be contributing his capital, land, labour and his abilities in the business. But it is not possible to estimate the value of each factor input to production. So he gets a mixed income consisting of interest, rent, wage and profits for his factor services. This is included in national income.

3. Goods meant for Self-consumption:
In under-developed countries like India, farmers keep a large portion of food and other goods produced on the farm for self-consumption. The problem is whether that part of the produce which is not sold in the market can be included in national income or not. If the farmer were to sell his entire produce in the market, he will have to buy what he needs for self-consumption out of his money income. If, instead he keeps some produce for his self-consumption, it has money value which must be included in national income.

4. Wages and Salaries paid in Kind:
Another problem arises with regard to wages and salaries paid in kind to the employees in the form of free food, lodging, dress and other amenities. Payments in kind by employers are included in national income. This is because the employees would have received money income equal to the

value of free food, lodging, etc. from the employer and spent the same in paying for food, lodging, etc.

(B) Problems in Product Method:

The following problems arise in the computation of national income by product method:

1. Services of Housewives:

The estimation of the unpaid services of the housewife in the national income presents a serious difficulty. A housewife renders a number of useful services like preparation of meals, serving, tailoring, mending, washing, cleaning, bringing up children, etc.

She is not paid for them and her services are not including in national income. Such services performed by paid servants are included in national income. The national income is, therefore, underestimated by excluding the services of a housewife.

The reason for the exclusion of her services from national income is that the love and affection of a housewife in performing her domestic work cannot be measured in monetary terms. That is why when the owner of a firm marries his lady secretary, her services are not included in national income when she stops working as a secretary and becomes a housewife.

When a teacher teaches his own children, his work is also not included in national income. Similarly, there are a number of goods and services which are difficult to be assessed in money terms for the reason stated above, such as painting, singing, dancing, etc. as hobbies.

2. Intermediate and Final Goods:

The greatest difficulty in estimating national income by product method is the failure to distinguish properly between intermediate and final goods. There is always the possibility of including a good or service more than once, whereas only final goods are included in national income estimates. This leads to the problem of double counting which leads to the overestimation of national income.

3. Second-hand Goods and Assets:

Another problem arises with regard to the sale and purchase of second-hand goods and assets. We find that old scooters, cars, houses, machinery, etc. are transacted daily in the country. But they are not included in national income because they were counted in the national product in the year they were manufactured.

If they are included every time they are bought and sold, national income would increase many times. Similarly, the sale and purchase of old stocks, shares, and bonds of companies are not included in national income because they were included in national income when the companies were started for the first time. Now they are simply financial transactions and represent claims.

But the commission or fees charged by the brokers in the repurchase and resale of old shares, bonds, houses, cars or scooters, etc. are included in national income. For these are the payments they receive for their productive services during the year.

4. Illegal Activities:

Income earned through illegal activities like gambling, smuggling, illicit extraction of wine, etc. is not included in national income. Such activities have value and satisfy the wants of the people but they are not considered productive from the point of view of society. But in countries like Nepal and Monaco where gambling is legalised, it is included in national income. Similarly, horse-racing is a legal activity in England and is included in national income.

5. Consumers' Service:

There are a number of persons in society who render services to consumers but they do not produce anything tangible. They are the actors, dancers, doctors, singers, teachers, musicians,

lawyers, barbers, etc. The problem arises about the inclusion of their services in national income since they do not produce tangible commodities. But as they satisfy human wants and receive payments for their services, their services are included as final goods in estimating national income.

6. Capital Gains:

The problem also arises with regard to capital gains. Capital gains arise when a capital asset such as a house, some other property, stocks or shares, etc. is sold at higher price than was paid for it at the time of purchase. Capital gains are excluded from national income because these do not arise from current economic activities. Similarly, capital losses are not taken into account while estimating national income.

7. Inventory Changes:

All inventory changes (or changes in stocks) whether positive or negative are included in national income. The procedure is to take changes in physical units of inventories for the year valued at average current prices paid for them.

The value of changes in inventories may be positive or negative which is added or subtracted from the current production of the firm. Remember, it is the change in inventories and not total inventories for the year that are taken into account in national income estimates.

8. Depreciation:

Depreciation is deducted from GNP in order to arrive at NNP. Thus depreciation lowers the national income. But the problem is of estimating the current depreciated value of, say, a machine, whose expected life is supposed to be thirty years. Firms calculate the depreciation value on the original cost of machines for their expected life. This does not solve the problem because the prices of machines change almost every year.

9. Price Changes:

National income by product method is measured by the value of final goods and services at current market prices. But prices do not remain stable. They rise or fall. When the price level rises, the national income also rises, though the national production might have fallen.

On the contrary, with the fall in the price level, the national income also falls, though the national production might have increased. So price changes do not adequately measure national income. To solve this problem, economists calculate the real national income at a constant price level by the consumer price index.

(C) Problems in Expenditure Method:

The following problems arise in the calculation of national income by expenditure method:

(1) Government Services:

In calculating national income by, expenditure method, the problem of estimating government services arises. Government provides a number of services, such as police and military services, administrative and legal services. Should expenditure on government services be included in national income?

If they are final goods, then only they would be included in national income. On the other hand, if they are used as intermediate goods, meant for further production, they would not be included in national income. There are many divergent views on this issue.

One view is that if police, military, legal and administrative services protect the lives, property and liberty of the people, they are treated as final goods and hence form part of national income. If they help in the smooth functioning of the production process by maintaining peace and security, then they are like intermediate goods that do not enter into national income.

In reality, it is not possible to make a clear demarcation as to which service protects the people and which protects the productive process. Therefore, all such services are regarded as final goods and are included in national income.

(2) Transfer Payments:

There arises the problem of including transfer payments in national income. Government makes payments in the form of pensions, unemployment allowance, subsidies, interest on national debt, etc. These are government expenditures but they are not included in national income because they are paid without adding anything to the production process during the current year.

For instance, pensions and unemployment allowances are paid to individuals by the government without doing any productive work during the year. Subsidies tend to lower the market price of the commodities. Interest on national or public debt is also considered a transfer payment because it is paid by the government to individuals and firms on their past savings without any productive work.

(3) Durable-use Consumers' Goods:

Durable-use consumers' goods also pose a problem. Such durable-use consumers' goods as scooters, cars, fans, TVs, furniture's, etc. are bought in one year but they are used for a number of years. Should they be included under investment expenditure or consumption expenditure in national income estimates? The expenditure on them is regarded as final consumption expenditure because it is not possible to measure their used up value for the subsequent years.

But there is one exception. The expenditure on a new house is regarded as investment expenditure and not consumption expenditure. This is because the rental income or the imputed rent which the house-owner gets is for making investment on the new house. However, expenditure on a car by a household is consumption expenditure. But if he spends the amount for using it as a taxi, it is investment expenditure.

(4) Public Expenditure:

Government spends on police, military, administrative and legal services, parks, street lighting, irrigation, museums, education, public health, roads, canals, buildings, etc. The problem is to find out which expenditure is consumption expenditure and which investment expenditure is.

Expenses on education, museums, public health, police, parks, street lighting, civil and judicial administration are consumption expenditure. Expenses on roads, canals, buildings, etc. are investment expenditure. But expenses on defence equipment are treated as consumption expenditure because they are consumed during a war as they are destroyed or become obsolete. However, all such expenses including the salaries of armed personnel are included in national income.

Summary

- National income can be defined as the aggregate of money value of the annual flow offinal goods and services in the national economy during a given period.
- GNI comprises the total value produced within a country, together with its income receivedfrom other countries less similar payments made to other countries.
- GNP at market price/factor cost = NNP at market price/factor + depreciation
- GNP at market price/factor cost = GDP at market price/factor cost + Net factor incomefrom abroad
- NNP at market price/factor cost = NDP at market price/factor cost + Net factor incomefrom abroad

- Net factor income from abroad = Factor income received from abroad - Factor incomepaid abroad.
- GNP_{MP} = GNP at factor costs + indirect taxes-Subsidies.
- NNP_{MP}= NNPFC + indirect taxes-Subsidies.
- GDP = GNP - Net factor income from abroad
- GNP = C + Ig + G + (X - M)
- GNP_{MC}= GNP_{MP} - Indirect taxes + Subsidies
- GNP = NNP + Depreciation
- National Income = GNP - Depreciation - Indirect taxes + Subsidies
- Personal income is calculated by subtracting from national income those types of incomeswhich are earned but not received and adding those types which are received but notcurrently earned.
- Disposable income is the total income that actually remains with individuals to disposeoff as they wish. It differs from personal income by the amount of direct taxes paid byindividuals.
- Value added can be defined as the difference between the value of output produced by thatfirm and the total expenditure incurred by it on the materials and intermediate productspurchased from other business firms.
- There are three approaches to the calculation of national income- product approach, incomeapproach and expenditure approach.
- In Product method, two approaches are adopted- final product approach and valueaddedapproach. In Final product approach, sum total of market value of all final goods andservices produced by all productive units in the domestic economy in an accounting yearis estimated by multiplying the gross product with market prices.In value added method net value added at factor cost by all the producing units during anaccounting year within the domestic territory is summed up.
- As per the income method, National Income = compensation of employees + operatingsurplus.As per the expenditure method, GDP= C + I + G + (X - M).
- Circular flow of income model shows the flow of income between the producers and thehouseholds who buy their goods or services

Keywords

Disposable income: It is the total income that actually remains with individuals to dispose off asthey wish.

Gross Domestic Product: It is a measure of a country's overall economic output.

Gross National Income: The total value produced within a country, together with its incomereceived from other countries less similar payments made to other countries.

Gross National Product: It is the value of all final goods and services produced by domesticallyowned factors of production within a given period.

National Income: Aggregate of money value of the annual flow of final goods andservices inthe economy during a given period.

Value added: Difference between the value of output produced by a firm and the total expenditureincurred by it on the materials and intermediate productspurchased from other business firms.

Self Assessment

1. "Rest of the world" is the major element in

A. Two sector model

B. Three sector model

C. Four sector model

D. All of the above

2. Macroeconomics is a study of economics that deals with which four major factors:

A. Households, firms, government and demand-supply

B. Households, firms, government and external sector

C. Profits, price level, cost and expenditure

D. None of the above

3. Factor income of household sector is equal to

A. Factor payments by firms

B. Factor income of firms

C. Expenditure of households

D. Income of the households

4. Investment is a/ an _____ into the circular flow of income

A. Leakage

B. Injection

C. Both (a) and (b)

d) None of the above

5. In a closed economy, aggregate demand is the sum of

A. Consumer expenditure, actual investment spending, government spending and net exports.

B. Consumer expenditure, planned investment spending, government spending and net exports

C. Consumer expenditure, actual investment spending and government spending

D. Consumer expenditure, planned investment spending and government spending

6. The difference between value of output and value added is:

A. Depreciation

B. Intermediate consumption

C. Net indirect taxes

D. Net Foreign Income from Abroad

7. Product method of calculating national income is also known as:

A. Income method
B. Value added method
C. Expenditure method
D. Distribution method

8. Which of the following is an example of intermediate good?

A. Fertilizers purchased by a farmer
B. Steel and cement used to construct a flyover
C. Newly constructed house for residence
D. Both (a) and (b)

9. Out of the following, which aggregate represents 'National Income'?

A. NNP_{MP}
B. GNP_{FC}
C. NNP_{FC}
D. GNP_{MP}

10. Domestic factor income is another name for:

A. NDP_{FC}
B. NNP_{MP}
C. GDP_{FC}
D. NNP_{FC}

11. Which of the following is a part of National Income?

A. Old age pension
B. Unemployment allowance
C. Profit
D. Scholarship

12. _____ is the net amount available to households for consumption and saving

A. National income
B. Personal income
C. Personal disposable income
D. Government income

13. Which one is included in National Income?

A. Winning from lottery
B. Milk purchase by a dairy shop
C. National debt interest
D. None of these

14. Expenditure method focuses on measurement of National income at:

A. Phases of production of goods and services
B. Phase of income distribution
C. Phase of income disposition

D. All of these

15.. Which of the following is not an economic activity and hence not included while estimating national income in India?

A. A housewife doing household work

B. Medical services rendered by a dispensary

C. A lawyer doing his practice

D. A maid working full time with a family

Answers for Self Assessment

1.	C	2.	B	3.	A	4.	B	5.	D
6.	B	7.	B	8.	D	9.	C	10.	A
11.	C	12.	C	13.	D	14.	C	15.	A

Review Questions

1. Explain the circular flow of income diagram in two-sector economy.
2. Explain the expenditure method of measuring national income.
3. What are the difficulties of measuring national income of a country?
4. Explain the meaning of gross domestic product (GDP) and gross national product (GNP), and differentiate them.
5. Explain the circular flow of income diagram in four-sector economy.
6. Explain some problems encountered in calculating national income.
7. Explain the value-added method of measuring national income.
8. Explain the different methods involved in measuring national income.
9. How a personal income is different from disposable income. Explain in detail.
10. Define national income. Discuss four uses of national income statistics.

Further Readings

1. Bibek Debroy, Managerial Economics, Global Business Press, Delhi

2. Dr. Atmanand, Managerial Economics, Excel Books, Delhi

3. Mishra &Puri, Indian Economy, Himalaya Publishing House

Web Links

http://www.tradechakra.com/indian-economy/national-income.html

http://www.economywatch.com/world-country/national-income.html

http://www.wisegeek.com/what-is-a-circular-flow-of-income.htm

http://tutor2u.net/economics/content/topics/macroeconomy/circular_flow.htm

Unit11: National Income Equilibrium

CONTENTS

Objectives

After studying this unit, you will be able to:

- Understand the concept of equilibrium in national income in two-sector, three sector and four sector model.
- understand the basics of consumption and saving
- discuss the different types of consumption and saving.
- identify various factors which affect consumption and savings of individuals
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- discuss the different types of consumption and saving.
- identify various factors which affect consumption and savings of individuals

Introduction

The main classical economists like David Ricardo, John Staurt Mill, Jean Baptise Say and Alfred Marshall had two assumptions regarding the economy:

1. Full employment exists in the economy in the long run.

2. Supply creates its own demand, according to Say's law of markets.

However, during the Great Depression in the late 1930s, unemployment rates were very high. John Maynard Keynes successfully refuted the classical explanation of determining aggregate employment, output and general price levels. Based on Keynesian theory of income and employment, national income depends on aggregate demand. National income is determined through the following two approaches

1. Aggregate Expenditure- Aggregate Supply Approach (AE= AS)

Aggregate demand or aggregate expenditure is the total demand for goods and services in an economy. There are four components in aggregate expenditure- consumption expenditure, investment expenditure, government expenditure and foreign sector expenditure. Aggregate supply or aggregate output is the total quantity of goods and services produced in the economy at any given period of time.

Equilibrium occurs when aggregate expenditure equals aggregate supply, AE= AS

2. Leakage- Injection Approach or Saving – Investment Approach

Leakage is a withdrawal from the income-expenditure stream. Leakages include savings, taxes and imports. Injection is additional spending to the income-expenditure stream. Injections include investments, government expenditure and exports.

Equilibrium occurs when leakage equals injection, i.e.**Leakage= Injection or Savings= Investment**

Determination of Equilibrium in Two- sector Economy

A two-sector economy is a simple economy consisting of only two agents – households and firms. Equilibrium in this economy occurs when aggregate expenditure or aggregate demand equals aggregate supply. The model is based on the following assumptions:

1. Equilibrium is only determined for two-sector model
2. Investment expenditure is autonomous
3. Prices are constant
4. Equilibrium output is determined in short-run

So, equilibrium is achieved when:

$$AD = AS \ldots (1)$$

We know, AD is the sum total of Consumption (C) and Investment (I):

$$AD = C + I \ldots (2)$$

Also, AS is the sum total of consumption (C) and saving (S):

$$AS = C + S \ldots (3)$$

Substituting (2) and (3) in (1), we get:

$$C + S = C + I$$

$$\text{Or} \quad S = I$$

Fig 11.1: Equilibrium in Two- Sector Economy

AD-AS Approach (A)S-I Approach (B)

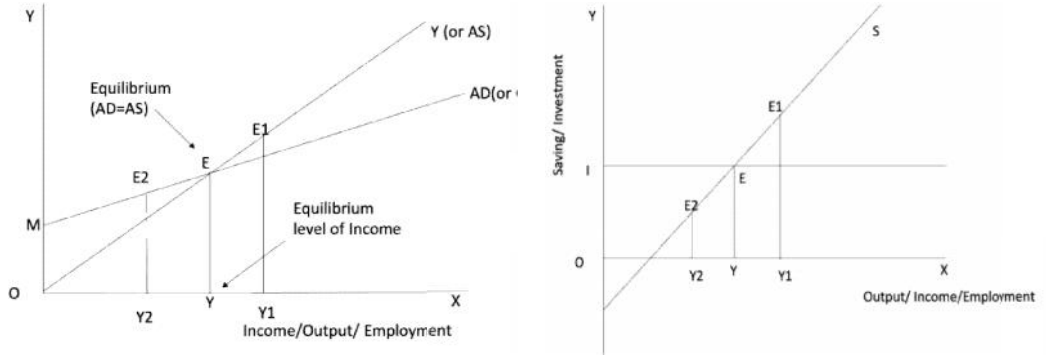


Fig 11.1 part-A shows that Point E is the equilibrium point since C + I line cuts the 45°-line Equilibrium level of income, thus determined, is OY since it is the only level of income at which aggregate demand and aggregate value of output (or income) is equal to each other. If income is less than OY i.e Y2, aggregate demand will exceed aggregate supply or aggregate output. Now there will be an excess demand for goods and services, resulting in an unplanned reduction of inventories. Thus, output will continue to rise till OY is achieved. Similarly, at more than OY i.e Y1, level of income, aggregate supply exceeds aggregate demand. This means an excess supply of goods and services. So, it can be concluded that people are not willing to purchase all the goods that the nation has produced. Thus, there will be an unintended accumulation of inventories by the producers. Part -B of the diagram shows that SS' is the planned saving curve which has a negative intercept in the sense that at low level of income since consumption exceeds income, savings must be negative. I is the autonomous investment line drawn parallel to the horizontal axis.As SS' curve cuts I at point E, equilibrium level of income is thus determined at OY.In other words, planned saving and planned investment are equal only at the intersection of the two curves and, thus, equilibrium income is OY and this equilibrium income is a stable one. Suppose if the deviation from OY level of income is there or if the equilibrium income OY is attained after deviation, then equilibrium is said to be a stable one.At OY_1 level of income, investment (injection) exceeds saving (leakage). Aggregate demand must exceed aggregate output. This will result in an unplanned reduction of inventories to meet excess demand. Consequently, output will rise until planned saving and planned investment are equal.Similarly, at OY_2 level of income, since saving exceeds investment, aggregate demand falls short of aggregate supply. Hence, an excess supply of commodities will appear leading to an unplanned accumulation of inventories. This will act as an incentive to cut back output. Output will continue to decline until point E is reached where OY equilibrium level of national income is determined. Thus, OY is a stable equilibrium. Furthermore, it is important ti note that If there is any deviation from the equilibrium level of income, i.e., if planned saving is not equal to the planned investment, then a process of readjustment will start which will bring the economy back to the equilibrium level.

Determination of Equilibrium in Three Sector Economy

In three sector economy, aggregate expenditure is the sum of all household consumpotion©, investment by firms (I) and government expenditure (G). aggregate supply equals aggregate output (Y). Therefore,

AS= Y

AE= C +I + G

Equilibrium is achieved when aggregate expenditure is equal to aggregate supply.

AS= AE

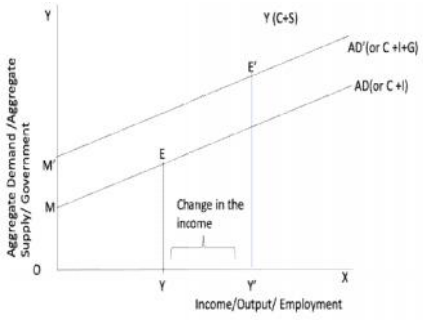
Y= C + I+ G

The determination of equilibrium in a three-sector economy is more complex than a two-sector economy.

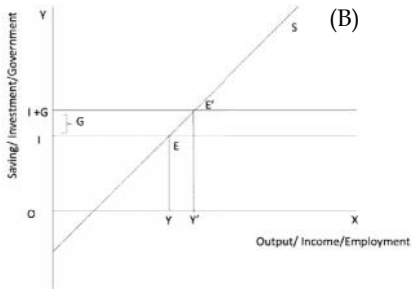
Fig 11.2 Determination of Equilibrium in Three Sector Economy

AD-AS Approach S-I Approach

(A)



(B)



In part A of Fig 11.2, C+I+G is the new aggregate demand curve which intersects the aggregate supply curve 45° line at point E′ where OY′ is the equilibrium level of income. This income level is more than the income level OY which is without government expenditure.So, govt expenditure increases the level of income. The new investment curve I+G intersect the saving curve at point E′. Consequently, the income level OY′ is determined which is more than the income level OY without government expenditure. As, C+I+G is the new aggregate demand curve which intersects the aggregate supply curve 45° line , so the income level with government expenditure is more whereas in Panel (B) I+G intersect the saving curve at E1, which shows that income increases increases with government spending.

Determination of Equilibrium in Four Sector Economy

In four sector economy National income is determined in an open economy. For this, the assumptions that there are no exports or imports and government expenditures is relaxed. This means that we shall have to add imports and exports and government expenditures and taxation in our analysis.

The model is based on the following assumptions:

1. The domestic economy's international trade is small relative to total world trade.
2. There is less than full employment in the economy.
3. The general price level is constant up to the full employment level.
4. There are no tariffs, trade and exchange restrictions.
5. Exports (X), investment (I) and government expenditure (G) are autonomous.

From the above, identity equation is generated

Y= E=C+I+G+(X-M)

But Y = C+S+T

C+S+T= C+I+G+(X-M)

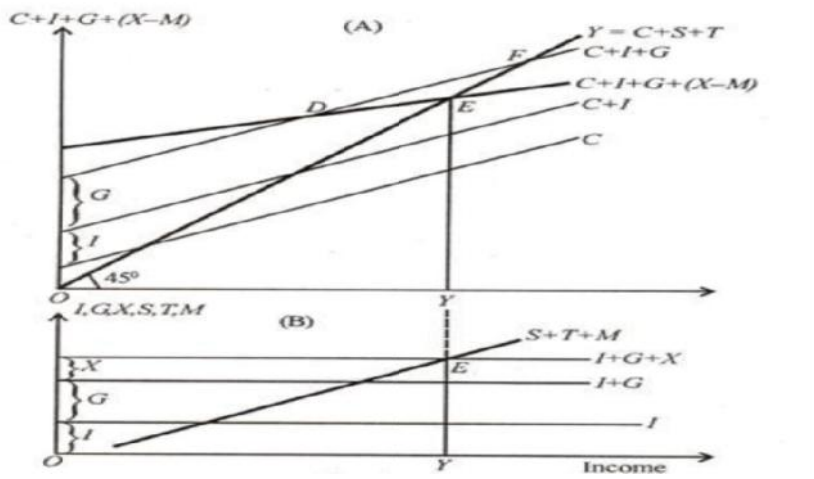
Where,

C+S+T is gross national income (GNI)

C+I+G+(X-M) is gross national expenditure (GNE).

Thus the equilibrium level of income in an economy is determined when aggregate supply,GNI=GNE, aggregate demand, or, C+S+T=C+I+G+(X-M).

Fig. 11.3 Determination of Equilibrium in Four Sector Economy



The above fig 11.3 shows that when net exports of X-M are superimposed on C+I+G, we get the aggregate demand function C+I+G+(X-M). The 45° line is the aggregate supply function which represents C+S+T.It is pertinent to add that so long as C+I+G+(X-M)>C+I+G, exports exceed imports and there is net addition to aggregate demand. At point D in Panel (A) of the figure, X-M=O. Beyond point D,C+I+G>C+I+G+(X- M) and imports exceed exports, and this gap continues to grow as income increases which leads to net reduction in aggregate demand so that the aggregate demand function C+I+G+(X-M) lies below the domestic demand function C+I+G.

This analysis shows that in the absence of foreign trade, the equilibrium level of income would have been at a higher level, as determined by the equality of C+I+G=C+S+T at point F whereas with foreign trade it is at a lower point E. Panel B of the diagram shows that when S+T+M is equal to I+G+X, the equilibrium level of income is determined.

11.1 Consumption and Savings

Consumption function refers to the functional or causal relationships between consumptionon the one hand and the various factors determining it on the other. Your income is considered tobe the chief determinant of your consumption, so the consumption function conventionallyrefers to the functional relationship between income and consumption.The relationship between income and consumption has always been a subjectof intense study ever since Ernst Engel, a German statistician, formulated the "laws ofconsumption expenditure in 1857". On the basis of statistical data pertaining to theconsumption expenditures of the sample of German households, Angel formulated a setof three generalisations which are popularly known as "Engel's laws of consumption".Engel's laws may be stated as follows: As the level of income increases, households tend to
spend:

1. a decreasing percentage of income on food,
2. an increasing proportion of income on things such as education, medical facilities, recreation etc
3. roughly a constant proportion of income on essential consumption items such as rent,fuel, clothing and lighting.

These generalisations broadly hold from the basis of the law of consumption or propensity toconsume subsequently formulated by J M Keynes. Keynes was the first to stress the importanceof the relationship between income and consumption and to make it one of the central parts ofMacro Economics.

Concept of Consumption Function

The consumption function – the relationship between consumption and income – is largely aKeynesian contribution. Keynes postulated that consumption depends mainly on income. In regard to the relationship, he argued that consumption increases as income increases but by an amount less than the increase in income. It is, however, assumed that by income Keynes mean the "disposable income of the consumer". Keynes designated tendency of consumption varying directly with disposable income as the Fundamental Psychological Law. According to this law,

"men are disposed, as a rule and on the average, to increase their consumption as their incomeincreases but not by as much as the increase in their income. This law is known as propensity toconsume or consumption function".

This law consists of three propositions:

1. When aggregate income increases, consumption expenditure also increases but by asomewhat smaller amount. The reason is that as income increases, more and more of ourwants get satisfied and therefore lesser and lesser amounts are spent out of subsequentincreases in income.

2. When income increases, the increment of income will be divided in a certain proportionbetween consumption and saving. This follows from the first proposition that what is notspent is saved.

3. As income increases both consumption spending and saving will go up.

Assumptions of the Law

1. It is assumed that habits of people regarding spending do not change or propensity to consume remains the same. Normally, the propensity to consume is more or less stable and does remain unchanged. This assumption implies that only income changes whereas other factors like income distribution, price movement, growth of population, etc. remain more or less constant.
2. The conditions are normal in the economic system.
3. The existence of a capitalistic laissez faire economy. The law may not hold good in an economy where state interferes with consumption or productive enterprise.

Explanation of the Law

The most important determinant of consumption is income. In technical language consumptionis a function of (determined by) income. This relationship between consumption and income istermed as "consumption function" or " the propensity to consume".

C = f (Y)
where, C is consumption
f is function
Y is income

Propensity to Consume
Keynes has made use of following concepts in analysing consumption-income relationship.
These are:

1. Average propensity to consume
2. Marginal propensity to consume

1. Average Propensity to Consume

The average propensity to consume (APC) is defined as the ratio of aggregate or total consumption to aggregate income in a given period of time.
Thus, the value of average propensity to consume, for any income level, may be found by dividing consumption by income. Symbolically,

APC = C/Y

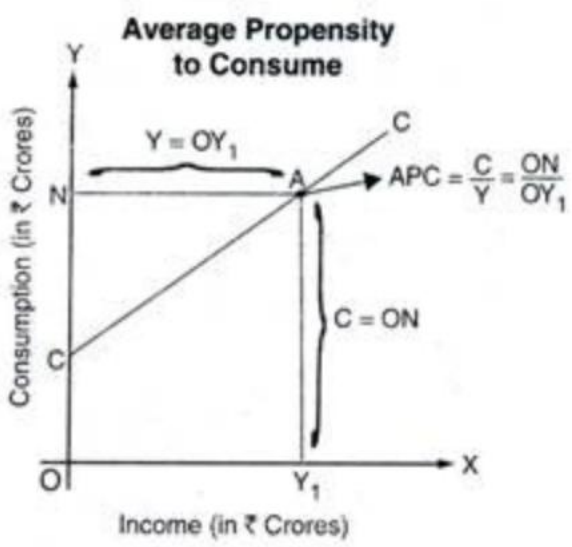
Where, C stands for consumption and Y stands for income. Thus, the proportion of income saved increases as income increases. The economic significance of APC is that since it tells us how much of the total cost of a particular output from planned employment can be recovered only by selling consumer products. It tells us how much of the overall amount of products and services demanded by the society comes from consumer goods demand.
Let's understand APC with the help of following schedule and diagram:

Table 11.1: Average Propensity to Consume

Income	Consumption	APC= C/Y
0	40	-
100	120	1.20 = (120/100)
200	200	1= (200/200)
300	280	0.93= (280/300)
400	360	0.90= (360/400)

The table 11.1 shows the Average propensity to Consumer which is calculated as the ratio of consumption to income. When the income level is Rs 100 crores then APC is 1.20. APC falls to 1 when income rises to Rs 200 crores. The value of APC further falls to 0.933 and then to 0.90. In Fig 11.1, income is measured on the X-axis and consumption is measured on the Y-axis. CC is the consumption curve. APC represents any one point on the consumption Curve: At point A on the consumption curve CC, APC = ON/OY_1

Fig 11.4 Average Propensity to Consume



The table 11.1 and fig 11.4 shows that as long as consumption is more than national income, i.e. before the break-even point, APC > 1.At the Break-even point, consumption is equal to national income. So, APC = 1 at the income level of Rs 200 crores.Beyond the break-even point, consumption is less than national income. As a result, APC <1.APC falls continuously with increase in income because the proportion of income spent on consumption keeps on decreasing. It can also be said that APC can be zero only when consumption becomes zero. However, consumption is never zero at any level of income. Even at zero level of national income, there is autonomous consumption (c).

2. Marginal Propensity to Consume (MPC)

Marginal propensity to consume refers to the ratio of change in consumptionexpenditure to changein total income. MPC explains what proportion of changein income is spent on consumption.

MPC = Change in Consumption (ΔC) / Change in Income (ΔY)

If consumption expenditure increases from Rs 70 crores to Rs 110 crores with an increase in income from Rs 100 crores to Rs 200 crores, then:

MPC = ΔC/ΔY = 110 – 70/200-100 = 40/100= 0.40 i.e., 40% of the incremental income is spent on consumption.

Table 11.2 Marginal Propensity to Consume

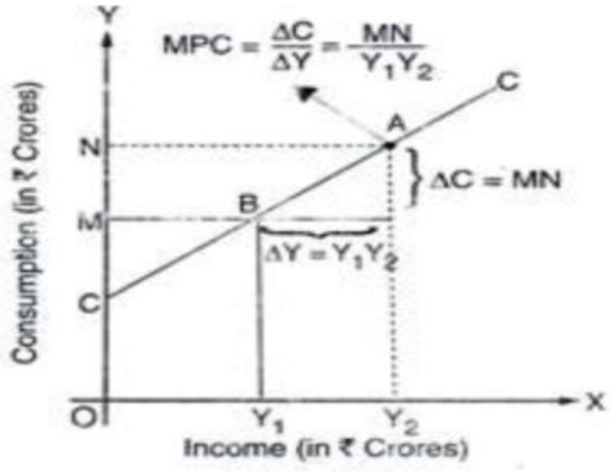
Income (Y)	Consumption (C)	Change in Consumption (ΔC)(Rs Crores)	Change in Income(ΔY)(Rs Crores)	MPC= ΔC/ ΔY
0	40	-	-	-
100	120	80	100	0.80= (80/100)
200	200	80	100	0.80= (80/100)
300	280	80	100	0.80= (80/100)
400	360	80	100	0.80= (80/100)

The table 11.2 shows that MPC is 0.80, when consumption increases from Rs 40 crores to Rs 120crores with increase in income from zero to Rs 100 crores. Value of MPC remains same at 0.80throughout the consumption function.

The MPC may rise, fall or remain constant between the limits set. However, Keynes implicitly stated that the MPC will not be constant when cyclical fluctuations cause change in objectives factors determining the propensity to consume. Thus, it may be inferred that during the cyclical upswing, the MPC will fall while during the downswing, it will rise. Keynes, however, opines that the long-run MPC has tended to decline as nations have become richer.

The economic significance of the concept of marginal propensity to consume (MPC) is that it throws light on the possible division of any extra income consumption and investment, thus, facilitating the planning of investment to maintain the desired level of income.

Fig 11.5 Marginal propensity to Consume



It is a matter of fact that, incremental income is either spent on consumption or saved for future use.

i. If the entire additional income is consumed, i.e. AS = 0, then MPC = 1.

ii. However, if entire additional income is saved, i.e. AC = 0, then MPC = 0 In normal situations, value of MPC varies between 0 and 1.

It is important to note that poor people spend a greater percentage of their increased income on consumption as most of their basic needs remain unsatisfied. On the other hand, rich people spend a smaller proportion as they already enjoy a high standard of living. So as the standard of living of the people develops, they have the tendency to consume smaller percentage of each increment to its income.

Factors affecting consumption

According to Keynes, two types of factors influence the consumption function: subjective and objective. The subjective factors are endogenous or internal to the economic system itself. The subjective factors relate to psychological characteristics of human nature, social structure, social institutions and social practices.

1. Subjective factors: The subjective factors which affect the propensity to consumer consists of those psychological motives, which induce individuals to refrain from spending.

(i) Individual factors: The psychological factors which makes individuals to save more are mentioned as below

1. Farsightedness: Individuals save more to provide for anticipate requirement in future such as old age, education of children, etc. thereby their consumption goes down and the preference to save more increases.

2. Economic Independence: When people want to have financial independence and freedom, so they save more now and consume less so that they are able to enjoy the economic independence

3. Occupational Motive: In order to set up business or to expand the business in future people save more and spend less thereby effecting the consumption pattern.

4. Miserliness: If people are miser then they are going to consume less and save more therby, leading to lower propensity to consume.

5. Status in the society: Individuals take pride in leaving money and wealth for their children. So they will accumulate money by savings thereby propensity to consume decreases

6. Precautionary motive: Generally, people save to meet unexpected contingencies such as accidents, illness etc.

2. Business factors:

1. Extension of business: The desire to do big things, to expand, to secure resources to carry out further capital investment can lower the propensity to consume.

2. Liquidity preference: When the people prefer more liquid assets to meet emergencies and difficult situations then the propensity to consumer decreases thereby consumption gets affected.

3. Modernization: When an entrepreneur wants to adopt modern techniques and machinery, in that case he is going to cut down his consumption and the same gets spent on modernizing his business.

(ii) Objective Factors:

They are external to individual behaviour. Important objective factors, which cause changes in the nature, shape and position of consumption function are as follows:

1. Change in money income: There exists a direct and positive relation between income and consumption. Therefore, as the income of the individual rises, the consumption also increases.

2. Change in real income: Changes in real income can result from price of the commodity. If there is decrease in the price of the product, it will lead to increase in the demand for the product and vice-versa.

3. Change in distribution of income:With the given level of income, aggregate consumptionwill vary if income is distributed in different ways among the people. A community with a greatly unequal distribution of income tends to have a low propensity to consume on the whole, while a community with a high degree of equality of income will have a high propensity to consume in general.

4. Financial policy of the corporation: If corporations and companies keep, more reserves and distribute less of their profits as dividends, it will lower the disposable income with consumers. On the other hand, if more income is distributed in the form of dividends, more will be spent on consumption.

5 Change in expectations: Expectations of the people regarding future events also affect their propensity to consume. Individuals may rush to purchase goods much in excess of current needs if they expect a war or fear a shortage on account of any other reason. Thus, the amount of consumption as a ratio of current income will rise and consumption function will shift upwards (without any rise in income).

6. Fiscal policy: Fiscal policy of the Government relating to taxation, expenditure and public debt, and the changes therein have significant effects on the consumption function. The Government's fiscal policy resulting in highly progressive tax system bring about more equitable distribution of income, thereby shifting the consumption function upwards, as more equal distribution of wealth increases the propensity to consume. On the other hand, a regressive tax structure (involving heavy indirect taxes) will reduce total consumption in the economy.

7. Demonstration effect: Demonstration effect is the effect of a person's behavior, particularly with respect to consumption in economics. Demonstration effects are effects on the behavior of individuals caused by observation of the actions of others and their consequences.JamesDuesenberry, in his consumption theory, advocated that demonstration effect comes in to picture when one persons consumes something by seeing another person or to show some one and not due to his own original likes and dislikes.

Saving Function:

This refers to the relationship between savings and the income level. Like the linear consumption function, the linear savings function can be defined in terms of vertical intercept and slope. The general equation for a linear savings function can be written as:

S= -a +(1-b) Yd

Where S= savings

-a = autonomous savings (autonomous savings does not depend on income level)

1-b = marginal propensity to save (MPS), as MPC +MPS=1

Yd= disposable income

Keynes argue that savings is divided into autonomous savings and induced savings. Autonomous savings refer to that part of savings that does not depend on the income level and occurs when there is autonomous consumption. Autonomous consumption is the expenditure incurred by the consumer if there is no income. So, the expenditure comes from savings and this is referred to as autonomous savings.

Induce savings is a part of the income and it depends on the quantum of the savings. The higher the income, the higher the amount of savings, and vice versa.

Propensity to Save:

Propensity to save, in economics is the proportion of total income or of an increase in income that consumers save rather than spend on goods and services. Propensity to save can be expressed in two different ways.

These are the following:

a) The average propensity to save (APS), and

b) The marginal propensity to save (MPS)

- Average Propensity to Save (APS)- This defines the relationship between total disposable income and total savings.

The average propensity to save is the ratio of total saving to disposable income. In other words, APS is defined as the fraction of the total disposable income saved. The APS is computed on the aggregate basis in the following manner.

APS= Total Savings/ Total Disposable Income

APS= S/Yd

- Marginal Propensity to Save (MPS)- This defines relationship between a change in total disposable income and a change in total savings. The MPS is the ratio of change in total savings to a change in total disposable income. The MPS is computed as follows:

MPS= Change in Total Savings/ Change in Total Disposable Income.

$$MPS = \frac{\Delta S}{\Delta Y}$$

A saving schedule is a schedule which indicates the various amounts households save at various possible levels of disposable income. Table 11. 3 shows consumption schedule ,APS and MPS at different levels of disposable income

Table 11.3 Consumption and Saving Schedule

Income (Y)	Consumption (C)	Savings (S)	APC (C/Yd)	APS (S/Yd)	MPC= ΔC/ ΔY	MPS= ΔS/ ΔY
0	50	- 50	-	-	-	-
100	125	-25	1.25	-0.25	0.75	0.25
200	200	0	1.00	0	0.75	0.25
300	275	25	0.92	0.08	0.75	0.25
400	300	50	0.88	0.12	0.75	0.25
500	425	75	0.85	0.15	0.75	0.25

Table 11.3 shows the nature of relationship between consumption and savings. The sum of APC and APS must be equal to one. The equation of APC and APS can be written as:

APC + APS= 1

From the above equation, since the APC is the difference between one and APS, we can conclude that the higher the APC, lower is the APS and vice versa.

The sum of the MPC and MPS also equals one. The equation can be written as:

MPC + MPS = 1

The MPC is the difference between one and MPS. We can therefore conclude that the higher the MPC, the lower the MPS and vice versa.

Factors that affect Savings:

1. Level of Income: Higher income enables higher saving. So, people with low income cannot afford the opportunity of saving as they are stuck to secure the basic living

2. The rate of interest: Rate of interest is directly proportional to the propensity to save as people get more attracted with high rate of interest. When rate of interest I slow, the saving rate will also be low.

3. Stock of wealth: Basically, wealth measures the amount of valuable economic goods that have been accumulated at a given point in time and is indirectly proportional to propensity to save.

4. Taxes: Taxes are considered as the burden on income that is saved and invested than it does on income that is consumed. This burden reduces the ability of families to save for the future. Thus, The taxation policy also influences savings in the country. Progressive taxation reduces savings because tax rates increase with the rise in incomes. Similar is the case with wealth and succession taxes. People generally show a tendency to save less. They feel that most of their incomes will be taken away in the form of taxes and, therefore, they save less.
5. Investment Opportunities: It is a matter of fact that investment opportunities encourage savings as savings increase if there are sufficient opportunities to invest in trade and commerce. The development of stock and exchange markets also results in more savings. Scarce investment opportunities result in fewer saving and vice-versa
6. Economic Policy of the Government: Facilities to save are also influenced by the economic policy of the government. If the government wants to adopt the socialistic pattern of society, it would like to nationalise different industries and people will have a tendency to save less and vice-versa
7. Banking Facilities: An efficient and developed banking system facilitates savings. Savings are secure and beneficial in the form of cash, if these are deposited in the banks. Lack of banking facilities diminishes savings because in the absence of banking facilities money remains in the hands of people which is readily available for spending.

11.2 Investment Theory

The survival of a business in the competitive market involves a lot of monetary and non-monetary effort. One of the major strategies adopted by the firms is investing in new opportunities. Firms make investments, the long run, by generating capital from their own resources and borrowing. However, for firms, capital may be a scarce resource so they have to allocate it in such a manner that they get the maximum return from their investment. As capital is expensive, the basic objective of the investor is to maximise the net return, i.e., revenue minus costs. Capital would then be invested in only those products where there is an excess of revenue over (capital) expenditure or return is the maximum over the period of that investment. In setting up a management consultancy firm, for example, investment will be made in acquiring professionals. In most cases, they are very expensive. The product here would be the service provided by these professionals in solving a client's problem. Revenue will come from the sale of their services. Accordingly, capital would be required to set up such an organisation. In this unit, you are going to learn about various types of investments and factors that affect investment decisions.

Meaning and Types of Investment

Investment refers to that part of current output which makes a new addition to the existing stock of capital. It is a flow variable because it is not the total stock of capital, but the net addition made thereto, with respect to time. Like consumption, investment depends on many variables. For simplifying our analysis, we assume that investment is given independently of the level of income. Thus, investment is a constant, I_0

Since investment is assumed to be constant at the I_0 level, the investment function is $I = I_0$ ($I_0 > 0$)

Where I_0 represents a given positive level of investment

11.3 Types of Investment

1. Gross Investment: Gross investment consists of gross fixed investment, plus net investment in stocks and work in progress. Gross investment is distinguished from net investment, which measures the change in the capital stock after allowing for capital consumption.

2. Replacement Investment: A part of gross investment which is used for replacing old capital equipment. So, it can be said that the investment that is undertaken to replace a firm's plant and equipment or an economy's capital stock, which have become worn out or obsolete.

3. Net Investment: Net investment is the total amount of money that a company spends on capital assets, minus the cost of the depreciation of those assets. So it can be said that gross investment minus replacement investment is termed as net investment.

4. Ex-ante Investment:.Ex-ante investment refers to the desired investment or planned investment during the period of one year. This is the investment expenditure which is intended to be made in the economy during the period of one year.

5. Ex-post Investment: Also named as actual or realised investment.Ex-post investment refers to the actual investment in the economy during the period of one year

Private business investment is often divided into two categories:

1. Autonomous investment: Autonomous investment is fixed and independent of income. The amount of investment can be influenced by other factors, such as interest rates, repayment rates, business expectation and technology developments.

2. Induced investment: Induced investment depends on the national income. As national income increases, induced investment also increases since a higher national income attracts more investors to invest.

Investment which is brought about by any changes in the level of income (i.e., GNI) or output

(i.e., GNP) is called induced investment. However, major portion of private investment does not

depend on national income or output.

Example: Suppose a new invention of 3D television becomes popular. It is quite likely that business firms will make investment in developing the new product even if there had been no prior change in national or per capita income. This investment which is independent of national income or its rate of change is called autonomous investment.

Caution: Thus investment which depends on national income or its rate of change is called induced investment. On the other hand, investment which depends on all other variables except national income is called autonomous or income independent investment.

Factors that affect Investment:

1. Rate of interest

   Interest is the financial cost that a firm must pay to borrow the money capital required to purchase the real capital. For example, A Company needs to borrow money from some Bank to buy machinery for its company then company must pay an interest for the borrowed amount. If the rate of interest is high, the cost of borrowing becomes more expensive, and thus the investment from a firm will be lower, and vice versa. There is an inverse relationship between rate of interest and investment.

2. Rate of Return

   Any business or firm always wants a higher return for its investment. If the cost of investment is greater than the rate if return, this investment is regarded as not profitable and therefore, it will discourage investors, and vice versa. A higher rate of return will boost investments.

3. Government Policies

   Investment is also influenced by government policies. There are various government policies to attract investors both domestic and foreign. The government gives some tax exemptions or reductions on investments.

4. Technological Changes

   Technological changes can improve the quality of the product and also reduce the cost of production, which would result in a higher rate of return on the investment. This would encourage more investors to invest.

5. Expectations of the Future

   Investment will depend on business expectations, future sales and demand for the goods being produced. Future expectations depend on business forecasts and economic conditions.

6. Technology changes

   Technological changes can improve the quality of the product and also reduce the cost of production, which would result in a higher rate of return on the investment.

7. Expectation of the future

   Investment will depend on business expectations, future sales and demand for the goods being produced. Future expectations depend on business forecasts and economic conditions. If the firm is confident or optimistic about the future profitability of new and existing products, they will be more interested to invest, and vice versa.

Summary

- The consumption function is the relationship between consumption and income and is largely a Keynesian contribution. Keynes postulated that consumption depends mainly on income.
- In regard to the relationship, he argued that consumption increases as income increases but by an amount less than the increase in income.

- Marginal Propensity to Consume is a component of Keynesian theory that represents the proportion of an aggregate raise in pay that is spent on the consumption of goods and services, as opposed to being saved.
- Marginal Propensity to Save is the proportion of a small change in disposable income that would be saved, instead of being spent on consumption.
- It is computed by dividing the change in savings by the change in disposable income that caused the change

Keywords

- Aggregate expenditure: It is the total demand for goods and services in the economy.
- Aggregate supply: It is the total quantity of goods and services produced in the economy.
- Autonomous Consumption: The minimum level of consumption that would still exist even if a consumer had absolutely no income.
- Average Propensity to Consume: Fraction or percentage of disposable (after tax) personal income spent for consumer goods.
- Average Propensity to Save: The proportion of total disposable income (individual, household or national) which represents income used for savings as opposed to expenditure.
- Consumption Function: A mathematical function that emphasizes the relationship between consumption and income (factors determining consumption).
- Disposable Income: The amount of money that households have available for spending and saving after income taxes have been accounted for.
- Induced Consumption: Consumption expenditure by households on goods and services which varies with income.
- Marginal Propensity to Consume: Proportion of a small change in the disposable income that would be spent on consumption instead of being saved.
- Marginal Propensity to Save: Proportion of a small change in disposable income that would be saved, instead of being spent on consumption.
- Propensity to Consume: The proportion of total income or of an increase in income that consumerstend to spend on goods and services rather than to save.
- Savings Function: The relationship between an individual's total savings and his or her income.

SelfAssessment

1. _____is a withdrawal from the flow of income which reduces national income.

A. Saving
B. Investment
C. Consumption
D. None of the above

2. When aggregate demand is less than aggregate supply then:

A. Firms resort to increase the employment to bring back the situation to the equilibrium

B. Firms resort to decrease the employment to bring back the situation to the equilibrium

C. Effective demand is achieved

D. None of the above

3. _____ is additional flow of income, thus it reduces _____:

A. Saving, National income

B. Investment, personal income

C. Saving, personal income

D. Investment, National Income

4. When savings are greater than investment then:

A. Firms plan to reduce the production

B. Firms plan to increase the production

C. Equilibrium situation is achieved

D. None of the above

5. Effective demand is the situation when

A. Aggregate demand equals aggregate supply

B. Aggregate demand is less than aggregate supply

C. Aggregate demand is greater than aggregate supply

D. None of the above

6. The marginal propensity to consume is equal to:

A. Total spending / Total consumption

B. Total consumption/ Total income

C. Change in consumption/ Change in income

D. Change in consumption/ Change in savings

7. In equation C= a + by, a indicates :

A. Consumption at zero level of income

B. Average propensity to consume

C. MPC

D. None of the above

8. Under Keynes consumption function consumption is a _____ function of income:

A. Unstable

B. Stable

C. Inverse

D. Neutral

9. In equation S= a + by, a indicates:

A. Marginal Propensity to Save
B. Average propensity to Save
C. Autonomous savings
D. None of the above

10.The factor(s) that affect saving is(are):

A. Level of income
B. Farsightedness
C. Both (a) and (b)
D. None of the above

11. Investment is:

A. An injection that increases aggregate demand
B. A withdrawal that increases aggregate demand
C. An injection that decreases aggregate demand
D. A withdrawal that decreases aggregate demand

12. Induced investment depends on

A. Price level and rate of interest
B. Level of income and rate of interest
C. Level of employment and wage rate
D. Price level and wage rate

13. An increase in investment is most likely to be caused by:

A. A decrease in withdrawals
B. A decrease in marginal propensity to consume
C. Expectations of lower national income
D. Lower interest rates

14. The difference between gross and net investment is:

A. Depreciation
B. Acceleration
C. Deceleration
D. Capital investment

15. Investment which does not change with the change in income level is termed as:

A. Real investment
B. Induced investment
C. Autonomous investment

D. Financial investment

Answers for SelfAssessment

1.	A	2.	B	3.	D	4.	A	5.	A
6.	C	7.	A	8.	B	9.	C	10.	C
11.	A	12.	B	13.	D	14.	A	15.	C

Review Questions

1. Differentiate between autonomous investment and induced investment.
2. What are the factors that can influence the level of investment in an economy?
3. Define the consumption function and explain its components.
4. Differentiate between Average Propensity to Consume and Marginal Propensity to Consume
5. What are savings? What factors decide propensity to save?
6. Define consumption. What factors influence the propensity to consume?
7. How autonomous investment is different from induced investment?
8. Briefly explain the two approaches to determine the national income equilibrium.
9. Explain how equilibrium is determined in two sector economy?
10. Briefly explain the determination of equilibrium in three and four sector economy.

Further Readings

Dr. Atmanand, Managerial Economics, Excel Books, Delhi.

H L Ahuja, Macro Economics Theory and Policy, S Chand Publications

Shapiro and Edward, Macro Economic Analysis, Galgotia, New Delhi

W H Branson, Macro Economic Theory and Policy, AITBS Publishers and Distributors,New Delhi

Web Links

http://tutor2u.net/economics/content/topics/consumption/

consumption_theory.htm

http://www.britannica.com/EBchecked/topic/134598/consumption-function

http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=marginal+propensity+to+consume

Unit 12: Inflation

CONTENTS

Objectives

After studying this unit, you will be able to:

- Understand the term inflation and different concepts related to it
- explore different causes of inflation and analyse different measures to solve the problem of inflation
- describe the concept of demand-pull inflation and cost push inflation
- determine the equilibrium
- Identify and analyse the reasons and consequences of inflationary gap
- understand the concept of multiplier
- describe the types, working and limitations of multiplier

Introduction

According to general understanding of public, inflation is a condition which produces a rising trend in the general price level in the economy. Inflation is also a situation where there is 'too much money chasing too few goods'.

12.1 Concept of Inflation

Inflation can be defined as a continuous increase in the general price level of goods and services in the economy. Since inflation refers to a continuous increase in the general price level, although the price of every product and service need not increase.

According to Coulbrun inflation is , "too much money chasing too few goods". Crowther defines, "inflation is a state in which the value of money is falling".

Types of Inflation:

On the basis of the rate of increase in price level we have the following types of inflation:

1. **Creeping inflation**: It is also known as mild-inflation. It is not dangerous specially in an economy where national income is also rising. There are some economists who regard a mild increase in the price level as a necessary condition for economic growth. So, when a sustained rise in prices is about 2 % per year, it is termed as creeping inflation.

2. **Walking Inflation**: In this case, the inflation rate falls between 3% to 10%. Such inflation can be harmful to the economy. The economic growth of the country is too accelerated to sustain. Consumers start stocking goods fearing the prices will rise further. This causes excess demand, and the prices increase further.

3. **Running inflation**: The rate of inflation will increase above 10% if creeping and walking inflation are not controlled. Inflation is accelerating at a breakneck pace. In the global economy, the country's currency will lose value. The average person's salary and income will not be able to keep up with the rising prices of commodities. This will result in overall economic and political turmoil in the country.

4. **Hyperinflation**: This occurs when inflation has spiraled out of hand. The monetary authorities can't regulate prices with their current policies. On a monthly basis, inflation might be as high as 50%. Inflation has reached its apex. A real-world example is that of Venezuela, where the IMF has predicted prices rose 13,000% in 2018.

Types of Inflation:

1. **Demand Pull Inflation**:"The pressure of aggregate demand for goods and services exceeds the available supply of production," according to the definition of inflation. The obvious result of such a circumstance is an increase in price level.This overabundance of aggregate demand over supply could be the result of multiple forces at work. As we all know, aggregate demand is the total of consumer spending on existing goods and services plus entrepreneurs' net investment plans.However, the government, companies, or individuals may strive to gain a higher share of output than would otherwise be available to them. When aggregate demand for all purposes-consumption, investment, and government spending-exceeds the supply of products at current prices, inflation occurs. Demand-pull inflation is the term for this type of inflation.

2. **Cost-Push Inflation**:Prices may rise despite the fact that aggregate demand remains unchanged. This may occur if costs, particularly wage costs, continue to rise. As the level of employment rises, so does the demand for workers, resulting in a stronger negotiating position for workers. To take advantage of this position, they may request wage increases that are not justified by earlier increases in productivity or cost of living. Employers are more willing to settle wage claims in times of high demand and employment because they intend to pass on the cost increases to consumers in the form of higher pricing.

If this happens, we have another inflationary factor at work and the inflation thus caused is called the wage-induced or cost-push inflation.

The shift in the aggregate supply curve may result from various factors such as follows:

a) **Wage-push inflation**: Wage-push inflation occurs due to an increase in the wage level which will lead to an increase in the cost of production and the output price. The wage level may increase due to organized labour unions seeking further wage increases through their collective bargaining strength or the firm's increasing wages to avoid the migration of workers to other firms.

b) **Profit-push inflation**: Profit-push inflation occurs when certain producers or monopolists stock up on goods and create an artificial shortage which will increase the price on these goods, thereby giving them higher profits.

c) **Import-push inflation**:Import-push inflation occurs when the prices of imported raw materials or finished goods increase. This may be due to the fluctuation of the foreign exchange rate. This will lead to an increase in production costs and eventually an increase in the price of outputs.

12.2 Demand side factors that cause Inflation

1. **Increase in government expenditure**: Government operations have been rapidly expanding, resulting in astronomical increases in government spending, hence enhancing aggregate demand for goods and services. Governments in both rich and developing countries are expanding public utilities and social services, as well as nationalizing businesses and establishing public enterprises, all of which contribute to higher aggregate demand.

2. **Increase in Income:** When people's disposable income rises, their demand for products and services rises as well. The increase in disposable income may be due to a gain in national income, a reduction in taxes, or a reduction in people's savings.

3. **Introduction of new products**:Inflation can occur when prices rise due to increases in production costs, such as raw materials and wages. A surge in demand for products and services can cause inflation as consumers are willing to pay more for the product. When the new products are introduced in the market, it bears high cost of production which is borne by the customer.

4. **Increase in Investment**: Because inflation erodes the value of investment returns over time, investors may shift their money to markets with lower inflation rates. Unlike cost-push inflation, demand-pull inflation occurs when aggregate demand in an economy rises too quickly. Demand outstrips supply, leading to an increase in prices.

5. **Reduction in taxes**: Taxes are inversely correlated with the level of spending as when the rate of taxation increases, it takes away the spending ability of the consumers thereby leading to lower consumption levels and price level. On the contrary when the rate of taxation decreases it allows the customers with more spending ability thereby leads to increased demand and when simultaneous production doesn't match with increased demand, there arises inflation.

6. **Increase in Exports**: When demand for domestically produced items rises in other countries, industries that manufacture export commodities make more money. As a result, there is more demand for goods and services in the economy, resulting in a price increase.

12.3 Supply Side factors affecting Inflation

There are also certain factors which operate on the opposite side and tend to reduce the aggregate supply.

1. Less Production: When the emphasis is placed on manufacturing comfort, luxury at the expense of necessary consumer goods in the country, shortages in consumer goods result which further results in inflation .

2. Taxation: When the aggregate supply of goods and services decreases because of an increase in production costs, it results in cost-push inflation. In order to compensate, the increase in costs is passed on to consumers, which further causes a rise in the general price level leading to the situation of inflation.

3. Shortage of raw material: A shortage of labour, raw materials, power, capital, and other elements is one of the major factors affecting the supply of goods. They result in surplus capacity and a decrease in industrial production, resulting in price increases.

4. Industrial disputes: Trade unions aid in the reduction of production in nations where they are powerful. Strikes are used by trade unions, and if they are unreasonable in the eyes of employers and last for a long time, companies are forced to proclaim lock-outs. In both circumstances, industrial production declines, resulting in a reduction in goods supplies. If labour unions succeed in raising members' money pay beyond the rate of increase in labour productivity, this tends to reduce production and supply of commodities. As a result, they have a tendency to hike prices.

5. Hoarding: Hoarders and speculators who engage in black marketing create artificial scarcities. As a result, they play a key role in limiting commodities supplies and rising prices.

6. War: Wars destroy physical capital, driving investment and interest rates higher. Wars are often associated with the widespread destruction of physical capital, a development that increases the demand for investment and pushes interest rates higher leading to increased prices thereby causing inflation.

7. Natural Calamities: Droughts and floods are two factors that have a negative impact on agricultural product supplies. The latter, in turn, causes food and raw material shortages, contributing to inflationary pressures.

12.4 Measures of Inflation

The consumer price index is used to measure the rate of inflation. The consumer price index (CPI) is an index that measures changes in average price of consumer goods and services. The CPI is also called the cost-of-living index. The rate of inflation is computed as a percentage change in CPI from one year to the next. The following formula shows how the rate of inflation is computed.

$$\text{Inflation rate} = \frac{\text{CPI this year} - \text{CPI previous year}}{\text{CPI previous year}} \times 100$$

Various Indices of Inflation:

1. **Producer Price Index (PPI):** measures average changes in prices received by domestic producers for their output.
2. **Wholesale Price Index (WPI):** measures wholesale prices of a wide variety of goods including consumer and capital goods.
3. **Consumer Price Index (CPI):** measures the price of a selection of goods purchased by a *typical consumer.*
4. **Cost of Living Indices (COLI):** used to adjust fixed incomes and contractual incomes to maintain the real value of such incomes.
5. **Service Price Index (SPI):** With the growing importance of service sector across the world, many countries have started developing services price indices (SPI).

A price index is a numerical measure designed to compare how the prices of some class of goods and/or services, taken as a whole, differ between time periods or geographical locations.

$$\textbf{Price Index} = \frac{\text{Current Year's Price}}{\text{Base Year's Price}} \times 100$$

12.5 Effects of Inflation

A continuous substantial rise in the general price level is injurious to theinjurious to the community's social economic interests, in terms of current welfare and future economic economic development. Inflation affects the consumers' real disposable personal income and their and their expenditure pattern because the money value has fallen, and lesser goods can be purchased.

1 **Distribution of Income**: Inflation changes the existing pattern of distribution of income and wealth in societywhere some groups are relatively better off than others.

The people who stand to gain from continuous inflation are:

a) Businessmen who earn higher profits from rising prices.

b) Property owners such as real estate owners who gain when property prices increaseduring an inflation.

c) Shareholders who receive higher dividends since companies' profits are higher.

d) Debtors because the real value of money has changed.

The people who tend to lose from continuous inflation are:

a) People dependent on fixed incomes such as salaried workers and pensioners.

b) Holders of government bonds, holders of fixed deposits in banks and holders of lifeinsurance policies and money.

c) Creditors because when they receive the money owed to them, the real value of themoney will be less.

2. **Savings**:During inflation, the value of fixed deposits, bonds, life insurance policies and money would depreciate in terms of real income. Real income is the purchasing power of that money as measured by the quantity of goods and services that can be purchased with it. Since inflation depreciates the value of fixed deposits, people will save less and invest in non-financial sectors such as houses and land.

3. **Production**:During inflation, the general level of prices rises and producers make higher profits (providing they hold old stocks). This will lead producers to increase their level of production and investment. Increased production and investment will create more job opportunities and reduce unemployment.

4. **Balance of Trade**: During inflation, many countries face a deficit balance of trade since imports are greater exports. This arises when the prices of domestic products increase, as this makes them less attractive to foreigners thereby leading to a reduction in the demand for domestic products. At the same time, imports increase because the imported products are now cheaper than domestic products.

12.6 Measures to Control Inflation

A government can implement any one or a combination of monetary, fiscal and direct control policies. The measures to control inflation are contrary to the measures for unemployment. Expansionary monetary and fiscal policies are practices to control unemployment whereas contractionary monetary and fiscal policies are used to control inflation.

1 **Monetary Policy**: Monetary policy which consists of controlling the supply of money by the central bank is enforced by using the different monetary instruments which aim at reducing the supply of money.

a) Open market operations--Selling of securities or short-term bonds: The sale of short-term bonds or government securities and treasury bills to the public and banking community by the central bank directly reduces the total amount of cash balances in the publics asset portfolio and cash reserves with the commercialbanks. Indirectly, the sale of securities by the central bank causes a fall in the priceof securities and thus, reduces the supply of money.

b) Raising the reserves requirement: The central bank would raise the reserve requirement to reduce cash resources incommercial banks and force these commercial banks to restrict their lending activities. A rise in reserve requirements would reduce the ability of commercial banks to provide loans and this will ultimately lead to a decrease in the supply of money.

c) Raising the discount rate/bank rate: A rise in the bank rate shows that the central bank's monetary policy is directedtowards credit squeeze to control inflation. A rise in the discount rate or bank ratealso raises the price of borrowing funds from banks for the busineand this forces the banking system to re-examine its lending policies.

d) Raising the interest rate: The central bank would persuade commercial banks to increase their rates of interest on deposits from public. The high rate of interest will attract and encourage more people to save, and this will increase the level of savings.

e) Selective credit control policy: The selective credit control policy takes the form of issuing directives to commercial banks prohibiting them from lending against certain commodities or reducing the total credit limit granted to the public.

2. **Fiscal Policy**:A decrease in government spending and an increase in the government's total tax revenue will produce a surplus budget. This is an important fiscal measure which inflationary pressure on an economy.

a) Increase in taxes: A highly regressive tax structure can successfully reduce the impact of inflation on the economy. An increase in taxes will reduce the disposable income of individuals and their consumption of goods and services. This in turn will lead to a fall in prices.

b) Decrease in government expenditure:A reduction in government expenditure will directly affect aggregate demand. The government will cut the salary of all civil servants and postpone its development projects to reduce the purchasing power of the public.

3. **Direct Control Measures**:Besides monetary and fiscal policies, some direct measures are taken to control inflation.

a) **Price control and rationing**: The government will control the prices of goods by fixing a floor price and a ceiling price. If some of the measures fail, rationing is used as a last resort. Rationing is where consumers can purchase limited goods and services using coupons. Rationing is practised in some countries where the government controls essential goods.

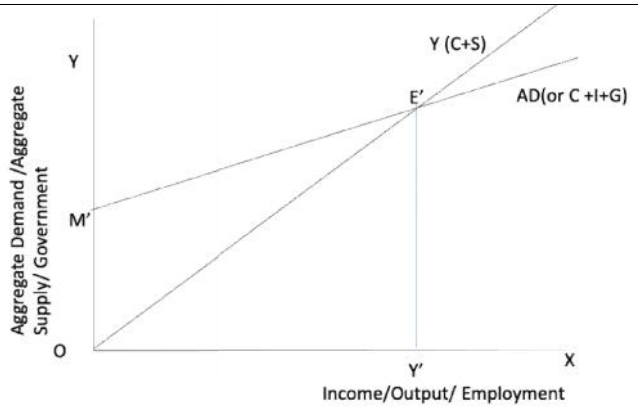
b) **Anti-hoarding campaign**: This arises when reports are made against producers and consumers who store goods unnecessarily because such storing can cause an artificial shortage and push prices up.

c) **Compulsory savings**: To control inflation, it is essential to introduce a compulsory savings plan. This could be the way of a deduction from the salary of workers that is credited to workers accounts and thereby spending ability will be reduced and thus it will help in lowering down the inflation.

Determination of Equilibrium, Inflationary and Deflationary Gap

Equilibrium is defined as "a state of rest or balance due to the equal action of opposing forces" According to the Keynesian theory, the equilibrium level of income in an economy is determined when aggregate demand, represented by C + I or C+I+G curve is equal to the total output (Aggregate Supply or AS). Thus, it can be said that the equilibrium is reached only when aggregate demand (AD) equals aggregate supply (AS) because at this level there is no tendency for income and output to change. The equilibrium is at point E′ where AD intersects 45 line or AD = AS.

Fig 12.1 Equilibrium Through Aggregate Demand and Aggregate Supply



Inflationary Gap and Deflationary Gap

Inflationary gap: Understanding the notion of inflationary gap is useful and crucial because it allows us to identify the primary source of price increases in general. When aggregate demand or total expenditure equals the level of income corresponding to full employment, an economy's equilibrium is reached. When the quantity of investment equals the saving gap corresponding to full-employment income, this occurs.

Fig 12.2 Inflationary Gap

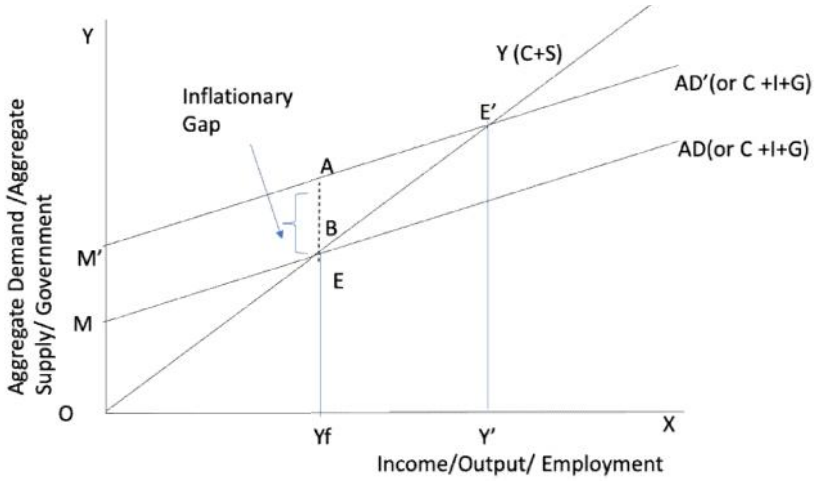


Fig 12.2 illustrates the inflationary gap.It is the vertical distance between the full employment income $[C+I+G]_f$ and aggregate expenditure [C+I+G]. Since the aggregate expenditure schedule cuts the 45-degree line, Y= C +I+G at point E′ which is located to the right and above E, i.e. the intersection point of the 45-degree line with the full employment line Y_f, there is an inflationary gap of AB. This gap exists because AD shifts to AD" and equilibrium output did not increase beyond full employment level. In other words, it can be said that an excess demand of AB pulls up the price.

Inflationary gaps occur when aggregate demand is higher than the projected demand, which can be caused by two different things:

1. A rise in aggregate demand: A rise in demand will inevitably result in a mismatch between actual and potential demand. Excess demand can be triggered by several factors, including lower unemployment, more consumer confidence, increased government spending, and increased private investment.

2. A fall in aggregate supply: A decrease in supply will inevitably result in a disparity between actual and projected demand. Increased tariffs, wage rises, and wartime are all possible causes of supply reductions (when facilities are used for war purposes instead of producing commercial goods).

Inflationary gaps can be managed in two main ways to bring higher price levels into market equilibrium:

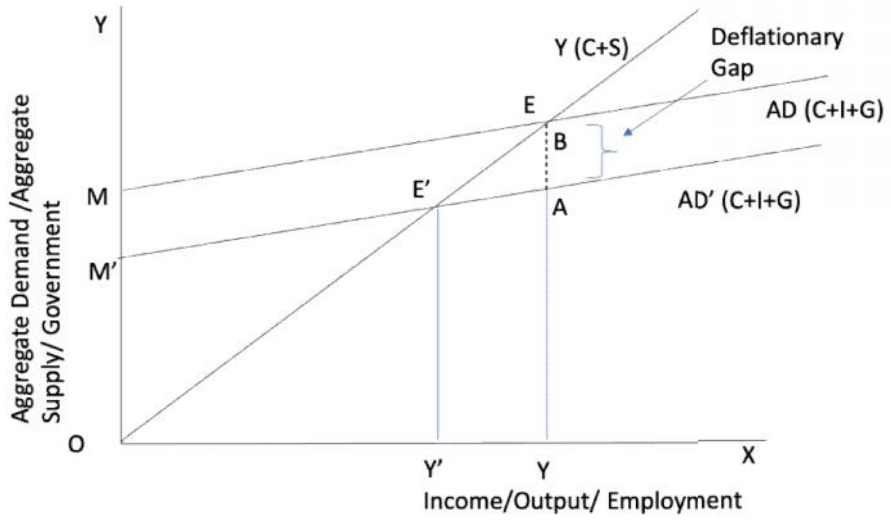
1. Fiscal Policy: Government policies established to control the money supply are known as fiscal policies. Governments can use contractionary fiscal policies to minimize inflationary gaps by reducing the money supply and thereby reducing demand. Reduced government spending and higher taxation are examples of these approaches.

2. Monetary Policy: Central banks implement monetary policies to keep the money supply under control. Banks can raise interest rates to make borrowing money more difficult, limiting the money supply and decreasing demand, and thereby managing inflationary gaps.

Deflationary Gap: In the theory of income and employment, the concept of deflationary gap occupies an important place, since in a capitalist economy unemployment and depression occur due to this gap. According to Keynesian theory of income and employment, equilibrium at the level of full- employment is established when aggregate demand consisting of consumption demand plus investment demand plus government demand (C + I + G) is equal to the national income at the level of full-employment.

Deflationary gap prevails when aggregate demand (AD) is less than aggregate supply (AS) at full employment level of output. In this case, income equilibrium occurs while some resources are unemployed.In other, words, deflationary gap depicts unemployment situation attributable to the fact that at full employment level of output, AD < AS.

Fig 12.3 Deflationary Gap



The deflationary gap is measured as the difference between aggregate expenditure (C+I+G) and full employment aggregate supply. The figure 12.3 illustrates the deflationary gap which is vertical distance between full employment income (C+I+G) and aggregate expenditure. The deflationary gap is shown as the gap BA in figure 12.3 where the equilibrium income level is below the full employment income level. The reason behind the existence of deflationary gap is the lack of Aggregate demand which arises because of fall in exports, fall in investment, fall in consumer spending and fall in economic growth. The deflation in the economy impacts on reduced employment opportunities or leads to rising unemployment, negative impact on the government's budget and thereafter low rates of inflation leads to negative rates of economic growth

Deflation can cause an economy to grind to a halt - and so central banks and governments try to combat inflation when it arises. Monetary and Fiscal policy tools can be used to fight deflation and keep prices - and economic activity - from spiraling downwards. Expansionary monetary tools such as lowering the bank reserve limits, open market operations, lowering the interest rates, quantitative easing can be adopted by monetary authorities to generate more spending ability and to get rid-off from the clutches of deflation. Government on the other hand can increase its spending and reduce tax rates to give more spending ability to the people there by plunging them out of the clutches of deflation.

12.7 Concept of Multiplier

Multiplier coefficient refers to the multiple increases in the equilibrium level of income causedby a change in the level of aggregate spending. The investment part of the total spending isdetermined by the market mechanism ad is relatively more dynamic determinant of output,employment and income. The value of the multiplier is mainly determined by the value ofmarginal propensity to consume.

Spending creates income as it leads to rise in income of those producers on whose goods andservices the spending is made. The spending may be on capital goods (called investment), oninputs, and on consumption. (It is assumed that there is no government expenditure and thereare no net exports).

If the spending is done out of the increase income without any decrease in the existing incomeof the society, it has one impact on income creation. If the spending is done out of the increasedincome of one section of the society obtained by reducing the income of other section of thesociety, there is another impact.

R.F. Kahn first proposed the multiplier concept in his article "The Relation of Home Investment to Unemployment" published in the Economic Journal in June 1931. The Employment Multiplier was Kahn's multiplier. The Investment Multiplier was developed by Keynes based on Kahn's notion.

The equilibrium national income always changes, as the aggregate demand changes (AD). The multiplier (K) is the ratio of the change in income to the change in AD. The multiplier shows how many times the effect of an initial change in AD is multiplied by causing changes in consumption and finally in the aggregate income.

K= Change in income/ Change in Aggregate demand

The size of the multiplier depends upon the size of the marginal propensity to consume (MPC). The higher the MPC, the higher the size of the multiplier; the lower the MPC, the lower the multiplier. Therefore, K can be found using the following formula.

K= 1/1-MPC

12.8 Types of Multiplier

1. Investment Multiplier:

It is the ratio of the change in the equilibrium income to a change in investment. If there is a change in investment, the multiplier is called an investment multiplier

K_i = Change in income / Change in investment

An investment multiplier can also be derived as follows:

$k = \frac{\Delta Y}{\Delta I}$ -------(1)

As Y= C +I -----(2)

Taking difference on both sides of equation 2, we will get

$\Delta Y = \Delta C + \Delta I$ ----(3)

$\Delta I = \Delta Y - \Delta C$ -----(4)

Rewriting eq (1) , we will get

$$k = \frac{\Delta Y}{\Delta y - \Delta C} \quad \text{-------(5)}$$

Dividing both numerator and denominator with ΔY

$$k = \frac{\Delta Y / \Delta Y}{\frac{\Delta Y}{\Delta Y} - \frac{\Delta C}{\Delta Y}} \quad \text{---------(6)}$$

Rewriting eq (6) , we will get

$$k = \frac{1}{1 - \frac{\Delta C}{\Delta Y}}$$

As MPC= $\frac{\Delta C}{\Delta Y}$, **then k =** $\frac{1}{1-MPC}$

Thus, Investment Multiplier = 1/1-MPC = 1/MPS

Table 12.1 **Values of MPC, MPS and Multiplier**

MPC	MPS	Multiplier
0	1	1
1/2	1/2	2
2/3	1/3	3
3/4	1/4	4
4/5	1/5	5
8/9	1/9	9
9/10	1/10	10
1	0	∞

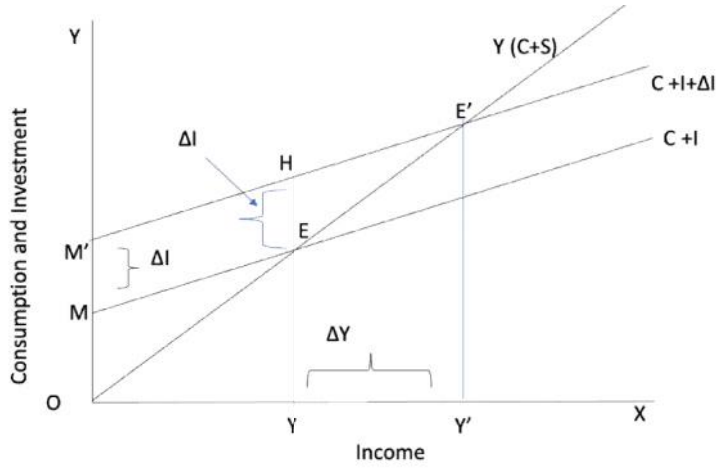
The table 12.1 shows the relationship between MPC, MPS and multiplier. The values in the table highlights the positive relationship between the MPC and Multiplier which highlights the fact that as MPC increases the multiplier also increases where there exists inverse relationship between MPS and Multiplier which states that as MPS increases people's tendency to spend decreases and thereby multiplier contracts.

Table 12.2 Working of Multiplier				
Rounds	Increase in Investment (Rs Crores)	Increase in Income (Rs crores)	Change in Consumption (Rs Crores)	Change in Savings (Rs Crores)
I	1000	1000	500	500
II		500	250	250
III		250	125	125
IV		125	67.5	67.5
V		67.5	33.75	33.75

Suppose that in an economy MPC is 1/2 and investment is raised by Rs 1000 crores. This will immediately lead to a rise in production and income by Rs 1000 crores. One-half of this new income will be immediately spent on consumption goods which will lead to increase in production and income by the same amount, and so on.It shows that an increase in investment of Rs 1000 crores in the main round results in the same gain in income. In the second round, Rs 500 crores is saved and Rs 500 crores is spent on consumption, resulting in a gain in income of the same amount.This dwindling process of income generation continues in the secondary rounds till the total income generated from Rs 100 crores of investment rises to Rs 2000 crores.

The fig 12.4 shows that the C curve has a slope of 0.5 to show the MPC equal to one-half. C + I is the investment curve which intersects the 45° line at E so that the old equilibrium level of income is OY. Now there is an increase in investment of ΔI as shown by the distance between C + I and C + I + ΔI curves. This curve intersects the 45° line at E′ to give OY′ as the new income. Thus, the rise in income YY′ as shown by ΔY is twice the distance between C + I and C + I + ΔI, since the MPC is one-half.

Fig 12.4 Working of Multiplier through C and I



Assumptions:

1. That there is no change in the marginal propensity to consume during the adjustment process, which remains more or less constant.

2. That there is no induced investment (i.e., accelerator is not operating).

3. That the new higher level of investment is maintained long enough for the completion of the adjustment process.

4. That the output of consumer goods is responsive to effective demand for these.

5. That there is complete absence of government activity like taxation or expenditure.

6. That there is no time lag between the receipt of income and its expenditure.

7. That there is a closed economy.

12.9 Uses of Multiplier:

1. **Equality between savings and investment**: In the theory of income and employment, the multiplier approach emphasizes the importance of investment. Because the consumption function is constant in the near run, fluctuations in income and employment are caused by changes in investment levels. Through the multiplier process, an increase in investment creates a cumulative increase in income and employment, and vice versa. The multiplier theory not only explains how income spreads as a result of increased investment, but it also aids in bringing saving and investment into balance.

2. **Analysis of Trade cycle**: The multiplier process explains and aids in the regulation of various phases of economic cycles that occur as a result of changes in revenue and employment levels. A drop in investment can be used to manage the boom period (high levels of income and employment), resulting in a cumulative decline in income and employment in the multiplier process. Increased investment, on the other hand, leads to recovery during the depression phase of the business cycle (low levels of income and employment). If this trend continues, boom could be the outcome.

3. **Formulation of Economic Policy**: The government has the authority to determine how much investment should be pumped into the economy in order tominimize unemployment. During a recession, the multiplier hypothesis aids the government in creating an effective employment policy. Because of the multiplier impact of investment, government public works programs are more effective than cheap money policies during a slump. It is critical to remember that any rise in one sector's investment should not be followed by a drop in the other sector's investment. A cross-sectoral investment transfer will not increase the multiplier's value. Furthermore, the investment must be injected on a consistent basis.

That is, the increments in the investment should be repeated at regular intervals so as to raise the level of the income and the employment to the full employment level. Further, modifications in the Keynes theory of the Multiplier will enhance the utility of the multiplier concept.

4. **Importance in Investment**: In income and employment theory, the multiplier idea emphasizes the importance of investment. Because the consumption function is constant in the short run, income and employment fluctuations are related to changes in the rate of investment. The multiplier effect causes a drop in investment to result in a cumulative drop in income and employment, and vice versa. As a result, it emphasizes the investment and explains the income propagation process.

5. **Importance of Public Investment**: The term "public investment" refers to government spending on public works and other projects that benefit the public. It is self-contained and unaffected by profit motives. As a result, it has a stronger impact on overcoming inflationary and deflationary pressures, as well as achieving and maintaining full employment. Private investment motivated by profit can only assist if public investment has created a favorable environment for the latter. Furthermore, economic activity cannot be left to the whims and uncertainties of the private sector.

6. **Deficit Financing**: The multiplier concept emphasizes the value of deficit spending. In a time of depression, a low-interest-rate policy is ineffective because capital's marginal efficiency is so low that a low rate of interest fails to encourage private investment. Increased public spending through public investment programmes, which results in a budget deficit, serves to enhance income and employment by multiplying the rise in investment.

12.10 Leakages of Multiplier

1. **Idle Saving**: Savings is a significant leakage in the income distribution process. If the entire gain in income is spent on consumption (i.e., if MPC is one), then the 'once-for-all' rise in investment will continue to create new consumption, ensuring full employment. In practice, however, this is not the case because a portion of the increased revenue is kept rather than spent, and thus 'peters out' of the income stream, limiting the multiplier's worth. In fact, all saving is a type of leakage, and the more the propensity to save, the smaller the multiplier value.
2. **Imports**: If imports exceed exports, a portion of the higher money from greater investment will go toward increasing income in foreign nations, at least in the short term. It is argued that growing affluence in other countries will raise demand for exports over time, hence benefiting the income of the country importing commodities. However, because it requires free trade, this may or may not be the case. Imports and the money spent on imported items thus represent a significant leakage.
3. **Hoarding**: Another source of leakage is hoarding, or the tendency for people to keep idle cash holdings. If people have a high liquidity preference and a proclivity to hold idle cash holdings, they will reduce consumer spending in the economy, limiting the multiplier's impact.
4. **Taxes**: Another significant leakage in the multiplier process is taxation. The increases in income that people gain as a result of increased investment are also utilized to pay taxes in part. As a result, the money used to pay taxes does not appear in the multiplier process' subsequent rounds of consumption expenditure, and the multiplier is reduced to that extent. However, if the money raised through taxation is spent by the Government, the leakage through taxation will be offset by the increase in Government expenditure.But it is not necessary that all the money raised through taxation is spent by the Government as it happens when Government takes a surplus budget. No doubt, if the Government expenditure increases by an amount equal to the taxation, it would not have any adverse effect on the increase in income and investment and in this way, there would be no leakage in the multiplier process.
5. **High liquidity preference:**People keep a part of their money income in liquid form. Liquidity preference reduces the present level of consumption of the community; as a result, the multiplier loses its strength.

2. **Government Expenditure Multiplier**:Government expenditure multiplier K_g refers to the ratio of the change in the equilibrium income to a change in government expenditure assuming there is no change in taxes. Government expenditure investment is also known as government spending expenditure.

K_g = Change in Income/ Change in Government Expenditure

The government expenditure multiplier can also be derived as follows:

K_g = 1/ 1-MPC = 1/MPS

3. **Tax Multiplier**: Tax multiplier (K_t) refers to the ratio of the change in the equilibrium income to a change in taxes assuming there is no change in government expenditure.

K_t = Change in income/ Change in taxes

Taxes affect a household's disposable income. If there is a tax cut, there will be an increase in disposable income. Disposable income influences consumption. However, the MPC will explain how consumption changes when disposable income changes. Therefore, a change in tax is considered as reduction in taxes impacting consumption positively. The negative sign indicates that a tax cut would increase consumption expenditure and vice versa.

Tax Multiplier (K_t) = - MPC/MPS

4. **Balanced Budget Multiplier**: A balanced budget multiplier is one in which government expenditure and taxes increase by the same amount. Therefore, the balanced budget multiplier equals 1. A balanced budget multiplier refers to the change in the equilibrium income by the same amount as the change in taxes and government expenditure.

Balanced Budget Multiplier (K_b) = 1

5. **Foreign Trade Multiplier**: The foreign trade multiplier, also known as the export multiplier,works similarly to Keynes' investment multiplier. It can be defined as the rise in a country's national income caused by a unit increase in domestic investment in exports.As exports increase, there is an increase in the income of all persons associated with export industries. These, in turn, create demand for goods. But this is dependent upon their marginal propensity to save (MPS) and the marginal propensity to import (MPM). The smaller these two marginal propensities are, the larger will be the value of the multiplier, and vice versa.

K_f = 1/MPS +MPM

Limitations of Multiplier

1. Timeless Phenomenon: Keynes portrayed the multiplier as a timeless phenomena by assuming an instantaneous link between income, consumption, and investment.

   However, there is a time lag (interval) between receiving revenue and spending it, as well as between spending it and it reappearing as income. As a result, current economists point out that the multiplier effect takes time to fully manifest.

2. Static Phenomenon: Keynes' investment multiplier principle is a static phenomena that is inappropriate to the dynamic world's changing processes. It depicts the process of revenue propagation from one point of equilibrium to another under specific static assumptions. There is no examination of the actual sequence of events, and no time lag is calculated. Only under static conditions can the result be attained.
3. Exclusive Emphasis on Consumption is given: According to Gordon, the multiplier theory's most significant flaw is its singular focus on consumption. It would be more realistic to speak of a "marginal propensity to spend rather than consume," and then evaluate the effects of an initial rise in investment on consumption, total private investment, and government spending.

4. Neglected Derived Demand Phenomenon of Investment in Capital Goods Sector: The multiplier solely considers the effects of induced consumption on income; it ignores induced consumption's influence on induced investment. It fails to recognise the normal link between capital and consumption products, as well as the fact that capital goods demand is derived.
5. It is a Myth: Some Keynesians, according to Professor Hazlitt, make more noise about the concept of multiplier than about anything else in the Keynesian system.

   According to him, there can never be an exact, predictable, or mechanical relationship between investment and revenue, and the multiplier is a useless idea. Thus it's a myth.

   The multiplier's limits and criticisms should not, however, be interpreted to indicate that the notion is completely useless. It is crucial, on the contrary, because it contains an element of truth that is critical for understanding cyclical oscillations.It is an attempt to express in mathematical terms the reality that changes in the rate of investment cause greater than proportional changes in income and employment. It sheds light on how trade cycles build up over time. Consequently, the multiplier principle is conceived of as an indispensable postulate in modern trade cycle theories.

   Furthermore, the multiplier principle is useful during times of economic downturn. Keynes supported a policy of public investment to overcome a depression based on the multiplier effect. He stated that if the government undertakes public investment projects such as the public works program, the gain in income will be several times greater than the initial outlay.

Summary

- Inflation can be defined as a continuous increase in the general price level of goods and services in the economy.
- Deflation refers to a decrease in the general price level of goods and services in the economy.
- Consumer Price Index (CPI) is an index that measures changes in the average price of consumer goods and services
- Demand-pull inflation occurs when the aggregate demand (AD) exceeds aggregate supply(AS)
- Cost-push inflation is an increase in the general price level associated with an increase in the cost of production.
- Inflationary gap occurs when national income exceeds full employment level.
- Deflationary gap occurs when national income is below the full employment level.
- The multiplier is the ratio of the change in income to the change in aggregate expenditure.
- Investment multiplier refers to the ratio of the change in the equilibrium income to a change in investment.
- Inflation effects the distribution of income, savings, production and balance of trade as well.
- Monetary, fiscal and other direct measures are used to bring changes in the inflation rate.
- Monetary measures controlling inflation includes open marketing operations, raising the bank rate and raising the reserves requirements.
- Fiscal measures to control inflation includes reduction in government expenditure and increasing the tax revenue.

Keywords

Inflation: Increase in general level of prices

Monetary policy: the policy which consists of controlling the supply of money by the central bank is termed as monetary policy

Fiscal policy: the measure taken by government in terms of increasing tax revenue and lowering the government spending to control the inflationary pressure is termed as fiscal policy.

Multiplier: Ratio of change in income to the change in aggregate expenditure

Investment Multiplier: It refers to the ratio of the change in the equilibrium income to a change in investment.

Government expenditure multiplier: It refers to the ratio of the change in the equilibrium income to a change in government expenditure assuming there is no change in taxes

Tax multiplier: It is the ratio of the change in the equilibrium income to a change in taxes assuming there is no change in government expenditure.

Self Assessment

1. Inflation.

A. Always reduces cost of living
B. Always reduces standard of living
C. Reduces price of products
D. Reduces purchasing power of money

2. Demand pull inflation is caused because of:

A. Obsolete technology
B. Increase in money supply
C. Scarcity of resources
D. None of the above

3. An increase in price of the product because of increase in cost of production leads to _____

A. Cost push inflation
B. Demand pull inflation
C. Both (a) and (b)
D. None of the above

4. Which of the following policy is suggested to control inflation:

A. Expansionary fiscal policy
B. Expansionary monetary policy
C. Contractionary monetary policy
D. None of the above

5. Which is the most effective quantitative method to control inflation in the economy?

A. Bank rate policy
B. Selective Credit control
C. Cash reserve ratio
D. None of the above

6. Inflationary gap is defined by:

A. Inflation coupled with recession
B. Inflation that usually prevails in a developing country
C. Gap between Galloping inflation and Runaway inflation
D. Excess of Aggregate Demand over Aggregate Supply at full employment level

7. At the times of deflationary gap, aggregate demand can be increased by:

A. Increasing bank rate
B. Selling government securities
C. Increasing Cash reserve Ratio
D. None of the above

8. The measure which can be adopted to get rid of from inflationary gap is:

A. Increase in taxation
B. Reduction in taxes
C. Increase in government spending
D. Neutral

9. Deflationary gap prevails when:

A. Aggregate demand is more than aggregates supply
B. Aggregate demand is less than aggregate supply
C. Aggregate demand equals to aggregate supply
D. None of the above

10. What is/are the consequence (s) of deflationary gap ?

A. Lower rate of economic growth
B. Increased prices
C. Increased demand
D. None of the above

11. If an increase in investment leads to a bigger increase in national income, it is termed as:

A. Accelerator
B. Aggregate demand
C. Multiplier
D. None of the above

12. The formula for calculating simple multiplier is

A. 1/1-MPC
B. 1/MPC=MPS
C. 1/1-MPS
D. 1/MPC+MPS

13. The formula for calculating investment multiplier is:

A. $\Delta Y + \Delta I$
B. $\Delta C + \Delta I$
C. $\Delta Y / \Delta I$
D. $\Delta I / \Delta Y$

14. As the value of MPC increases the value of multiplier:

A. Decreases
B. Increases
C. Remains constant
D. None of the above

15. . Larger is the value of Marginal Propensity to Save _____ is the value of multiplier

A. Smaller
B. Larger
C. Constant
D. None of the above

Answers for SelfAssessment

1.	D	2.	B	3.	A	4.	C	5.	C
6.	D	7.	D	8.	A	9.	B	10.	A
11.	C	12.	A	13.	C	14.	B	15.	A

Review Questions

1. Use appropriate graphs to explain how an inflationary gap occurs and suggest ways to overcome this problem.

2. Explain the changes in investment expenditure and the multiplier effect on the equilibrium level of national income, using a numerical example.

3. Explain how marginal propensity to consume can affect the size of the multiplier, using a numerical example.

4. Explain who will stand to gain and lose during inflation

5. What does inflation mean? Explain the various degrees of inflation.

6. Differentiate between demand-pull inflation and cost-push inflation

7. Explain the consequences of inflation and the measures taken to control it.

8. Explain how monetary and fiscal policies can control inflation.

9. How wage-push inflation differs from profit-push inflation

10. Use appropriate graphs to explain how deflationary gap occurs and suggest ways to overcome this problem.

Further Readings

Dr.Atmanand, Managerial Economics, Excel Books, Delhi.

H L Ahuja, Macro Economics Theory and Policy, S Chand Publications

Shapiro and Edward, Macro Economic Analysis, Galgotia, New Delhi

W H Branson, Macro Economic Theory and Policy, AITBS Publishers and Distributors, New Delhi

Web Links

https://scripbox.com/pf/inflation/

https://gdcpampore.edu.in/wp-content/uploads/2020/09/Inflarion-types-determinants-and-effects.pdf

https://www.forbes.com/advisor/investing/what-is-inflation/

https://www.economicsonline.co.uk/Managing_the_economy/The_multiplier_effect.html

Unit-13: Macroeconomic Problems of Fluctuations and Growth

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand various macroeconomic problems of fluctuations and growth
- describe the concept of demand-pull inflation and cost push inflation
- identify the concept and effects of recession
- understand the concept of unemployment, various types of unemployment and policies to solve the problem of unemployment
- discuss different phases of business cycle

Introduction:

Macroeconomics focuses on the economy as a whole (or on whole economies as they interact). It describes what causes recessions, and what makes unemployment stay high when recessions are supposed to be over. Macroeconomics addresses why some countries grow faster than others, and have higher standards of living than others. Macroeconomics involves adding up the economic activity of all households and all businesses in all markets to get the overall demand and supply in the economy. However, when we do that, something curious happens. It is not unusual that what results at the macro level is different from the sum of the microeconomic parts. Indeed, what seems sensible from a microeconomic point of view can have unexpected or counterproductive results at the macroeconomic level. If this were not the case, we wouldn't need macroeconomics as a separate discipline and we could simply use microeconomics to study macroeconomic issues. We use the term macroeconomic externality to describe when what happens at the macro level is different from and inferior to what happens at the micro level.In thinking about the overall health of the macroeconomy, it is useful to consider three primary goals: economic growth, full employment (or low unemployment), and stable prices (or low inflation).

1. Economic growth ultimately determines the prevailing standard of living in a country. Economic growth is measured by the percentage change in real (inflation-adjusted) gross domestic product. Since the annual growth rate of the U.S. over the last hundred years averaged 3% per year, a growth rate above 3% is considered good.

2. Unemployment, as measured by the unemployment rate, is the percentage of people in the labor force who do not have a job. When people lack jobs, the economy is wasting a precious resource-labor, and the result is lower goods and services produced. Unemployment, however, is more than a statistic—it represents people's livelihoods. While measured unemployment is unlikely to ever be zero, a measured unemployment rate of 5% or less is considered full employment.

3. Inflation is a sustained increase in the overall level of prices. If many people face a situation where the prices that they pay for food, shelter, and healthcare are rising much faster than the wages they receive for their labor, there will be widespread unhappiness as their standard of living declines. For that reason, low inflation—an inflation rate of less than 5%—is a major goal.

Therefore, macroeconomics is the branch of economics which is mainly focused on the movement and trends in the economy. It is an undesirablesituation which exist in the macroeconomy, largely because one or more of the macroeconomic goals which is not satisfactorily attained. However, the economy still faces various problems and challenges which are listed below:

1. Unemployment

Despite tremendous economic development, unemployment remains a major concern in both rural and urban areas. Unskilled employees have been left behind by the increasing rate of economic expansion, and they are unable to find acceptable job in rising industries.Un-employment refers to involuntary idleness of resour-ces including manpower. If this problem exists, society's actual output (or GNP) will be less than its potential output. So, one of the objectives of Govern-ment policy is to ensure full employment which implies absence of involuntary unemployment of any type.

2. Poor educational standards

Although our country is benefited with a good percentage of English-speaking citizens, still there is high level of illiteracy amongst the masses. Worst case is in rural areas and amongst women population.

3. Poor Infrastructure

Many Indian inhabitants lack basic amenities such as clean drinking water. Public services are sagging due to bureaucracy and incompetence. It is a matter of concern that every day, more than 40% of fruits and vegetables go bad before they reach the market.

4. Balance of payment deterioration

The balance of payments is a systematic record of all economic transactions between the mem-bers of the home country and the rest of the world in an accounting year. These transactions are largely, if not entirely, influenced by the exchange rate. It is the rate at which a country's economy is exchanged for another currency (or gold).

5. Inflation

It refers to a situation of constant-ly rising prices of commodities and factors of produc-tion. The opposite situation is known as deflation. During inflation some people gain and most people lose. So, there is a change in the pattern of income distribution. Therefore, one of the objectives of government policy is to ensure price level stability which implies the absence of inflation and deflation.

6. The Trade Cycle

It refers to periodic fluc-tuations in the levels of economic or business ac-tivities, i.e., the tendency for output (GNP) and employment to fluctuate over time in a recurring sequence of ups and downs. The periods of good trade alternate with periods of bad trade, or, boom periods of high output and high employment alternate with slump periods of low output and low employment.

In boom periods, employment is low but the rate of inflation is high. In periods of depression (or reces-sion) unemployment is high and the rate of inflation is moderate. In macroeconomics we study the causes of business cycles and suggest remedial measures.

7. Economic Growth

In spite of short-term fluctuations of output that are associated with the trade cycle, the long-term trend of total output has been upward in most industrially advanced country. The trend in the nation's total output over the long period is known as economic growth. It refers to an expansion of society's production capacity such as bringing new land under cultivation or setting up new factories. Growth is measured by the annual rate of increase of per capita income and is illustrated by a rightward shift of the production possibility curve.

There are three major sources of growth, viz.,:

(1) The growth of the labour force,

(2) Capital formation and

(3) Technological progress.

A country seeks to achieve economic growth mainly for improving the standards of living of its people. If the rate of economic growth exceeds the rate of population growth, there is likely to be an improvement in the standard of living for the average person.

13.1 Recession

A recession is in essence a rash of simultaneous failures of businesses and investment plans. It explains why it happens, and why some many businesses can fail at once, has been considered as a major focus of economic theory and research. Financial, psychological, and real economic factors are at play in the causes and effects of recessions.The nature and causes of recessions are simultaneously obvious and uncertain. Recessions are in essence a cluster of business failures being realized simultaneously. Firms are forced to reallocate resources, scale back production, limit losses and, usually, lay off employees. Those are the clear and visible causes of recessions. There are several different ways to explain what causes a general cluster of business failures, why they are suddenly realized at the same time, and how they can be avoided. Economists disagree about the answers to these questions and several different theories have been offered.

Effects of Recession

1. Unemployment:

Job loss affects the stability of families and individuals. Our status, self-worth, health, and well-being can be drastically impacted by the loss of a job. While many who lose their jobs use the time for growth and exploration, many suffer with depression, alcoholism, and denial.

With unemployment rates running extremely high during a recession, individuals and families struggle to find work to pay the bills each month. The inability to find work can be frustrating, terrifying, and depressing, and can lead to even more problems. When a parent is unemployed, things can seem bleak.

2. Family Life

The stress of not finding work, and a loss of income, can lead to damaging inter-family relationships that can take years to mend. Sometimes families must borrow money from relatives or friends, which can result in tense situations.

Some families must change their plans, sell their homes, switch schools, and cancel vacations. In other households, there is even an unfortunate increase in child abuse cases.

3. Rise in Poverty:

A recession (fall in national income) will typically be characterised by high unemployment, falling average incomes, increased inequality and higher government borrowing. Increased inequality and an increase in relative poverty. Higher government borrowing (less tax revenue) Permanently lost output.

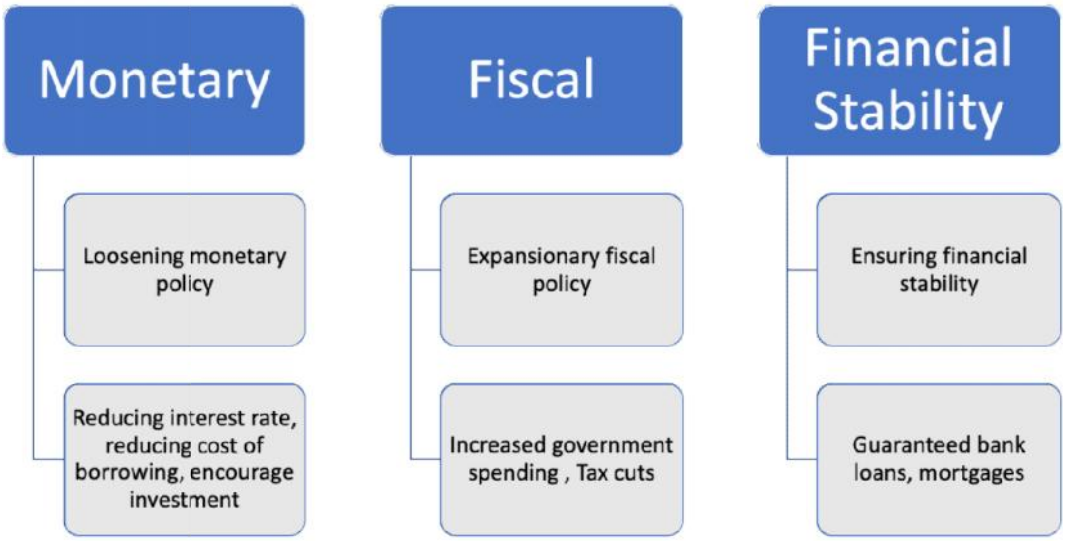
4. Change in lifestyle

Reduced income leads to reduced entertainment, dining, and extracurricular activity expenses. People cut back on extras during a recession, so many families must make drastic changes to their pre-recession lifestyle. This means fewer trips, shared experiences, and missed opportunities because of a lack of funds.

5. Business Opportunities

Entrepreneurs may have a lack of funds available for borrowing or starting new companies during a recession. Innovation often comes from the small business segment, but a lack of funding, coupled with a downturn in spending, may make small business owners nervous and unwilling to take big risks. For unemployed entrepreneurs looking to start a new venture, this lack of funding can really hamper their chances of success.

Fig 13. 1 Measures to solve recession



Thus, we can say that Government of a country is the key player to stop recession and to divert the economy to the path of growth. The prime actions of a government on fighting against recession should be focused on increasing money circulation, containing inflation, boosting per capita disposable income, reducing per capita debt level, balancing interest rates, ensuring an atmosphere conducive to business activities and any other supporting measures for these causes.

13.2 Inflation

Inflation is defined as a sustained increase in the price level or a sustained fall in the value ofmoney. Inflation in India is explained by various factors, viz., excessive aggregate demand,imbalance between the sectoral demand and supply, cost factors including rising import pricesand rate of expansion of money. To understand the type of inflation, we analyse the price trends,the rate of expansion of money supply and the rate of increase in demand. To quantify theamount of inflation in the economy, indicators such as the Wholesale Price Index, the ConsumerPrice Index and the GDP Deflator are used. The Wholesale Price Index is defined as the measureof the cost of a given basket of goods. It includes raw materials and semi-finished goods. TheConsumer Price Index measures the cost of buying a fixed basket of goods and services. The GDPdeflator is a ratio of nominal GDP in a given year to the real GDP in that year.The indicators of inflation will be influenced primarily by changes in money supply, financingof the money supply by the government and the influence of money wages. Inflation affects theprivate corporate sector through its impact on the interest rate, credit offtake and globalization of savings.

Meaning of Inflation

Inflation is understood by most people as a substantial rapid general increase in the level ofprices and consequent devaluation in the value of money over a period of time. Harry Johnson,for instance, defines inflation as "a sustained rise in price". Crowther similarly defines inflationas "a state in which the value of money is falling, i.e., the prices are rising". The common featureof inflation is price rise, the degree of which may be measured by price indices. Edward Shapiro,thus, puts that "recognising the ambiguities that our words contain, we will define inflationsimply as a persistent and an appreciable rise in the general level of prices".Thus, inflation is statistically measured in terms of the percentage increase in the price index asa rate per cent per unit of time – usually an year or a month

Types of Inflation:

- Open Inflation: In a free market economy, prices go up freely due to supply-demand imbalancesleading to open inflation.
- Suppressed Inflation: Suppressed inflation occurs in a controlled economy where the upwardpressure on prices is not allowed to influence the quoted or managed prices. But inflationreveals itself in other forms.Example: Government may introduce rationing of goods leading to long queues in font of ration shops. There is very likely to be a black market for such goods whose prices areabove the quoted prices. In India, suppressed inflation manifests itself in the prices of essential goods sold through PDS. The ration prices are deliberately maintained at a certain level while open market prices are above this level.
- Creeping Inflation, Galloping Inflation and Hyper Inflation: These three categories of inflation are recognised on the basis of severity of inflation, as measuredin terms of rate of rise in prices.There is moderate rise in prices of 2-3 per cent per annum in creeping inflation. It is generallyconsidered good for a growing economy. Mildly rising prices result in faster growth of outputin that they raise the profit margins of firms and encourage them to produce more. Creepinginflation does not severely distort relative prices nor does it destabilise price expectations.A single digit inflation is also considered as moderate inflation which most countries have cometo put up with.In galloping inflation prices rise at double- or treble-digit rates per annum (20-100%). It tends todistort relative prices and results in disquieting changes in distribution of purchasing power ofdifferent groups of income earners. There is often a flight of capital from the country sincepeople tend to send their investment funds abroad and domestic investment withers away.Hyperinflation or run-away inflation is of a severe type in which prices rise a thousand or amillion or even a billion per cent per year. It seriously cripples the economy. Prices and moneysupply rise alarmingly.

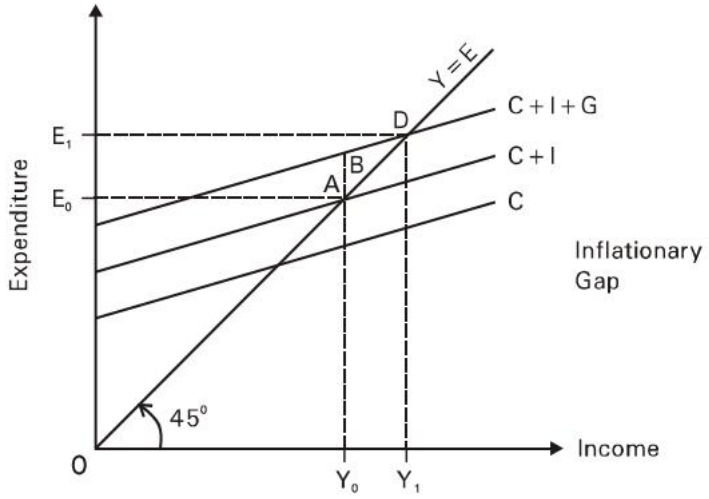
Demand Pull Inflation:

Such an inflation occurs when aggregate demand rises more rapidly than the economy's productivepotential, pulling prices up to equilibrate aggregate supply and demand. It is characterised by asituation in which there is "too much money chasing too few goods".Keynes maintains that demand pull inflation could be caused by excessive fiscal deficit leadingto increase in government expenditure. An increase in government expenditure, especiallyduring a war, raises the demand for output well above the supply and ignites a rapid inflation.This type of inflation was first explained by Keynes. He introduced the concept of 'inflationarygap' to substantiate his approach to demand pull inflation. He defines inflationary gap as anexcess of planned (or anticipated) expenditure over the available output at pre-inflation or baseprices. Lipsey adds that this gap is the amount by which aggregate expenditure would exceedaggregate output at the full employment level of income

In the absence of government expenditure, the economy will be in equilibrium at income level

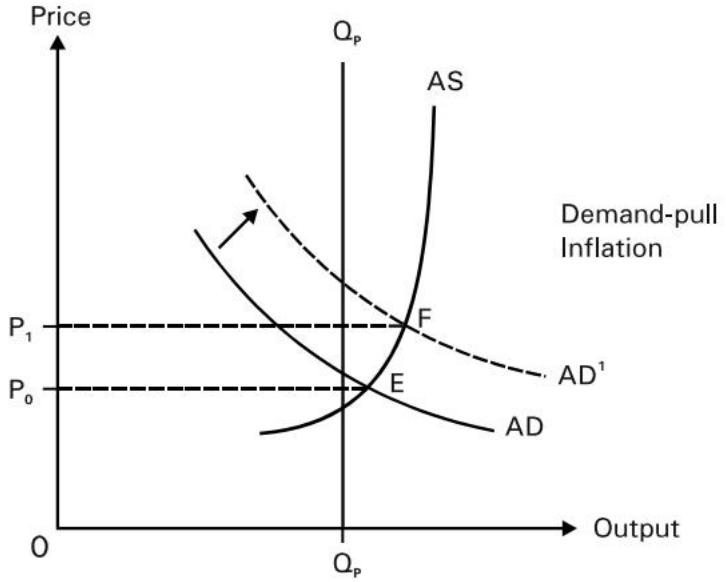
Yo, at which aggregate income equals aggregate demand Eo (Figure 13.2).Aggregate expenditure is the sum of consumption expenditure of households and investmentexpenditure of the firms. Thus, at point A, the equilibrium point Y = C + I.If government decides to incur an expenditure, G, the aggregate expenditure curve (C+1+G) shifts upwards and new equilibrium is D where the level of income is Y, and expenditure E.However, suppose Y0 is full employment equilibrium and the real output cannot increase. Thus, there is an excess demand equal to AB which will be purely inflationary and this represents theinflationary gap (Keynesians recommend that in such situations the government should followdeflationary policy to bring down aggregate demand to the equilibrium level)

Figure 13.2



According to Keynes, at full employment, the excess demand for goods and services cannot bemet in real terms and, therefore, it is met by rise in the price of goods. Demand pull inflationoccurs only when there is an inflationary gap in the economy. The aggregate demand line ADintersects the 45° line at point E, which is to the right of the full employment line. Thus, at fullemployment there is excess demand which pulls up prices (Figure 13.3).

Figure 13.3



Samuelson says that demand pull inflation simply means that increasing quantities of moneyare competing for the limited supply of commodities and bid up their prices. As the rate ofemployment falls and labour markets become light (i.e., markets become scarce) wages are bidup and the inflationary process accelerates

Factors on Demand Side

On the demand side, the major inflationary factors are:

1. Money Supply: The first major source of inflation is an increase in money supply in the economy. Increase in money supply results primarily from an increase in demand deposits and expansion of loans and investments by the commercial banks. Expansion of bank credit is at once a cause and an effect of inflationary pressures since it reflects an enlarged income stream resulting from the use of

bank credit and parting a growing business and personal demand for funds due to higher prices and costs.

2. Disposable Income: This refers to the income payments to factors after personal taxes have been paid. An increase in disposable income results in an increase in the absolute amount of consumption expenditure in the economy. Such an increase is inflationary in character.

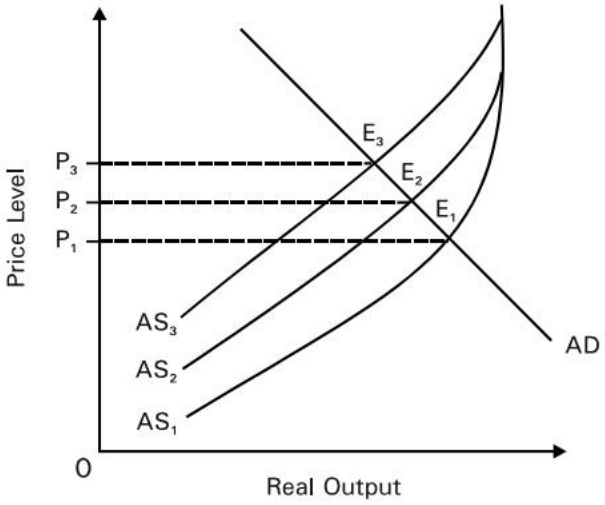
3. Increase in Business Outlays: Increase in business outlays or capital expansion takes on a speculative character during an inflationary boom. New equipment and plants and excessive inventories are often financed by speculative borrowing, not to mention an increase in replacement demand. Most of business expenditure finds its way into the income stream dividends, wages and other income payments. These are often inflationary in character.

4. Increased Foreign Demand: Another factor responsible for increased demand is foreign expenditure for domestic goods and services. This factor is particularly significant if a country maintains an export surplus on its balance of trade. Foreign demand exerts considerable inflationary pressures on domestic areas of shortages which may be a focal point of spreading inflation. It is the cumulative effect of all or most of these factors that the aggregate demand function in an economy shifts upwards, resulting in inflation in prices.

Cost-Push Inflation

Modern information is far more complex than what can be explained by the simple demand-pulltheory. Prices and wages start rising before the economy reaches full employment. They riseeven under conditions of a large idle capacity and a sizeable portion of the labour force beingunemployed. This is known as "cost push" or "supply-shock" inflation.The supply or cost analysis of inflation also known as the "new-inflation theory" maintains thatinflation occurs due to an increase in the cost or supply price of goods caused by increases in theprices of inputs. Rapidly rising money wages, with no corresponding rise in labour productivityin certain key sectors of the economy, result in higher prices in these sectors, particularly whenthe demand rises. This leads to further erosion of real wages forcing organised labour, includingtrade unions not involved in the initial round of wage increases, to seek a further rise in moneywages. This is what is commonly referred to as wage price spiral. Thus, cost push inflation occurs due to non-wage factors also. For instance, monopolistic oroligopolistic firms often attempt to maintain their profit margins steady by raising the prices of their products in proportion to the rise in other cost elements. Such a cost push inflation issometimes called "mark-up" inflation.

Figure 13.4: Cost push inflation



Given the demand curve AD, supply curve shifts to the left from AS1 to AS2 to AS3 as a result ofrise in wages and other cost elements. Leftward shifts in the supply curve result in rise in theprice level from P1 to P2 to P3 and so on.

The causes of such inflation are the following.

1. Wage-push Pressures: Cost push inflation is often attributed to wage push or profit push

pressures. Wage push pressures are created by labour unions and workers who are oftenable toincrease their wages faster than their productivity. It is widely believed thatpowerful trade unions cause inflation by pushing up wages. This variant of cost pushinflation, called wage-push inflation, occurs when wages rise faster than labour productivity;statistical studies indeed corroborate this view. Empirical evidence shows that there isindeed a correlation between earnings and the general price level. However, suchcorrelation is not always perfect.

2. Profit-Push and Mark-up Pricing: Suppose all business firms have the practice of pricingthe goods and services which they sell on the basis of standard mark-up over their directcost of materials and labour. In such a situation when the firms follow cost plus pricingeither an increase in costs or an increase in the mark-up as a percentage of the costs or bothwill lead to a rise in the price level. Such a mark-up inflation is because of dynamic priceexpectations of consumers and speculative activities of traders.

3. Import Prices: Since no country in the present-day world is self-sufficient, imports play animportant part in cost push inflation. Thus, inflation is often transmitted from country tocountry. The sharp increase in the world commodity prices, especially oil, in the 1970sundoubtedly contributed to inflation. Sine inflation is a global phenomenon, it cannot beavoided. It is not possible for a country to cut itself off completely from rising prices in therest of the world.

13.3 Unemployment

We need to define labour force in order to understand the concept of unemployment. Labour forceis defined as all persons in the age group of 15 to 64 years who are working or actively seeking work. Is everyone above 15 years of age included in the labourforce? No, those above 15 years of age who are students, housewives, pensioners, and discouraged workers are excluded in the labour force.

Unemployment, according to the Organisation for Economic Co-operation and Development (OECD), is a person above a specified age (usually 15) not being in paid employment or self-employment but currently available for work during the reference period.

In other words, the labour force is defined as people from the total population above 15 years of age, who are not in any institution and are either employed or unemployed persons.

Unemployment is defined as labour force participation being available and willing to work, but are unable to find jobs. Therefore, unemployment rate is a percentage of the labour force that is unemployed and is actively seeking employment.

Meanwhile, the labour force participation rate is defined as the fraction of the labour force to the total working age group population, which is expressed as a percentage. The formula for labour force participation rate is as follows:

$$Labour\ force\ participation\ rate = \frac{Labour force}{Working\ age\ population\ (15 - 64\ years\ old)}$$

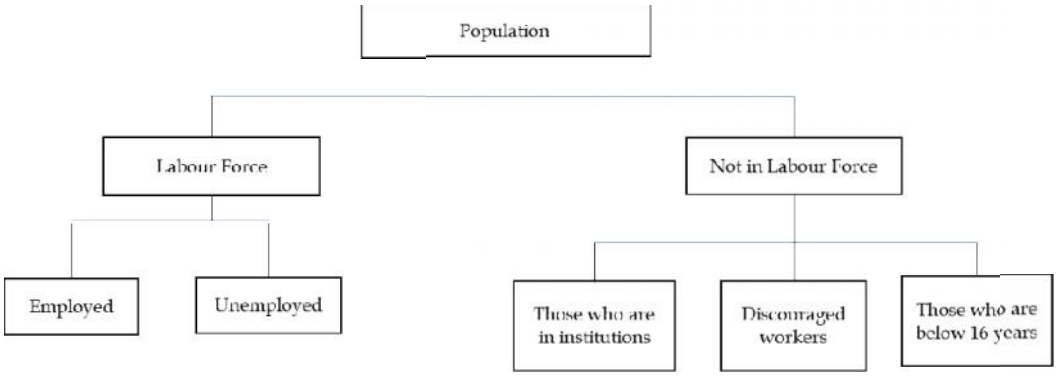
It is important to note that discouraged workers are not included in the definition of labour force. *A discouraged worker is an individual who wants to work but who has been unsuccessful for a long period of time in finding job and who has consequently given up on job seeking*.Discouraged workers would like to work, if job prospects are good. Since the labour force is defined as people who are above 15 years of age are actively seeking employment, discouraged workers are excluded from the labour force.

The unemployment rate does not measure under-employment. Underemployment is a term used to describe those who take on part-time jobs below their capability but are seeking full-time employment. People with education and skills accept unskilled jobs rather than remain unemployed, e.g. a graduate working as a salesperson in a supermarket.

$$Unemplyment\ rate\ (\%) = \frac{Number\ of\ Unemployed}{Labour\ Force} \text{ X } 100$$

Full employment is the situation where all available resources in the economy are employed to produce goods and services. However, it is difficult to define full employment because full employment does not mean 100 percent of the working labour force. There are always some people who are voluntarily unemployed, due to work dissatisfaction or resigning to look for another job.

Full employment means that the unemployment rate is equal to all types of unemployment, except cyclical unemployment.



Types of Unemployment

1. Classical Unemployment: Classical unemployment is one of the main types of unemployment. Itoccurs when the real wages for workers in an economy are too high, meaning that firms are unwilling to employ every person looking for a job. When real wages are too high, it means that the cost of employing an extra worker (the real wage) is higher than the benefit from employing an extra worker (the value of output the worker produces). So when real wages are too high in an economy, firms cannot profitably employ all the labour on offer. As a result, some of the economy's pool of labour is not used. This is known as classical unemployment.

2. Cyclical unemployment: Cyclical unemployment occurs when there is a lack of jobs, resulting from a downswing in a business cycle or a recession. When the economy encounters a downswing or goes into recession, the real GDP falls, the demand for goods and services decreases, companies close down and workers are laid off.Cyclical unemployment is a serious concern- unlike frictional unemployment, cyclical unemployment is involuntary. It continues until the economy is out of recession and post-recession recovery take several years.

3. Structural Unemployment: Structural unemployment is a longer-lasting form of unemployment caused by fundamental shifts in an economy and exacerbated by extraneous factors such as technology, competition, and government policy. Structural unemployment occurs because workers lack the requisite job skills or live too far from regions where jobs are available and cannot move closer. Jobs are available, but there is a serious mismatch between what companies need and what workers can offer.Structural unemployment is caused by forces other than the business cycle. This means that structural unemployment can last for decades and may need radical change to redress the situation. If structural unemployment is not addressed, it can increase the unemployment rate long after a recession is over and increase the natural rate of unemployment, which is also known as "frictional unemployment."

4. Frictional Unemployment

Frictional Unemployment: Frictional unemployment occurs when people are in between jobs, or entering or re-entering the labour force. Some people voluntarily quit their jobs for other suitable employment (e.g. a better position or higher wages etc.) Some school-leavers or fresh graduates may be entering the labour force for the first time and actively seeking jobs. These job seekers may be temporarily unemployed for a short period of time. This is reffered to as frictional unemployment. Frictional unemployment also happens in full employment when people quit their jobs for a better position or higher wages, or when fresh graduates are actively seeking jobs.

5. Voluntary Unemployment

Voluntary Unemployment refers to the situation when the worker deliberately chooses not to work because of a low wage scale or not able to find out the suitable employment for him. the voluntary unemployment is when the person decides not to participate in the labor market, not because of the unavailability of jobs, but because of not finding the jobs of his/her choice or is not satisfied with the wage system.The voluntary unemployment also gets created when the worker is neither willing to work nor searches for a job, as he is satisfied with the amount given by the government in the

form of unemployment benefits. High-income tax rates could also be one of the reasons behind a worker not choosing to work.

Causes of Unemployment

Unemployment is caused by various reasons that come from both the demand side, or employer, and the supply side, or the worker.

Demand-side reductions may be caused by high interest rates, global recession, and financial crisis. From the supply side, frictional unemployment and structural employment play a great role.

Demand Side Factors:

Unemployment is caused by lack of aggregate demand in the economy). In recessions, we can expect demand deficient unemployment (sometimes called cyclical unemployment) to increase significantly. The reasons which cause demand side unemployment are mentioned as follows:

1. High Interest rate:

The higher interest rates would affect demand-deficient unemployment.Demand-deficient unemployment known as cyclical unemployment occurs due to a deficiency in aggregate demand. A rise in interest rates is likely to decrease consumer expenditure as it makes more sense to save.

2. Global recession:

As businesses seek to cut costs, unemployment rates increase. That, in turn, reduces consumption rates, which causes inflation rates to go down. A larger pool of unemployed workers enables employers to recruit more qualified candidates.

3. Negative Multiplier Effect:

If the government cut spending, some public sector workers may lose their jobs. This will cause an initial fall in national income. However, with higher unemployment, the unemployed workers will also spend less leading to lower demand elsewhere in the economy.

4. Financial Crisis:

Essentially, it is a recession which causes unemployment. As output and demand fall, firms cut back on hiring new labour. This leads to a rise in unemployment as there are fewer job vacancies. Also, some firms may have to shed labour through redundancies, directly creating unemployment.

Supply Side Factors:

The supply-side theory is an economic concept whereby increasing the supply of goods leads to economic growth. Also defined as supply-side fiscal policy, the concept has been applied by several U.S. presidents in attempts to stimulate the economy. The following factors affect unemployment:

1. Frictional:

This occurs when people are in between jobs. For example, a school-leaver may take some time to get his first job. There will always be some degree of frictional unemployment in an economy.

2. Structural:

This unemployment is due to occupational or geographical immobilities which often occurs after structural change in the economy. E.g.,closure of mines left many miners struggling to find suitable work. For example, there may be jobs available in the service sector, but unemployed miners don't have the relevant skills to be able to take the jobs.

3. Geographical immobility:

This occurs when unemployment is concentrated in certain areas. Jobs may be available in some prosperous areas (e.g. London) however, there may be difficulties for the unemployed to move to these areas (e.g. difficulty in finding accommodation, children in schools, etc) Note, geographical unemployment is often considered part of structural unemployment.

4. Technological change:

Technological change has reduced the need for routine mechanized work and increased both the demand and pay for high-skilled technical and analytic work. In this environment, tech jobs could seem like the only occupations with guaranteed job growth.

Effects of Unemployment

1. Effect on Individuals and Society

Unemployment is much more than an economic problem; it is a social problem as well

a. Loss of income and self-respect

A worker who is unemployed for a long time may face financial problems, and consequently, lose his/her self-respect and the respect of immediate family and friends.

This leads to frustration, causing him/her to turn to alcohol or drugs or resort to a life of crime.

b. Loss of job skills

Unemployed workers may lose their job skills, due to lack of application. Retraining and educating them may prove expensive.

c. Social and political problems

In some extreme cases, unemployed workers may join radical groups and engage in trouble some social and political activities. The crime rate would be high, if unemployment is high.

2. Effects on the Economy

High unemployment rates will affect the economy. The cost of unemployment is measured as the goods and services which society could have produced, but did not. The GNP gap is one of the ways to measure cost of unemployment.

When unemployment rates are high and steady, there are negative impacts on the long-run economic growth. Unemployment wastes resources, generates redistributive pressures and distortions, increases poverty, limits labor mobility, and promotes social unrest and conflict.

Unemployment also incurs the loss of government revenue obtained through personal taxes. Certain countries provide unemployment benefits, which form part of government expenditure. This could reduce development activities of the economy. Slow economic growth and low output might lead to depression.

Measures to Control Unemployment

The government can implement any one of or a combination of monetary, fiscal and direct

control policies.

1 Monetary Policy

The government may practice expansionary monetary policies which increase moneysupply in the economy. The following are some of the tools of monetary policy usedto control unemployment.

a) Open market operations-Purchase of securities or short-term bonds

The central bank may buy short-term bonds or government securities and treasurybills from individuals, as well as institutions. The purchase of securities can increasemoney supply and increase the purchasing power of individuals and firms.

b) Lowering the reserves requirement

Reserves Requirement refers to the amount of reserves commercial banks are requiredto keep in the central bank. During periods of unemployment, the central banklowers this reserves requirement to increase the cash resources of commercial banks,thereby encouraging the bank to offer more loans to the public and businessmen.

c) Lowering the discount rate

The discount rate is also known as the bank rate. A decline in the discount rate isfollowed by a decline in other interest rates which leads to increased borrowing andincreased investment by private businessmen.

d) Lowering the interest rate

The central bank may persuade commercial banks to decrease their rates of interestdeposits from the public. This action from commercial banks will reduce thelevel of savings and increase the purchase of goods and services from the publicFor example, a reduction of the interest rate on fixed deposits from 10% to 4%, willresult in consumers saving less and spending more.

2 Fiscal Policy

The government may practice expansionary fiscal policies through taxation and publicexpenditure.

a) Decrease in taxes

To control unemployment, the government reduces the general burden of taxation onthe community. A reduction in excise duty, sales tax, service tax and other types oftaxes will increase the consumption expenses of the people. A reduction in business andcorporate tax will promote an increase in investment, and thus employment will increase.

b) Increase in government expenditure

Increase in government expenditure will directly affect aggregate demand. For example, an increasein the salary of civil servants creates more development projects which may reduce unemployment.

3 Direct Control Measures

Besides monetary and fiscal policies, some direct control measures are taken to control unemployment.

a) Training and technical education

More training and education should be provided for individuals who have difficulties securing a job. When individuals upgrade their skills and increase their knowledge, they will be able to find jobs easily. For example, unemployed graduates are given free short courses to learn computer skills and language.

b) Development of new land

Developing new land can create more job opportunities, especially for people from rural areas. The development of new land is through government agencies, such as FELDA, RISDA and FELCRA. This can reduce unemployment and rural-urban migration.

c) Job creation in various sectors of an economy

More job opportunities can be created, if there is diversification in an economy. If allsectors in an economy, such as transportation, finance, insurance, services, tourism,manufacturing, construction and others expand, it will create more jobs, and thus,reduce unemployment.

13.4 Business Cycle

A business cycle is also known as a trade cycle. It is an important element of economics.A business cycle refers to the regular fluctuations in economic activity in an economy as awhole. A business

cycle also refers to a wave-like fluctuation in aggregate economic activityparticularly with regard to national income, employment and output.According to Keynes' definition, a business cycle is composed of periods of good tradewith rising prices and low unemployment percentages, followed by periods of bad tradewith falling prices and high unemployment percentages.

Characteristics of a Business Cycle

The main characteristics or features of a business cycle are as follows:

1. A business cycle is an economy-wide phenomenon which prevails in all industries. If the depression or boom takes place in an industrial sector, then it will spread to other sectors such as construction, services, agriculture and so on.

2. A business cycle is a wave-like movement in economic activity where an expansion is followed by a depression. So, the economy moves from one position to another position like a pendulum.

3. Business fluctuations occur periodically and tend to be recurrent in nature. They usually appear repeatedly after a period of time. The periodicity and causes are not always the same.

4. Expansion and contraction in a business cycle are self- reinforcing and cumulative in effect.

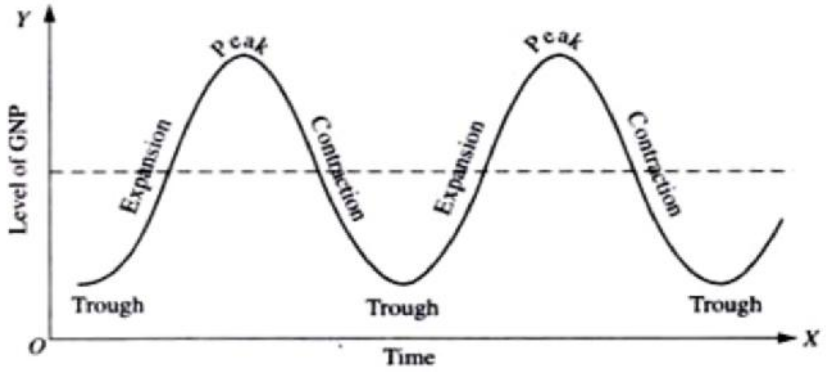
5. A business cycle is characterized by upwards and downwards movements

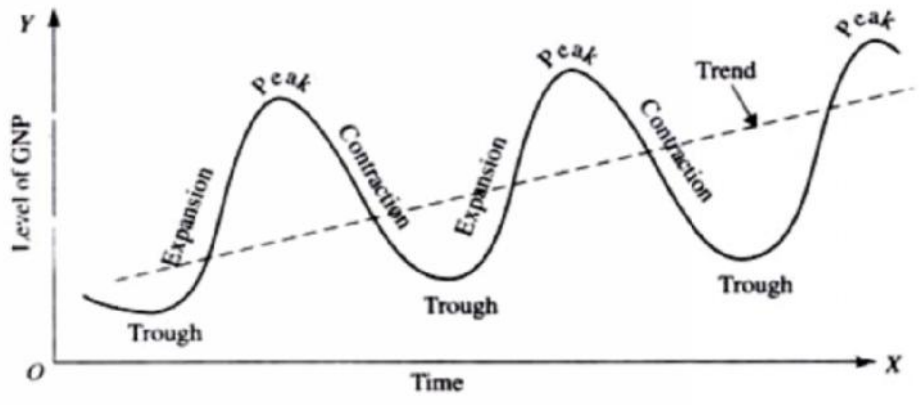
Phases of Business Cycle

A typical or standard business cycle goes through four different phases or stages. A hypothetical business cycle is shown in Fig 13.5

Fig 13.5 shows the expansion and contraction periods. Expansion is the period in a business cycle where it moves from a trough to a peak, i.e. where output and employment increase. Contraction is the period in a business cycle where it moves from a peak to a trough, during which output and employment decline.

There are two types of patterns of cyclic changes. One pattern where fluctuations occur around a stable equilibrium position and is shown with horizontal line. It is a case of dynamic stability which depicts change but without growth or trend. The four phases of business cycles are drawn which start from trough or depression when the level of economic activity i.e., level of production and employment is at the lowest level. With the revival of economic activity the economy moves into the expansion phase, but, the expansion cannot continue indefinitely, and after reaching peak, contraction or downswing starts. When the contraction gathers momentum, we have a depression.





1. Peak or Boom

We will start with the peak period. During this period, the economy is at full employment where allavailable resources are employed. The economy will experience a high level of output and trade, increasing effective demand and higher employment levels and income. Business optimism creates more investments and increases pressure on available resources that leads to an increase in wages and prices of inputs. There could be a situation where the number of jobs exceeds the number of workers; this situation is known as overfull employment. As a result, there will be an increase in prices, wages, interest, and profit.

The peak period is also known as the prosperity period. It will come to an end when the forces favouring expansion slow down.

2. Recession

Recession will take place after the period of prosperity ends. This phase is characterized

by:

(i) A decrease in the volume of output, trade and transactions

(ii) An increase in the level of unemployment (level of employed is lower)

(iii) Areduction in aggregate income in terms of wage and profit, and

(iv) A decline in consumption expenditure and investment level.

The downwards phase is also called a contraction. A deep and prolonged recession

is known as a depression. A recession normally lasts for a six-month period, with a

continued decline in real GDP.

3 Trough

The recession ends when the real GDP stops falling. The minimum point is called a trough. The trough will last until there is an increase in real GDP. During this phase, the overall level of economic activity will drop to the lowest level. Unemployment rates during this phase will be higher and create many problems. Thus, it is a period of great suffering and hardship to society and the worst phase of a business cycle.

4. Recovery

The trough is followed by a recovery. Recovery is a period of revival leading to an upturn of the economy. The economy's level of output and employment expands towards full employment during this phase.

The recovery period is initiated by government expenditure, changes in production techniques, new innovations and exploitation of new sources of energy. The increase in government expenditure will stimulate the demand for consumption of goods, and thus, will increase the demand for capital goods. Consequently, the employment level, output, income, wages, prices and profits will start to increase. Through the multiplier effect, the economy will move upwards rapidly.

Table 13.1 summarizes the four phases of business cycle.

Phases	Economic activities
Peak	Output – maximum level Unemployment – lowest level
Recession	Output – declines Unemployment - increases
Trough	Output- minimum level Unemployment- highest level
Recovery	Output- increases Unemployment - declines

Summary

- Inflation is defined as a sustained increase in the price level or a sustained fall in the value of money.
- Inflation in India is explained by various factors viz., excessive aggregate demand, imbalance between the sectoral demand and supply, cost factors including rising import prices and rate of expansion of money.
- There are various types of inflation that can occur in an economy, namely, open, suppressed, creeping, galloping, hyper, demand pull and cost push.
- The quantity theory of money's basic prediction is that there is a stable and proportional relationship between changes in the money supply and the price level.
- Demand pull inflation occurs when aggregate demand rises more rapidly than the economy's productive potential, pulling prices up to equilibrate aggregate supply and demand
- The supply or cost analysis of inflation also known as the "new-inflation theory" maintains that inflation occurs due to an increase in the cost or supply price of goods caused by increases in the prices of inputs.
- Inflation has its impact on the industry normally through the impact it exercises on such
- Macro- Economic variables like interest rate prevailing in the economy, growth rate experienced, investment and credit off take et al besides of course the impact on availability
  and dearness of factors of production.
- Macroeconomic problem is an undesirable situation which exist in the macroeconomy, largely because one or more of the macroeconomic goal which is not satisfactorily attained.
- Demand pull inflation is usually controlled by monetary and fiscal policies. According to monetarist approach to inflation which is rooted in the quantity theory of money, demandpull inflation is basically caused by excessive monetary expansion.
- Monetary and fiscal policies are often ineffective in controlling the cost push or supply inflation, since their immediate focus is on curbing aggregate demand. Cost push inflationis not the result of aggregate demand rising in excess of full employment output in theeconomy.
- Inflation can be controlled by using monetary policy, fiscal policy, wage control, pricecontrol and indexation.
- A recession is a macroeconomic term that refers to a significant decline in general economic activity in a designated region.
- Unemployment is a term which refers to the individuals who are employable and actively seeking a job but are unable to find a job.

Keywords

Cost Push Inflation: A type of inflation caused by substantial increases in the cost of important goods or services where no suitable alternative is available.

Creeping Inflation: A moderate rise in prices i.e. 2-3 per cent per annum.

Demand Pull Inflation: Describes the scenario that occurs when price levels rise because of an imbalance in the aggregate supply and demand.

Galloping Inflation: Prices rise at double- or treble-digit rates per annum (20-100%).

Hyper Inflation or Run-away Inflation: Price rise to the tune of a thousand or a million or even a billion per cent per year.

Inflation: A rise in the general price level.

Suppressed Inflation: A type of inflation where the upward pressure on prices is not allowed to influence the quoted or managed prices.

Wage-push Inflation: When wages rise faster than labour productivity.

Self Assessment

1. A sustained increase in the general price level is called

A. Inflation
B. Deflation
C. Disinflation
D. Hyperinflation

2. When too much money chases too few goods, the resulting inflation is called:

A. Deflation
B. Demand-pull inflation
C. Cost push inflation
D. Stagflation

3. Cause of Inflation in India is/are:

A. Deficit financing
B. Erratic agriculture growth
C. Inadequate rise in industrial production
D. All of the above

4. Which is the most effective quantitative method to control inflation in the economy?
A. Bank rate policy
B. Selective credit control
C. Cash reserve ratio
D. Both (a) and (b)

5. When price increases due to increase in factor prices it is_____
A. Demand pull inflation
B. Cost push inflation
C. Stagflation
D. d) None of the above

6. Which measure(s) is/are followed to controlling inflation?
A. Contractionary monetary policy to be adopted.
B. Expansionary monetary policy to be adopted
C. Increased taxation policy
D. Both (a) and (c)

7. Cost-push inflation is typically induced by
A. Inward shift in the demand curve
B. Inward shift in the aggregate supply and demand curves.
C. Outward shift in the demand curve.
D. Inward shift in the supply curve

8. Individuals are counted as unemployed if they have:
A. No job
B. No job and are not looking
C. No job but looked for job at least once in the last four weeks.
D. None of the above

9. Workers temporarily unemployed but who normally find jobs quickly are called:
A. Cyclically unemployed
B. Frictionally unemployed
C. Seasonally unemployed
D. Structurally unemployed

10. Workers who are unemployed because they lack the skills needed by employers are called
A. Frictionally unemployed
B. Cyclically unemployed
C. Seasonally unemployed
D. Structurally unemployed

11. Which of the following occupations would most likely be subject to seasonal unemployment?

A. Automobile meeechanic
B. Appliance salesperson
C. Television repair person
D. Farm worker

12. An irregular and nonrepeating up-and-down movement of business activity that takes place around a generally rising trend and that shows great diversity is the:

A. Stagflation
B. Business cycle
C. Recession
D. Economic growth

13. During business cycles the opposite of a trough is…..

A. An inflation
B. A hyperinflation
C. A trend
D. A peak

14. Listed in order, the phases of a complete business cycle are

A. Contraction, trough, expansion, peak
B. Trough, expansion, boom, bust
C. Expansion, contraction, trough, peak
D. Contraction, recession, depression, expansion

15. One negative aspect of a business cycle boom is

A. A reduction in government budget deficits.
B. A declining rate of inventory investment
C. A declining rate of unemployment
D. An increasing rate of inflation

Answer for Self Assessment

1.	A	2.	B	3.	D	4.	C	5.	B
6.	D	7.	D	8.	D	9.	B	10.	D
11.	D	12.	B	13.	D	14.	A	15.	D

Review Questions

1. Define inflation and describe different types of inflation that can occur in an economy.
2. Is inflation always bad? Justify your answer giving suitable arguments.
3. What do labour force participation rate and unemployment rate mean?
4. Explain the types of unemployment, with examples.
5. What does inflation mean? Explain the various degrees of inflation.
6. Explain the consequences of inflation and the measures taken to control it.
7. Explain how monetary and fiscal policies can control inflation?
8. Differentiate between recession and inflation as a macroeconomic problem.
9. Explain the effects of unemployment and how the government can control unemployment.
10. Explain who will stand to gain and lose during inflation.

Further Reading

- Bibek Debroy, Managerial Economics, Global Business Press, Delhi
- Dr. Atmanand, Managerial Economics, Excel Books, Delhi
- Mishra & Puri, Indian Economy, Himalaya Publishing House

Online Links

http://www.tradechakra.com/indian-economy/national-income.html

http://www.economywatch.com/world-country/national-income.html

http://www.wisegeek.com/what-is-a-circular-flow-of-income.htm

http://tutor2u.net/economics/content/topics/macroeconomy/circular_flow.htm

Unit 14: Theories of Business Cycle

CONTENTS

Objectives

After studying this unit, you will be able to:

- Discuss pure monetary theory of business cycle
- Learn monetary over investment theory of business cycle
- Understand and explore the innovation theory of trade cycle
- Understand and explore Samuelson's Theory
- Discuss Hick's theory of trade cycle
- Discuss the features of business cycle
- Highlight the causes of fluctuations in business cycle

Introduction

Various theories have been developed by different economists from time to time to understand the concept of business cycles. In the first half of twentieth century, various new and important concepts related to business cycles come into existence. However, in nineteenth century, many of the classical economists, such as Adam Smith, Miller, and Ricardo, have conducted a study on business cycles. They linked economic activities with the Say's law, which states that supply creates its own demand. They believed that stability of an economy depends on market forces. After that, many other economists, such as Keynes and Hick, had provided a framework to understand business cycles. The different theories and have been discussed in the following subsections.

14.1 Monetary theory, investment theory

Pure Monetary Theory:

Traditional business cycle theorists evaluate business cycles by taking into account an economy's monetary and credit systems. As a result, these conventional theorists' theories are referred to as monetary theory of business cycle. The business cycle, according to monetary theory, is caused by variations in monetary and credit market conditions. Hawtrey, the main supporter of this theory,

advocated that business cycles are the continuous phases of inflation and deflation. Changes in the flow of money, according to him, cause changes in the economy. When the money supply is increased, for example, prices, profits, and total output all rise. An economy grows as a result of this. A drop in the money supply, on the other hand, would result in a decrease in prices, profit, and total output, resulting in an economy's downfall. Apart from this, Hawtrey also advocated that the main factor that influences the flow of money is credit mechanism. In economy, the banking system plays an important role in increasing money flow by providing credit. When the volume of bank loans increases, the economy grows. This upward trend will continue until the volume of bank loans rises. Banks extend credit to individuals or businesses because it is lucrative for them to grant credit on favourable conditions. The ready availability of capital from banks enables businesses to carry out a variety of tasks. This results in a growth in varied investment opportunities, which contributes to capital deepening and widening. Apart from that, banks provide cheap loans to businesses, allowing them to grow their production. When a company expands its production, the supply of its products expands as well, up to a point. Following that, the rate of increase in market product demand exceeds the rate of increase in supply. As a result, product prices are on the rise. As a result, credit expansion aids economic growth. On the other hand, when a bank withdraws credit from the market or stops lending money, the economy suffers.

Following are the reasons for the depletion of cash reserves of the bank:

a. Increase in loans and advance provided by banks

b. Reduction in inflow of deposits

c. Withdrawal of deposits for better investment opportunities

When banks stop lending, businesses are less likely to invest. As a result, demand for consumer and capital products, prices, and consumption decline. This is one of the signs of a recession.

Criticism of the Pure Monetary Theory

1. The theory considers the business cycle to be a monetary process, which is incorrect. Aside from monetary issues, non-monetary factors like as new investment demands, cost structure, and businessman expectations can all influence economic activity.

2. The theory only describes the expansion and recession phases of business cycles, but does not explain the intermediate phases.

3. The pure monetary theory assumes that businessmen are more sensitive to interest rates when this is not the case; instead, they are more concerned with future opportunities.

Monetary Over-Investment Theory:

The fundamental focus of monetary over-investment theory is the disparity between actual and desired investments. The actual investment, according to this notion, is substantially higher than the desired investment. Hayek proposed this theory and according to him, an economy's investment and consumption patterns should be in sync in order to achieve balance. Voluntary savings should be equivalent to actual investment in an economy to maintain this equilibrium.In a typical economy, total investment is distributed among industries in such a way that each producer produces products to a certain limit, ensuring that demand and supply are balanced. This indicates that investment in the entire economy is equal at all levels and for all products. There would be no expansion or contraction as a result, and the economy would always remain in balance.According to this theory, changes in economic conditions would occur only when the money supply and investment-saving relations show fluctuations. It is important to mention that when investment opportunities expand while voluntary savings remain steady, the investment-saving relationship is impacted.Low interest rates, higher marginal efficiency of capital, and a growth in businessmen's expectations all contribute to expanded investment prospects. Aside from that, when banks begin to promote industries by lending money at reduced rates, it leads to an increase in investment.This could lead to a situation of overinvestment, particularly in capital goods sectors. In this instance, investment and savings rise, but consumption remains unchanged since consumer goods industries remain unchanged.As a result, profit rises with increased investment prospects, resulting in increased demand for diverse products and services. The demand for goods and services far outnumbers the supply of goods and services.This causes inflation in the economy, which diminishes people's purchasing power. As a result, as people's purchasing power declines, real demand for items does not rise at the same rate as investment. The real investment is done at the cost of real consumption.The equilibrium between investment and consumer demand has been disrupted. As a result, maintaining the existing investment rate is tough. The demand for consumer

products would be determined by individual income.A rise in income would result in a rise in the price of consumer items. Consumer products, on the other hand, have increased faster than capital goods. As a result, consumers would prefer to invest in consumer items than capital products. As a result, the demand for bank loans rises as well.

Bankers, on the other hand, are hesitant to lend money due to the high demand for funds from both the consumer and capital goods industries. As a result, the economy enters a period of contraction. As a result, economic activity such as employment, investment, savings, consumption, and goods and service prices begin to decline.

Limitations of Monetary over Investment Theory:

1. The theory assumes that when the market rate of interest is lower than the natural market rate of interest, the bank credit flows to the capital goods industry.This only applies in the case of full-time employment. Business cycles, on the other hand, are a natural feature of the economy and can occur when resources are misused.

2. The theory considers that the most crucial aspect that influences investment is the interest rate. Several factors, such as the cost of capital goods and the expectations of businesspeople, might, however, impact investment but have been ignored by the theory.

3. The theory focuses on striking a balance between consumption items and investment, which isn't very necessary.

14.2 Innovation theory

Other business cycle theories place a greater focus on investment and monetary expansion. Company innovations, according to Schumpeter's theory of innovation, are responsible for quick changes in investment and business fluctuations. According to Schumpeter, "Business cycles are almost exclusively the result of innovations in the industrial and commercial organization. Innovations are such changes of the combination of the factors of production as cannot be effected by infinitesimal steps or variations on the margin. Innovation consists primarily in changes in methods of production and transportation, or changes in industrial organization, or in the production of a new article, or opening of a new market or of new sources of material."

According to Schumpeter, innovation refers to an application of a new technique of production or new machinery or a new concept to reduce cost and increase profit. In addition, he propounded those innovations are responsible for the occurrence of business cycles.

Trade cycles, according to Schumpeter, are the progeny of economic growth in a capitalist society. The economic process of industrial production is characterised by cyclical oscillations. The development process begins when there are internal changes as a result of innovation.

Schumpeter classifies innovation into five categories as follows:

(i) Introduction of new type of goods.

(ii) Introduction of new methods of production.

(iii) Opening of new markets.

(iv) Discovering of new sources of raw materials.

(v) Change in the organisation of an industry, like the creation of a monopoly, trust, or cartel or breaking up of a monopoly, cartel, etc.

Innovation, however, does not arise spontaneously. It must be actively promoted by some agency in the economic system. Such an agent, according to Schumpeter, is an "entrepreneur", entrepreneurs are innovators. The entrepreneur requires two elements in order to carry out his innovative role. First and foremost, he must possess the technical expertise required to develop new products or services. Second, because introducing innovation necessitates the diversion of production resources from existing to new channels, the entrepreneur must also have control over the factors of production.

The monetary factor, in the form of credit, provides the essential command over the productive factor. The entrepreneur obtains funding for his enterprise through the crediting bank system, rather than saving from his own income. As a result, money capital and bank credit are important components of the Schumpeterian theory. Credit, according to Schumpeter, is vital only in the context of innovation in a growing economy, and only if the innovator requires credit to perform

his role, i.e., innovative activity. In the absence of innovation, no credit is necessary in a circular flow of money economy where Say's Law of Market operates in its entirety. There are two factors in the Schumpeterian theory which are:

1. Innovations

2. Entrepreneurs

Innovations brought about by entrepreneurs disturb the circular flow of stationary economy, so the development is a dynamic, discontinuous, cyclical process.The cyclical character of economic advancement, according to Schumpeter, explains why entrepreneurs appear swarm-like. The cyclical upswing, in his opinion, begins when entrepreneurs begin to spend in commercialising their new ideas.This may begin gradually when a few visionary entrepreneurs enter the industry, but after these few pioneers have shown the viability of their businesses, others will emulate and follow suit. The early innovators are rapidly followed by a swarm-like appearance of entrepreneurial activity, thanks to a few leaders smoothing the route.In short, the clustering of innovations disrupts the economy in a discontinuous manner. When all of these breakthroughs have had their full impact, it will result in an avalanche of new items. When a market is overflowing with new products, prices drop and profit margins shrink. Credit-financed innovations, on the other hand, raise factor prices, increasing manufacturing costs.New inventions will no longer be made. As a result, the period of prosperity will come to an end, and the period of recession will commence. Credit deflation also occurs at this point, as new businesses continue to use the sales receipts from their new items to repay their bank debts. This puts old businesses in a difficult readjustment and adaptation situation. As credit deflation comes in, the flow of money into the economy slows, the demand for revenues of old enterprises decreases, making their situation even more precarious; as a result, the recession worsens. This process is referred to by Schumpeter as "auto-deflation," suggesting that commercial banks have only a minor role in it.The halting of innovations and the slowing of entrepreneurial activity are the causes of the economic downturn. He emphasises that breakthroughs come to a halt not because there aren't enough inventions, but because the economic climate isn't conducive to further innovation.During periods of prosperity, when there is overproduction, general prices fall, diminishing profit margins. The lack of fresh investment profit margins renders innovations financially unappealing.

Furthermore, during an economic downturn, expectations are depressed by the uncertainty. All values and estimations in the system alter immediately, because the clustering of innovations during the golden period caused the economy to become severely dis-equilibrated. This makes it incredibly difficult to plan fresh investments accurately. As a result, the current economic environment works as a barrier to the planning and formation of new businesses.

However, Schumpeter's theory of trade cycles is imperfect because it suffers from following limitations.

Drawbacks of Innovation Theory:

1. His idea is highly institutionalised because it is only valid if a typical institutional structure of society exists. Entrepreneurs, he believes, are merely innovators. Furthermore, he exaggerates the importance of the entrepreneur, resulting in a significant personal component in the road of industrial success.

2. According to Schumpeter, trade cycles are caused only by the phenomenon of innovation. However, the trade cycle is a complex process that cannot be explained by a single factor.

3. Schumpeter makes the erroneous assumption that all inventions are financed through bank loans. They must be funded through voluntary contributions. Furthermore, important inventions almost always necessitate long-term funding, whereas the financial sector often only provides short-term loans.

14.2 Trade Cycle

J.M. Keynes writes, "A trade cycle is composed of periods of good trade characterised by rising prices and low unemployment percentages with periods of bad trade characterised by falling prices and high unemployment percentages."

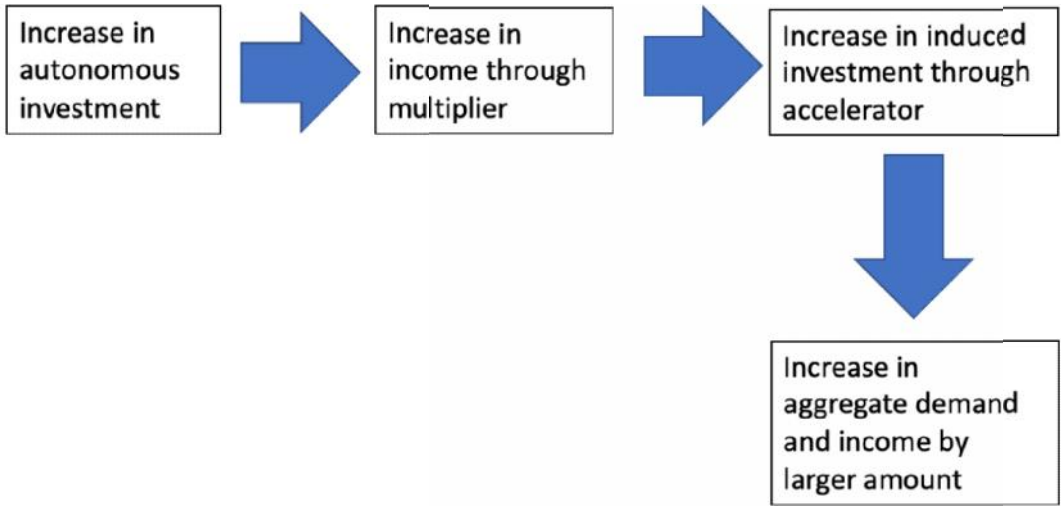
Samuelson Theory of Trade Cycle

In his study, Samuelson clearly demonstrated that cyclical fluctuations in economic activity are caused by the interaction between the multiplier and the accelerator. The multiplier itself is insufficient to account for the cyclical and cumulative nature of economic swings.A self-initiated increase in investment improves revenue by a multiplied amount, depending on the multiplier's value. Through the acceleration effect, this rise in income further drives increases in investment. Increased income leads to a rise in overall demand for products and services. To create more goods, we need more capital goods, which necessitates additional investment.

Thus the relationship between investment and income is one of mutual interaction; investment affects income which in turn affects investment demand and in this process income and employment fluctuate in a cyclical manner.

Combined effect of Multiplier and Accelerator on Income and Output

Fig 14.1 Combined Effect of Multiplier and Accelerator on Income and Output



Investment fluctuations are the primary source of instability in a free-market economy. The interaction of the multiplier and accelerator exacerbates this instability. Any change in aggregate demand has a multiplier effect, the magnitude of which is determined by the marginal willingness to consume represented in Fig 14.1. When the multiplier effect increases consumption, income, and output, it causes further changes in investment, and the extent of this induced investment in capital goods industries is determined by the capital-output ratio, that is, the interaction between the multiplier and accelerator without any external shocks can produce business cycles with different patterns depending on the magnitudes of marginal propensity to consume and capital-output r.

Assumptions of Samuelson Model

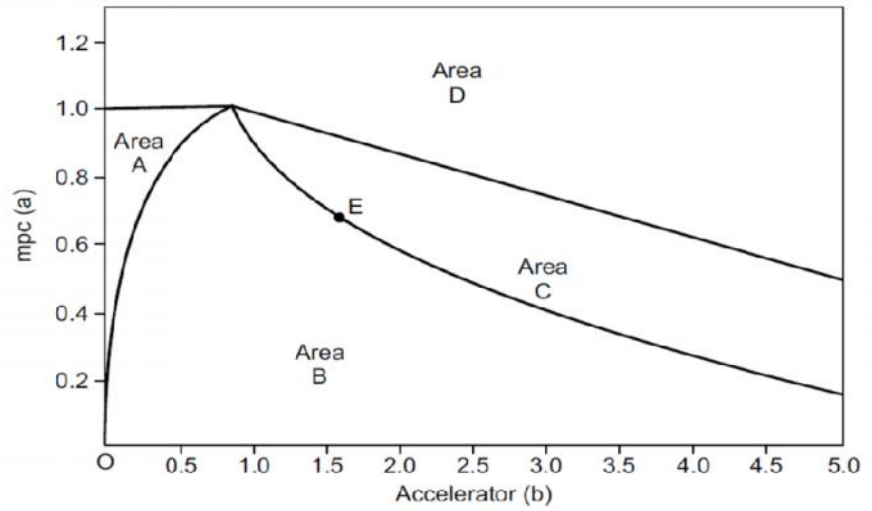
Following are the assumptions of Samuelson Model:

- no excess production capacity,
- one-year lag in income and consumption;
- one-year lag in investment and consumer demand; and
- no government activity and foreign trade.

Explanation of the Model:

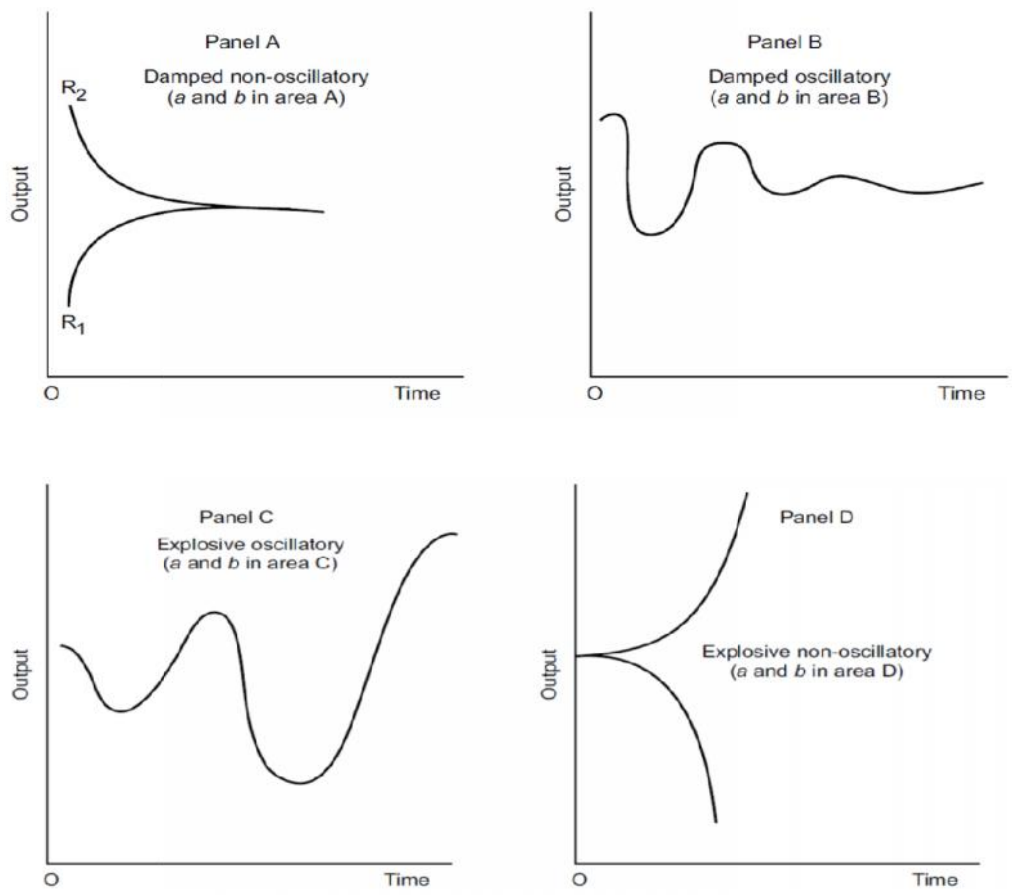
Samuelson has described different paths which the economy will follow. The various combinations of the values of marginal propensity to consume and capital-output ratio (which respectively determine the magnitudes of multiplier and accelerator) are shown in Fig. 14.2

Fig 14.2 Fluctuations in Income and Amplitude



The possible courses or patterns of movement for economic activity (as measured by gross national product or income) based on various combinations of marginal propensity to spend (c) and capital-output ratio (v) are shown in different panels in the following figure 14.3

Fig 14.3 Interaction between Multiplier and Accelerator



When the values of marginal propensity to spend (c) and capital-output ratio (v) are within the range denoted as 'A', the gross national product or income moves upward or downward at a decreasing pace with a change in autonomous investment, eventually reaches a new equilibrium as shown in panel (a). If the values of c and v are within the region B, changes in autonomous

investment or autonomous consumption will result in income variations that follow the pattern of a series of damped cycles with decreasing amplitudes until the cycles vanish as is shown in panel (b) of Fig. 14.3

The region C in Fig 14.2 reflects combinations of c and v that are relatively high in comparison to area B, and determines multiplier and accelerator values that cause explosive cycles, i.e., income fluctuations with gradually higher and greater amplitude.The situation is depicted in panel (c) of Fig. 14.3 which shows that the system tends to explode and diverges greatly from the equilibrium level. The region D in Fig 14.2 represents the c and v combinations that cause income to rise or fall at a rising rate, which must be regulated in some way if cyclical motions are to occur.This is depicted in panel (d) of Fig. 14.2.In the same way that the multiplier and accelerator values in region C cause the system to explode and diverge from the equilibrium state by an increasing amount, their values in region D cause the system to explode and diverge from the equilibrium state by an increasing amount.As a result of the above mentioned scenario, area A and B are similar that they both eventually restore stable equilibrium to the system following a disturbance produced by a change in autonomous investment or consumption.The values of c and v, and therefore the magnitudes of multiplier and accelerator in regions C and D, on the other hand, are similar but produce significant system instability because both of these values induce gradually higher divergence from the equilibrium level, and the system begins to burst. Thus, it can be concluded that Business cycles are exclusively produced by combinations of c and v in areas B, C, and E. The values of accelerator and multiplier in region A are such that when economic activity (as measured by the level of income or Gross National Product) is disrupted by a change in autonomous investment or autonomous consumption, it moves smoothly from an initial equilibrium to a new equilibrium with no cyclical fluctuations or oscillations. It is important to note that the values of c and v (and thus multiplier and accelerator) in the region B, on the other hand, cause cyclical variations of the sort of damped oscillations that tend to diminish over time, that is, the amplitude of the cycles reduces to zero with time. This, however, contradicts historical experience, which shows that cyclical movements do not tend to fade away or die out over time.In reality, business cycles in the actual world have an uneven pattern as well. To sum up it can be said "what otherwise appears as a tendency for the cycle to disappear in instance B may be transformed into an endless sequence of cycles by the addition of a randomly disrupted erratic shock system,"

14.3 Hicks Theory of Trade Cycle

Prof. J.R. Hicks in his book A Contribution to the Theory of the Trade Cycle, developed his theory oftrade cycles on the basis of the rule of Multiplier-accelerator mutual action rule. For him, “Theory ofacceleration and theory of Multiplier are two aspects of the theory of up and down.” Different fromthe model of Samuelson, which is applicable for short ups and downs, Hicks' model is related to theproblem of growth and moving balance.Hicks' model of trade cycles considers Warranted rate of growth, consumptionfunction, autonomous investment, induced investment function and multiplier-acceleratorrelation.

Hicks' theory of trade cycle is dependent on the below given assumptions:

1. Hicks assumes that economy is progressive in which autonomous investment increases at aconstant rate in such a way so that economy stays in moving balance.

2. Savings and investment co-efficient change in such a way overtime that upwardsdisplacement from balance path brings lagged movement far from the balance.

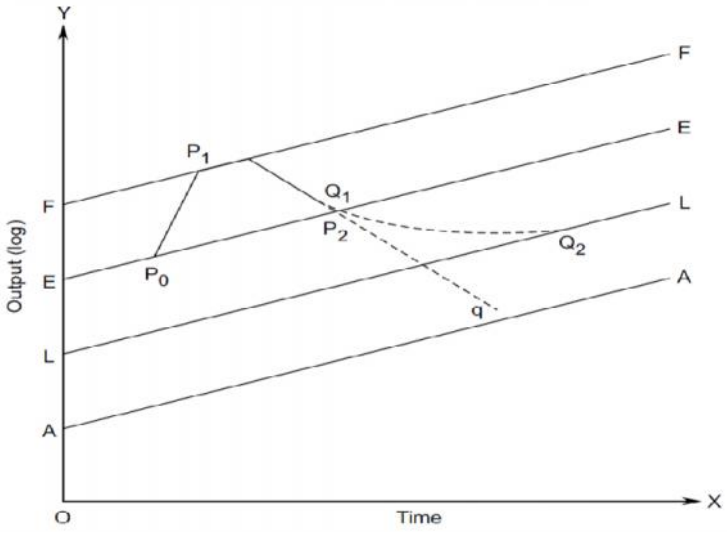
3. Hicks assumes that value of Multiplier and accelerators are fixed.

4. Economy cannot expand beyond the level of full employment.

Hicks proposed a detailed theory of business cycles based on the interplay between the multiplier and the accelerator by selecting marginal propensity to spend (c) and capital-output ratio (v) values that he believes are typical of the real world scenario.Hicks has included the role of buffers in his research to explain real-world economic cycles that do not tend to erupt. On the one hand, he envisions an output ceiling that prevents income and output from falling below it when all

available resources are fully utilised, and on the other hand, he envisions a floor or lower limit below which income and output cannot fall because autonomous investment is always occurring.Another essential aspect of Hicks' theory is that economic cycles occur in the context of economic growth (i.e., the rising trend of real income of output over time). In other words, cyclical oscillations in real production of goods and services occur above and below this increasing trend line of income and output growth.

Fig 14.4 Hicks Theory of Business Cycle



He explains business cycles and an equilibrium rate of growth in his theory. In Hicks' theory of long-run equilibrium growth, the rate of expansion of autonomous investment over time determines long-run equilibrium growth of income, and the magnitudes of multiplier and accelerator dictate long-run equilibrium growth of income.Hick's Theory of business cycles has been explained with the help of the Fig. 14.4.

In this figure, AA line represents autonomous investment which is the investment which is not induced by changes in income and is made by entrepreneur as a result of technological progress or innovations or population growth. Hicks assumes that self-investment rises at a constant annual rate determined by the slope of the line AA. The simple multiplier is calculated using the marginal propensity to consume. The amount of the multiplier, as well as autonomous investment, determine the income equilibrium path illustrated by the line LL. This is referred to as the floor line by Hicks because it establishes the lower limits below which income (output) cannot decrease due to a certain rate of autonomous investment growth and a given multiplier size. However, induced investment has yet to be considered. There is some induced investment via accelerator if national income grows from one year to the next, as it would if it moved along the line LL. The line EE depicts the national income growth path driven by autonomous investment and the multiplier and accelerator combined effect. The full employment ceiling is denoted by the letter FF. It is a line that depicts the maximum national output at any point in time when all of the economy's available resources are completely used. The economy will follow the equi-librium growth route line EE, given the constant growth of autonomous investment, the magnitude of the multiplier, and the in-duced investment indicated by the accelerator. As a result, starting at point E, the economy will be in balance, advancing down the path EE, which is determined by the combined influence of multiplier and accelerator, as well as the increasing degree of autonomous investment.

Assume that when the economy reaches point P0 along the EE route, there is an external shock—for example, a burst of investment due to a given innovation or a spike in government investment. After point P0, when the economy encounters such an eruption of autonomous investment, it pushes the economy above the equilibrium growth path EE. The growth in autonomous investment as a result of an external shock causes national income to rise faster than the slope of EE indicates. Through the acceleration effect, a higher increase in national income will result in a higher increase in induced investment. Because of the multiplier effect, a rise in induced investment causes an increase in national revenue. As a result of the multiplier and accelerator working together, national income or output will swiftly increase along the path from P0 to P1. The transition from P0

to P1 denotes the business cycle's upswing or growth phase. However, because P1 is the full employment output ceiling, this expansion must come to an end. The economy's finite human and material resources prevent a larger increase in national income than illustrated by the ceiling line CC.

Therefore, when point P_1 is reached the rapid growth of national income must come to an end. Prof. Hicks assumes that the full employment ceiling grows at the same rate as autonomous investment. Therefore, CC slopes gently unlike the very steep slope of the line from P_0 to P_1. When point P_1 is reached the economy must grow at the same rate as the usual growth in autonomous investment.

The economy may crawl along the full employment ceiling CC for a little period. However, because national income no longer grows at a rapid rate, induced investment via accelerator decreases to a level consistent with the modest rate of growth specified by autonomous investment's constant rate of growth.

However, the economy cannot continue to plod along its full employment ceiling for an extended period of time. When the economy reaches its ceiling, income and consumption growth slows dramatically, resulting in a steep drop in induced investment.

As a result, when induced investment falls sharply and national income, and thus consumption, stops rising rapidly, the level of income and business must begin to contract. As soon as the downswing begins, the accelerator reverses direction.That is, because the income change is now negative, the incentive to invest must begin to decline. As a result of the slackening at point P2, national income begins to move toward the equilibrium growth path EE. As a result, the downswing or contraction phase of the business cycle is represented by this movement from P2 downward.Because investment slows off quickly during a downturn, the multiplier acts in the other direction. The drop in national income and output caused by the severe drop in induced investment will not stop at EE, but will continue to decrease.Now, the downturn is not abrupt or sudden or quick as shown in Q_1P_2q without any floor or bottom but slow and gradual along Q_1P_2q with a bottom beyond which it cannot go because the multiplier is less than unity and accelerator (or disinvestment) is limited by replacement— so it must have a floor.

Unlike the upswing, which was constrained by the production ceiling imposed by full employment of available resources, the downswing is constrained by the floor, which represents the amount of output. This is because the floor level is established by a simple multiplier and autonomous investment expanding at a constant pace, whereas the accelerator ceases to act during the downswing after a point.It should be highlighted that during a downturn, the depreciation of capital stock sets the limit to negative investment (disinvestment), and hence the limit to output contraction. There is no possibility for businesspeople to disinvest at a pace that is higher than depreciation.When such conditions exist during a downswing, the accelerator becomes inactive. The economy may crawl along the floor for a while after hitting the bottom, following the path Q1 to Q2. As a result, the level of national income rises slightly.Once this excess capacity is exhausted, the positive acceleration effect becomes operative again and the cycle will be repeated.

Criticism of Hicks Theory:

Hicks' theory of trade cycles is not without critics. According to Kaldor, Hicks theory is based on the rigid form of the acceleration principle. If the rigid form of acceleration principle is invalid, then the interplay of the multiplier and accelerator, which is a key idea in Hicksian trade cycle theory, is invalid as well.ThusDuesenberry writes, "the basic concept of multiplier-accelerator interaction is important one but we cannot really accept to explain observed cycles by a mechanical application of that concept" and, according to him, Hicks in his business cycle theory actually tries to do so.

Causes behind fluctuations in Business Cycle

Many free-market capitalist countries, such as the United States and the United Kingdom, have had significant economic expansion over the last two centuries. However, economic growth in these countries has not been consistent or smooth. Although the Gross National Product (GNP) has had a long-term rising tendency, there have been considerable short-run variations in economic activity, such as changes in output, income, employment, and prices, around this long-term trend.

Expansion, upswing, or prosperity have been used to characterise periods of high income, output, and employment, whereas contraction, recession, downswing, or depression have been used to describe periods of low income, output, and employment. The free market capitalist countries'

economic history has revealed that periods of economic prosperity or expansion alternate with periods of contraction or recession.

These alternating periods of expansion and contraction in economic activity has been called business cycles. They are also known as trade cycles. These economic activity changes have a notable aspect in that they are recurrent and have been occurring on a more or less regular basis. As a result, these fluctuations are referred to as business cycles. It's worth noting that referring to these variations as 'cycles' implies that they are periodic and occur on a regular basis, even if absolute regularity has yet to be observed.

Although it was once assumed that fluctuations in output and other economic indicators around the trend showed a repetitive and regular pattern of alternating periods of expansion and contraction, the length of a business cycle has varied from a minimum of two years to a maximum of ten to twelve years. However, no unambiguous evidence of very regular cycles of the same specific period has been found. Some business cycles were quite brief, lasting only two to three years, while others lasted several years. Furthermore, some cycles have seen big swings away from the trend, while others have seen mild fluctuations.A key factor to remember about business cycles is that they have been extremely costly in the economic sense. During a recession or depression, many workers lose their jobs, and as a result, large-scale unemployment sets in, resulting in a loss of output that could have been created if resources were fully used.

Furthermore, many businessmen go bankrupt and suffer significant losses during a depression. Depression causes a great deal of human suffering and decreases people's living standards. Fluctuations in economic activity produce a large deal of uncertainty in the economy, which causes people to be concerned about their future income and employment prospects, as well as a significant risk for long-term project investment.Even booms that are accompanied by inflation have societal consequences. Inflation eats away at people's real salaries, making life difficult for the poor.Inflationaffects resource allocation by diverting scarce resources from productive to nonproductive uses. Inflation redistributes money in favour of the wealthy, and it stifles economic progress when the rate of inflation is excessive. About the harmful effects of the business cycles Crowther writes, “On the one hand, there is the misery and shame of unemployment with all the individual poverty and social disturbances that it may create. On the other hand, there is the loss of wealth represented by so much wasted and idle labour and capital.”

Features of Business Cycles:

1. Business cycles occur periodically
2. Business cycles are Synchronic
3. Fluctuations occur not only in level of production but in other variables as well
4. The immediate impact of depression and expansion is on the inventories of goods
5. Profits fluctuate more than any other type of income

Phases of Business Cycles:

Business cycles have shown distinct phases the study of which is useful to understand their underlying causes and the phases are as follows:

1. **Expansion (Boom, upswing or Prosperity):** During this period, the economy is at full employment where all available resources are employed. The economy will experience a high level of output and trade, increasing effective demand and higher employment levels and income. Business optimism creates more investments and increases pressure on available resources that leads to an increase in wages and prices of inputs. There could be a situation where the numbers of jobs exceeds the number of workers; this situation is known as overfull employment. As a result, there will be an increase in prices, wages, interest and profit.

2. **Peak (Upper Turning Point):**The peak period is also known as the prosperity period. This is the the upper turning point of a business cycle and the point at which expansion turns into contraction. The prosperity period comes to an end when the forces favouring expansion slow down.

3. Contraction (Recession): A slowdown in the pace of economic activity defined by low or stagnant growth, high unemployment, and declining prices. It is the period from peak to trough as the recession takes place after the period of prosperity ends. This phase is characterized by:

(1) A decrease in the volume of output, trade and transactions

(2) An increase in the level of unemployment

(3) A reduction in aggregate income in terms of wage and profit, and

(4) A decline in consumption expenditure and investment level.

Therefore, a downward phase is also called a contraction. A deep and prolonged recession is known as depression. A recession normally lasts for a six-month period, with a continued decline in real GDP.

4. Trough (Lower turning point): The recession ends when the real GDP stops falling. The minimum point is called a trough. The trough will last until there is an increase in real GDP. During this phase, the overall level of economic activity will drop to the lowest level. Unemployment rates during this phase will be higher and create many problems. Thus, it is a period of great suffering and hardship to society and the worst phase of a business cycle. The trough is followed by recovery. Recovery is the period of revival leading to an upturn of the economy. The economy's level of output and employment expands towards full employment during this phase.

The four phases of business cycles have been shown in Fig. 14.5 where we start from trough or depression when the level of economic activity i.e., level of production and employment is at the lowest level. With the revival of economic activity, the economy moves into the expansion phase, but due to the causes explained below, the expansion cannot continue indefinitely, and after reaching peak, contraction or downswing starts. When the contraction gathers momentum, we have a depression. The downswing continues until it reaches the lowest turning point, often known as the trough. The cycle is now complete. However, after a period of time in the trough, the economy recovers, and a new cycle begins. J.R. Hicks in his model of business cycles explains such a pattern of fluctuations with long-run rising trend in economic activity by imposing factors such as autonomous investment due to population growth and technological progress causing economic growth on the otherwise stationary state

Fig 14.5 Business Cycle

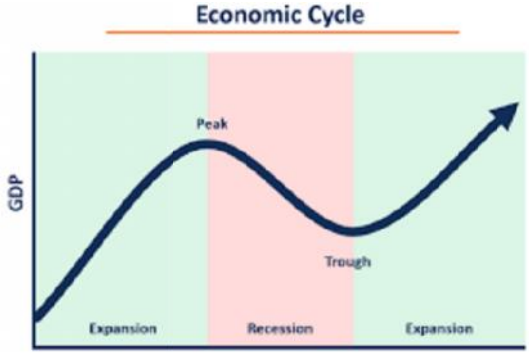


Table 14.1 summarizes the four phases of business cycles:

Phases	Economic Activities
Peak	Output – maximum level Unemployment – lowest level
Recession	Output- declines Unemployment- Increases
Trough	Output- minimum level Unemployment- highest level

Recovery	Output- increases Unemployment- declines

Causes of Business Cycle:

Many elements combine to generate the cyclic pattern of changes that occur in the economy. Internal economic forces may be to blame for these shifts. There are other exogenous elements that might cause an economy to boom or crash. Let's look at all of the reasons for business cycles.

Internal Causes of Business Cycle:

1. **Change in demand:** A change in demand, according to Keynes economists, produces a change in economic activities. When an economy's demand rises, businesses respond by creating more goods to match the need. There is an increase in output, employment, income, and profits. The economy will thrive as a result of this. Excessive demand, on the other hand, may result in inflation.

On the other side, if demand declines, economic activity declines as well. This could result in a bust, which, if it lasts long enough, could even lead to an economic depression.

2. **Fluctuations in Investment:**Investment fluctuations, like demand changes, are one of the primary causes of business cycles. The investments will fluctuate depending on a variety of circumstances such as the economy's rate of interest, entrepreneurial interest, profit expectations, and so on. An increase in investment will result in an increase in economic activity, which will result in expansion. Reduced investment will have the opposite impact, resulting in a trough or even depression.

3. **Macroeconomic Policies**:Changes in the phases of the business cycle are influenced by a country's monetary and economic policy. So, if monetary policies aim to boost economic activity by encouraging investment, the economy will grow. On the other side, if taxes or interest rates are raised, the economy would slow down or enter a recession.

4. Supply of Money:Another school of thought holds that business cycles are solely monetary occurrences. As a result, trading cycles will be triggered by variations in the money supply. Growth and expansion will result from an increase in money in the market. However, an excessive money supply may result in inflation, which is undesirable. Furthermore, a reduction in the money supply will cause the economy to enter into a recession.

External Causes of Business Cycle:

1. Wars:During times of war and disturbance, economic resources are diverted to the production of specialised goods such as guns, arms, and other war-related items. The emphasis swings away from consumer items and toward capital goods. Income, employment, and economic activity will all suffer as a result. As a result, the economy will suffer during the war. Later in the postwar period, the emphasis will be on reconstruction. Reconstruction of infrastructure is required (houses, roads, bridges, etc). As progress is made, this will aid in the recovery of the economy. As effective demand rises, economic activity will rise as well.

2. Technology shocks:A boost to the economy from some interesting and new technologies is always welcome. New technology will result in increased investment, employment, and, as a result, higher earnings and profits. The introduction of the contemporary mobile phone, for example, gave the telecom industry a major boost.

3. Natural factors: Natural catastrophes such as floods, droughts, hurricanes, and other natural disasters can destroy crops and create significant losses in the agriculture sector. Food scarcity will result in a price increase and significant inflation. Demand for capital products may be reduced as well.

4. Population Expansion:If population growth becomes uncontrollable, it may pose a threat to the economy. In general, when population expansion outpaces economic growth, an economy's overall savings begin to dwindle. The economy will then experience depression or a slowdown as investments decline.

Summary

First let us take that situation , when depression had existed for a few days and recovery orlower turn point starts. Originating forces or starters are exogenous or endogenous forces.Assume that semi-durable things have worn off and consequently it becomes important thatthey are substituted in the economy. By this demand increases and for fulfilling the increaseddemand investments and employments increase. Recovery of industry starts. Recovery ofrelated capital goods industry also starts.

Keywords

Recovery: Regain

Boom: Fast Speed

Autonomous investment: It free of changes in level of production, hence, it is not associated with the growth of the economy.

Trade Cycle: Attribute of cyclical ups and downs is interchange of waves of expansionand contraction.

Self Assessment

1. According to Hawtrey, expansionary phase is caused by _____

A. Positive change in the flow of money

B. Negative change in thee flow of money

C. Business cycles

D. None of the above

2. On what grounds, Monetary theory has been criticized

A. Neglect of monetary factors

B. Neglect of real factors

C. Both (a) and (b)

D. None of the above

3. Hayek's monetary over investment theory mainly focuses on:

A. Balance between actual and desired investment

B. Imbalance between actual and desired investment

C. Business confidence

D. None of the above

4. According to Hayek, in order to stabilize the equilibrium, the _____ should be equal to _____ in an economy.

A. Voluntary savings, planned investment

B. Planned savings, planned investment

C. Voluntary savings, actual investment

D. None of the above

5. According to _____ trade cycles occur due to onset of innovations

A. Hawtrey

B. Adam Smith

C. JM Keynes

D. Schumpeter

6. As per Schumpeter _____ causes business cycle

A. Innovation

B. Invention

C. Discovery of scientific novelties

D. None of the above

7. According to Innovation theory, when the economy goes in depression, then there arises

A. Equilibrium in the economy

B. Disequilibrium in the economy

C. Profitable situation

D. None of the above

8. Schumpeter classified innovation as :

A. Opening of new markets

B. Discovering of new sources of raw materials

C. Introduction of new type of goods

D. All of the above

9. Samuelson model shows the interaction of _____ and _____ to generate additional income, consumption and investment to generate economic fluctuations.

A. Demand, supply

B. Investment, supply

C. Multiplier, accelerator

D. None of these

10. The _____ is a theory of what causes investment to increase.

A. Accelerator

B. Multiplier

C. Supply

D. None of the above

11. _____ theory measures the effect of the increase in investment on equilibrium income

A. Accelerator

B. Multiplier

C. Supply

D. None of these

12. Hicks in his Theory of Trade Cycle assumed

A. Linear consumption function

B. Constant multiplier

C. Both (a) and (b)

D. None of the above

13. A rapid increase in interest rate causes.

A. Expansion

B. Peak

C. Contraction

D. All of the above

14. Among all, one is the endogenous factor that affects the business cycle.

A. War

B. Changes in government spending

C. Population explosion

D. Fluctuations in investments

15. Cost of living increases when business cycle is _____

A. Expanding

B. At peak

C. Contracting

D. At lowest point

Answersfor SelfAssessment

1. A	2. B	3. B	4. C	5. D
6. A	7. B	8. D	9. C	10. A
11. B	12. C	13. C	14. D	15. A

Review Questions

1. Differentiate between autonomous investment and induced investment.

2. Explain, the Pure Monetary theory.

3. Explain in detail the Schumpeter's Theory of innovation.

4. Discuss Monetary over Investment Theory.

5. Explain with the help of diagram Hicks theory of trade cycle.

6. How Hicks Theory of Trade cycle is different from Samuelson's Theory.

7. What are trade cycles? Explain in detail.

8. What phases a business go through? Explain in detail.

9. Explain in detail internal factors that cause business cycles.

10. What external factors affect the business? Explain in detail.

Further Readings

1. Macroeconomics: Theory and Policy — H.L Ahuja, S. Chand Publishers,2010.
2. Macroeconomics — S.K. Chakravarty, Himalaya Publishing House, 2010.
3. Macroeconomics: Economic Growth, Fluctuations and Policies — RobertE. Hall and David H. Paipal, Viena Books, 2010.

Web Links

https://www.yourarticlelibrary.com/economics/money/purely-monetary-theory-of-trade-cycle-by-r-g-hawtrey/25999

https://www.economicsdiscussion.net/trade-cycle/trade-cycle-meaning-features-and-theories/21071

https://www.jstor.org/stable/2226939

https://www.economicsdiscussion.net/business-cycles/theories-of-business-cycles-explained-with-diagram/4137

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