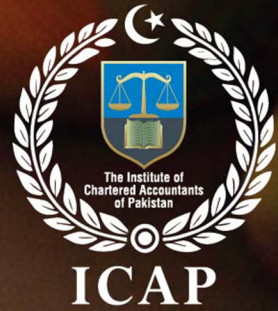


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BUSINESS AND ECONOMIC INSIGHTS

Study Text Vol. II



SHAPING FUTURE BUSINESS
AND FINANCE LEADERS

PRC - 3

BUSINESS AND ECONOMIC INSIGHTS



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Clifton
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Email: ipd@icap.org.pk
www.icap.org.pk

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VOLUME - II

TABLE OF CONTENTS

CHAPTER		PAGE
Chapter 1	Nature and Scope of Economics	3
Chapter 2	Demand, Supply and Market Equilibrium	37
Chapter 3	Elasticity of Demand and Supply	67
Chapter 4	Firm Theory	95
Chapter 5	National Income and Its Determination	133
Chapter 6	Consumption, Saving and Investment	173
Chapter 7	Multiplier and Accelerator	193
Chapter 8	Public Finance	213
Chapter 9	Money	237
Chapter 10	Inflation and Unemployment	261
Chapter 11	Monetary Policy	279

NATURE AND SCOPE OF ECONOMICS

IN THIS CHAPTER:

AT A GLANCE

SPOTLIGHT

SECTION I

NATURE AND SCOPE OF ECONOMICS

1. Subject matter of economics
2. Microeconomics
3. Macroeconomics
4. Scarcity, choice and opportunity cost
5. Production possibility frontier

SECTION II

ECONOMIC SYSTEMS

1. Different economic systems and central economic questions
2. Islamic economic system

STICKY NOTES

REFERENCES

SELF-TEST

AT A GLANCE

All decisions of our day to day lives directly or indirectly base on basic principles of economics. Consciously or unconsciously we make our choices among available options. Households, firms, state authorities or international agents, everyone is using economic principles in their regimes for decisions whether they realize it or not.

Being humans we have unlimited desires to satisfy but we remain unable to do as the resources are always insufficient to deal with. This perspective is known as scarcity, which is considered the foundation of economics.

Due to scarcity of resources, consumer decides what to get or sacrifice, as he or she has limited income. Government, in its annual budget also decides which project to be started and which one is to be postponed. If we look around genuinely, we will find two realities of life with every human being; first is scarcity and second is endless wants and need. In early section of this chapter, we will cover this basic issue in depth.

In subsequent section we will investigate the two main branches of economics i.e. Micro Economics and Macro Economics which will help us to deal our day-to-day economic problems at both individual and national level.

In the closing section, we will explore the different economic systems to answer some basic economic questions; what to produce, how to produce and for whom to produce.

SECTION I

Nature and Scope of Economics

AT A GLANCE

SPOTLIGHT

STICKY NOTES

1 SUBJECT MATTER OF ECONOMICS

Economics is known as the mother of social sciences. It deals with the elucidation of economic problems of the society. History of the world is witnessing that man is continuously striving to solve its major economic issues at individual and state level such as; health care, illiteracy, poverty, inflation and unemployment.

Before going into details, we must understand the subject matter of Economics. Various economists have their own opinions about it. Like **Adam Smith** also known as the father of Economics, has explained it in his book "*An Inquiry into Nature and causes of Wealth of Nations*" in 1776. According to Smith (1776), economics deals with the wealth of nations rather than human welfare. He elaborated how wealth is produced, exchanged, distributed and used.

- **Production of wealth** means the production of goods and services by combining four factors of production such as; Land, Labour, Capital and Entrepreneur.
- **Exchange of wealth** states that the goods and services being produced by one individual must be exchanged with someone else's, in order to satisfy their needs.
- **Distribution of wealth** elaborates distribution of generated wealth through combined efforts of factors of production among those households who have provided them. The wealth which firms or producers distribute, among factors of production, is termed as rewards of factors of production.
- **Consumption of wealth** is the ultimate objective behind its generation. Every individual has some needs which he wants to satisfy and is only possible by consuming different goods and services. To get and consume such goods and services one has to spend money or wealth.

The way he has stressfully discussed the term 'Wealth', we can say that according to Smith (1776), "Economics is a Science of Wealth".

On the other side another eminent economics named **Alfred Marshal** wrote in his book entitled "Principles of Economics" in 1890, that "Economics is the study of mankind in the ordinary business of life. It examines that part of individual and social action which is most closely connected with the attainment and use of the material requisites of wellbeing". According to Marshal (1890):

- Economics is a **social science** as it studies the people in their ordinary business (day to day affairs) of life.
- Wealth is the **central** area of interest.
- Economics anxiously discuss about the **welfare** (wellbeing) of society.

After receiving a lot of criticism on previously discussed point of views about economics, a most renowned economist **Lionel Robbins** in his book *Nature and Significance of Economic Science* (1932), said "Economics is the science which studies human behaviour as a relationship between (multiple) ends and scarce (limited) means (resources) which have alternative uses". Clearly it can be derived that his view moves around the **scarcity** and **choice** in economic lives of the people.

- **Multiple Ends** states the ample wants of human beings. As humans keep on satisfying their needs by consuming goods and services, but they arise again and again. Resultantly, the human wants never came to an end which provide basis of basic economic problem.
- The noticeable component of Robbin's (1932) definition of economics is the **scarcity of resources**. As it is said that the human wants are endless, it also a reality that the means or resources to satisfy those needs are insufficient.

Scarce resources can be used alternatively that is, can be utilized in different ways. For instance, a piece of land can be used for cultivation or to build a factory or house. It's up-to the need and priority of humans that what way they want to utilize it.

1.1 Nature of economics

The subject of economics focuses on addressing the economic problems faced by individuals. To better understand this, it's important to examine whether economics is a science or an art.

In this context, "**Positive science**" refers to the analysis of established facts and the development of laws or principles based on them. For example, it is universally accepted that the Earth is round and orbits the sun, or that the brain controls bodily actions under certain conditions. Economics, like positive science, involves analyzing tested and accepted facts, making it behave similarly to a science.

► For Example:

In economics we know the fact that unemployment increases poverty and hurts living standards of the people, or inequitable distribution of income hurts the economic growth of a country in the long run etc.

Whereas a **normative science** progresses and try to find out way the things actually should be. Furthermore, normative science inquires and asserts about 'good' ways of doing things, or the 'right' way of thinking. For instance, pollution is increasing the global temperature, so it must be tackled, or social unrest creates political and administrative challenges for the State, that's why it should be managed in anticipation. With this point of view, economics also deals in normative mode, for example we know about a fact that the fast growth in population along income inequalities, creates many other social and economic challenges, so high rate of population growth must be discouraged, or as stated above that unemployment increases poverty and hurts living standards of the public, so government should create job opportunities to prevent it.

Hence, we can say that, the positive economics reveals only factual realities, while the normative economics also inquires and suggests possible solutions

Thus, while positive economics deals with factual realities, normative economics goes further, by proposing solutions.

2 MICROECONOMICS

Economic theory and practice have been developed at **TWO** different levels. Traditionally these levels have been categorized as *Microeconomics and Macroeconomics*.

After detail discussion of nature of economics, now we will try to understand the study of economics at these two different levels: Microeconomics deals with the behaviour of the individual agents of an economy such as; households, firms, and employees. Whereas Macroeconomics takes into account an economy as a whole. It deals with economic issues in a broader way such as; situation of employment and inflation in a country, economic growth, balance of payment conditions etc.

Microeconomics is the branch of economics that investigates the individual behaviour of households and firms in their ordinary business of life (decision making and allocation of scarce resources).

According to Prof. K. E. Boulding, "Micro Economics is the study of particular firm, particular household, individual prices, wages, incomes, individual industries and particular commodities."

The noteworthy factors for microeconomics are:

- Market Demand and Supply
- Consumer theory
- Theory of Production
- Costs of Production etc.

2.1 Scope of micro economics

Microeconomics deals with the following areas:

- **Commodity Pricing:** In microeconomics the prices of different goods and services are determined by demand and supply forces. Hence, microeconomics discusses about theory of demand (i.e., households) and supply (i.e. firms and producers).
- **Factor Pricing:** Factors of production such as land, labour, capital and entrepreneur, are the core of any production process. These factors need monetary rewards (i.e., Rent, Wages, Interest and Profit/loss). Micro economics helps in determination of such rewards therefore termed as 'Price Theory'.
- **Welfare Theory:** Maximization of social welfare is bonded with the optimum allocation of available economic resources. Microeconomics also treats and makes sure the allocation of available input resources in this regard.
- **Key economic questions;** 'What to produce? How to produce? and for whom to produce? Microeconomics helps up to large extent.

2.2 Importance of study of microeconomics

Study of microeconomics has been appreciated on following grounds:

- **Study of individual economic agents:** In micro economics we study the individual behaviours of economic agents such as; consumer and producers, which help us to understand their role in overall economic activity.
- **Allocation of scarce resource:** Optimal allocation of scarce resources is considered as one of the pre-requirements of economic growth of a country. Microeconomics assists us in the optimum utilization of these limited resources to produce various types of goods and services.
- **Price determination:** Price determination of all goods and services is quite complex. Microeconomics facilitates us in order to tackle this indispensable issue with the help of price mechanism.
- **Helps in formulating economic policies:** None of the economic target can be achieved without an effective economic plan. Microeconomics helps economists to instigate macroeconomic policies, in the line of achieving macroeconomic objectives such as; sustainable growth, price stability, full employment and exchange rate stability.
- **Assistance of Finance Minister:** Taxes are the most important component of Public Finance of any country. In order to generate revenue through taxes, the basic microeconomic tools are pretty helpful. For example, the degree of elasticity of a product determines that to what extent an increase or decrease in tax rate will be helpful in order to achieve the targets of tax collection.

3 MACROECONOMICS

Macroeconomics is branch of economics which deals the economic issues in a broader aspect. Following areas define the scope of economics.

- **Economic Growth and Development:** The status of a country's economy can be evaluated in terms of the per capita real income, as studied under macroeconomics.
- **National Income Determination:** National income determination is one of the important areas covered in macroeconomics. It explains the different concepts, different approaches to measure them and their significance.
- **Inflation and Employment:** Macroeconomics deals with the core issues of an economy such as; inflation and unemployment and tells us how to maintain the price level in a country in order to achieve full employment.
- **Balance of Payments and Trade:** International transaction for visible and invisible goods is another important area of economy which is covered in macroeconomics. How balance of payments gets worst and how to minimize these adversities, is discussed in detail in this branch of economics.
- **Macroeconomic Policies:** Economic policies such as; Monetary policy, Fiscal policy, Commercial policy, Exchange rate policy etc., are the preconditions of economic growth and development of a country. Macroeconomics directs state authorities to develop result-oriented economic policies and their significance the economy.

The noteworthy factors for Macroeconomics are:

- National Income
- Inflation and unemployment
- Rate of interest
- Public debts etc.

3.1 Importance of Macroeconomics

Macroeconomics plays a significant role in economic theory. The key roles are given here:

- **Understanding of complex economic systems:** Study of macroeconomics enables us to understand different complex features of a broader economic perspective, such as; how the level of income and employment is determined in an economy? How demand and supply forces determine the level of desirable interest rates which eventually set the direction of an economy in long run etc.
- **Helpful to achieve predetermine economic targets:** Study of macroeconomic is also helpful to achieve the goals of economic growth of a country.
- **Price stability:** Price stability is essential for economic growth of a country. Study of macroeconomics assists us to achieve price stability by analysing the business fluctuations in a country.
- **Balance of Payments:** Balance of payments is an important indicator of economic performance of a country. Study of macroeconomics also facilitates to identify the causes of deficit in balance of payment and suggests remedial measures.
- **Helpful to address the macroeconomic issues:** It enables economists to understand nature and causes of major economic issues such as; poverty, unemployment, inflation, wage fluctuations, instability of financial markets etc.

Interdependence of Microeconomics and Macroeconomics

Microeconomics and macroeconomics both work together in the subject of economics. Such as; the steps taken by an individual entrepreneur at micro level are generally based on the macroeconomic conditions of the economy. If the overall economic conditions are healthy and business friendly, then the investment and hiring of new staff will be considered at individual business setup also.

4 SCARCITY, CHOICE AND OPPORTUNITY COST

Before going into the details of these topics, we need to understand some of the basic concepts.

As human beings we have so many requirements in our lives, but all are not of same nature and intensity. Some of them we need immediately and other we can postpone for some good time. We can categorize our requirements into **Needs** and **Wants**. A need is something you need for your survival.

► *For example:*

Without food you won't survive for long. Might for some time we can live without it, but eventually we have to take some meal to survive.

By **want** we mean in economics is something you like to have in your life. It is not necessarily a thing without we cannot live without but we feel good to have it.

► *For example:*

A heavy bike can be desire or want for someone, but if he doesn't have it, he will not get die. For an asthma patient inhaler is a need, as he cannot survive without it, but a chocolate lover the chocolate can be an intense desire (want) but cannot be a need as he will not lose his life without it.

4.1 Agents or Participants of an Economy

There are different characters of an economy and are termed as agents or participants.

- **Agent:** An actor or decision-maker within an economic model.
- **Households (consumption units):** The collective group of individuals who are not only consuming goods and services, but also providing labour for firms. They allocate scarce income between different goods and services to satisfy their needs.
- **Firms:** The collective group of organisations producing goods and services in an economy. Allocating scarce factors of production (labour, equipment, raw materials) between different potential products to increase its profits.
- **Government:** Also known as "the state", the organisation that governs over society through a combination of customs, exercises and laws. Allocating its resources (tax revenue, staff etc.) between different social needs.
- **Foreign traders:** The collective group who exchange goods and services between different economies

4.2 Factors of Production

Resources used in production process are termed as input factors. For example, in agriculture sector, we need fertilizers, seeds, water, soil and farm mechanisation etc., for production of different kinds of products. These are known as agricultural inputs.

These input factors are categorized as; Natural resources (Land), Manmade resources (Capital), Human resources (Labour and Entrepreneur).

These factors are classified as:

i. **Human Factors:**

- **Labour:** Every human effort either mental or physical being done during the production process with the intention of earning any money reward (commonly termed as wages) is known as labour. Labour is an active factor of production as it makes the use of other input factors possible by combining them in production process.
- **Entrepreneur:** An individual or a group of people who combines the other factors of production and undertakes the risks and uncertainties involved in the production. They bring all other factors of production together so as to make the production process possible to maximize profit. For example, running a textile unit, cement factory or a restaurant involves all four factors of production but there must be an entrepreneur who pool the other three factors so as to produce goods with intentions of earning profit. Otherwise in absence of an entrepreneur other factors like, building, plant, labour etc., cannot be utilized in systematic way.

- An individual who organizes the three other factors, and also takes on the risk in the venture.

ii. Non-human Factors:

- **Land:** Economists consider the land as natural resources which we have as a gift of nature, including all resources that it brings with it that is; earth, inside and outside earth such as; minerals, water resources, sunlight and wind power, mountains, deserts, climate, rain, etc. Land is a passive factor of production as it depends upon some other active factor i.e. labour.
- **Capital:** This refers to man-made resources. It's that part of wealth which is used to generate further wealth. It includes machinery, equipment, factories, commercial buildings, hospitals, schools, roads, railways, docks etc. A great deal of the capital in an economy is paid for by government. For example, transport networks (roads, railways and airports) hospitals schools and universities.

Entrepreneur: Rewards of Factors of Production

The owners of factors of production receive certain rewards i.e. rent for land, wages for labour, interest for capital and profit for entrepreneurs or organisations.

- **Rent** – Rent, in economics, refers to that part of the payment by a tenant which is made only for the use of land. According to Samuelson, “rent is the payment for the use of factors of production that are fixed in supply.”
- **Wages** – Wages are the payments made in return for the services of labour. Benham defines wages as “a sum of money paid under contract by an employer to a worker for services rendered.”
- **Interest** – Interest is the payment made or received for the use of capital goods. In Marshall's words, interest is “the price paid for the use of capital in any market.”
- **Profit** – Profit is a reward for the entrepreneur for taking risk. It is the ability of the entrepreneur for performing entrepreneurial functions of final decision making and ultimate uncertainty bearing.

4.3 Other Basic Concepts Used in Economics

- **Consumption:** In economics this is one of the basic concepts that refer the use of goods and services in order to satisfy human wants.
- **Production:** Production refers to the conversion of one set of goods to another; where the inputs (resources) are processed and transformed into outputs (good and services). In the economic sense, production can be defined as “the process that creates or adds value.”
- **Good:** In economics, goods refer to the products that satisfy human needs or wants and provide utility. Following are a few basis of classification;
- **Merit goods:** Merit goods create positive externalities and contribute significantly to the social welfare. These goods are assumed to be socially desirable. These may be under-consumed and even under-produced by way of the prevailing market mechanisms.

► For Example:

Education, health, parks etc. are merit goods.

- **Demerit goods:** On the contrary, simply put, demerit goods are the ones that are considered “bad” in the society because of their harmful impacts. Consumption of demerit goods can lead to negative externalities.

► For Example:

Alcohol is regarded as a demerit good and is declared illegal in most of the countries.

- **Public goods:** Public goods are readily available to all the people in a society. These goods enjoy the characteristics of non-rivalry and non-excludability. A public good is not only readily available to the people but it is also impossible to have anyone excluded in the community from enjoying these goods.

► *For Example:*

National defense system, highway network, measures taken to enhance public health etc. are all the examples of public goods.

- **Private goods:** Private goods are the goods that bear the characteristics of rivalry and excludability. These are the goods that can be provided separately to different persons with no costs to be borne by others.

► *For Example:*

Bread is a private good that can be distributed among individuals in different ways and the portion consumed by one person cannot be eaten by others. Also there would be different competing brands of it available in the market.

- **Club goods:** Club goods have the characteristics of excludability but are non-rival till a point where congestion takes place.

► *For Example:*

Private golf courses, services rendered by the clubs to their members etc.

Types of Goods – On The Basis of Income

- **Normal goods:** Normal goods are those whose demand increases as the income increases such as milk. For normal goods the “income elasticity” is positive. Most of the goods come under this category.
- **Inferior goods:** In contrast, inferior goods are those whose demand decreases as the income increases such as public transport, second-hand products etc. With the increase in income people tend to move from inferior goods to normal goods. The “income elasticity” in case of inferior goods is negative. Inferiority here is being discussed in the context of the affordability and not the quality of the good.
- **Superior goods:** Superior goods are those goods that tend to make up the larger proportion of an individual's consumption as the income rises. They can be taken as an extreme form of normal goods. A superior good will have positive income elasticity and that too greater than 1. It can also be termed as a luxury good that is not bought below a certain level of income e.g. a luxury car.

4.4 Production with Specialisation and Division of Labour

Division of labour, refers to producing goods or services by dividing into a number of tasks that are carried out by different workers, rather being done by an individual.

From modern to relatively simple business all are following the division of labour in their business life.

► *For Example:*

An example of garments factory can be helpful here where everyone knows that there are many tasks involved. Making a sports suit involve functions such as; cutting section, stitching section, ironing and wrapping etc.

Division of Labour and Increase in Production

When production process is divided and subdivided among different workers according to their taste and skills, the workers and businesses can produce relatively more quantity of output. In our example of producing sports suit it is observed that one worker alone (working in all sections) might make 5 suits a day, but by dividing job among four workers according to their skills might result as 30 suits a day. How a group of workers can produce so much more than the same number of workers if they perform all tasks by themselves? There are three reasons:

- **Learning by doing:** Specialisation occurs when workers use specialised skills and knowledge for completing specific assigned tasks. Since the workers are specialised in their tasks so they require less training. The process increases productivity and efficiency both and reduces average costs.

- **Saving of time:** It reduces the time required for production as it cuts off the time a worker takes for switching from one production task to another. Moreover, workers perform one task repetitively that makes them highly skilled at that specific task with an increased efficiency rate.
- **Specialisation and division of labour:** Division of labour leads to specialisation. This refers to dividing the production into a number of specialised tasks and assigning each task to a particular set of labour.
- **Specialisation in regional and international contexts:** In an international canvas, we have experienced that different countries have comparative advantages in production of different crops due to the suitability of land, rain water and required temperature. For example, Pakistan has advantages over other countries in the region in production of cotton in the region due to fertile soil, climate conditions and rainfall required for this crop. Pakistan should get specialized in production of cotton rather utilizing its economic resources in multiple crops.

4.5 Capital Formation

Capital formation is the net capital accumulation for a particular country and it refers to the *additions or increase in the stocks of capital in that country over a long period of time*. It involves making more of the capital goods e.g. machines, tools, factories, transport equipment, materials, electricity etc.

These capital goods have a larger impact on the efficiency and productivity. It is the dedication of a part of society's current available resources to the purpose of increasing the stock of capital goods. This means that a part of current consumption is sacrificed for accumulation of capital goods. Therefore, consumption is inversely related to capital formation.

The *process of capital formation* involves the following three stages,

- **Creation of savings:** Savings are done by the Individuals or households. They save money by not spending all of their income on purchase of goods and services. The level of savings in a country depends on the power to save and the will to save. The saving capacity depends on the average level of income and the distribution of national income. When the average level of income is high then people tend to save more.
- **Mobilisation of savings:** This is the second step in the process of capital formation. It involves transfer of savings from the households to businesses for investment. In the Capital market funds are supplied by the individual investors, banks and financial organisations, insurance companies and government etc. Development of capital market is necessary for the increase in rate of capital formation. A well-developed capital market is likely to ensure proper mobilisation and transfer of the savings to the entrepreneurs who need them.
- **Investment of savings:** For savings to result in capital formation, investment of saving should take place. Investment in real capital is integral for the capital formation. This can only happen if there are enough entrepreneurial ventures and businesses that are willing to take risks and embrace uncertainty. If these ventures have rate of profit lucrative enough for people to invest then it will lead to high capital formation.

4.6 Scarcity and Opportunity Cost

As quoted in early section the definition of economics by a renowned economist, Lionel Robbins; "Economics is a science which studies human behaviour as a relationship between ends and scarce means which have alternative uses".

Simply we can say, that human beings have scarcity of economic resources while they have unlimited wants to satisfy. Therefore, they have to make choices among these available scarce resources.

Scarcity:

Scarcity represents the concept of being short or limited. As economic resources (Land, Labour, Capital and Entrepreneur), are always remain insufficient while using them to meet our needs. That means the available resources are not enough to completely satisfy all the wants of individuals and government that creates 'scarcity'.

Opportunity Cost:

As we have multiple ends and scarcity of resources, then eventually we have to make some choices among our wants. Our wants have relative importance in our life, some are non-essentials. As all the human wants are impossible to satisfy simultaneously within given resources, consequently we have to forgo some of them. The want that is forgone is called the 'opportunity cost' of that what we got. Rationally it is based on the principle of 'the next best alternative'.

► *For Example:*

As everyone has twenty-four hours a day, so may be for a student attending a lecture is relatively important than to sleep one extra hour or to go for outing with friends. Hence, he has to sacrifice his sleep or a hangout with friends in to attend the lecture. In this case the sleep for extra hour or outing with friends is the opportunity cost of attending the lecture. In case of a firm, the option of between different techniques of production is also determined on the basis of opportunity cost.

For a government it is a major concern that the expansion of housing societies to meet housing requirements of the people is wiping out the agricultural land, which is creating food shortage gradually. Hence the food is the opportunity cost of development of housing society. Therefore, government has to address this issue on the principle of opportunity cost.

Summing up we can say that scarcity arises due to multiple ends and insufficient resources to meet them, which forces us to choose the next best alternative, on priority basis for all the agents (household, firm, government) of an economy to maximise their interests.

Opportunity costs can be applied to all of the agents that we have discussed so far in a number of different ways.

- **Households:** The satisfaction foregone by consuming good A rather than spending the money on good B.
- **Firms:** The revenue foregone by using productive resources to supply good A rather than using them to supply good B.
- **Governments:** The social needs foregone by using resources to provide service A (e.g. education) rather than service B (e.g. health).

Opportunity Cost and Production Possibility Frontier

Basic economic issue arises due to multiplicity of **Ends** and **Scarcity** of **Means**. Every economy faces a constraint of **human, capital** and **natural resources**.

One of the biggest challenges for an economy is that how to allocate its scarce resources among the variety of different possible products. For example, how much land should be allocated for crops and how much for housing? How many cars should be enough for existing population and how many surgical instruments would be produced? How many students should choose profession of engineering and how many should be chartered accountants? In order to deal with such challenges, we must choose among different possible combinations of goods and services.

An economy uses its available technology to pool inputs in order to produce required level of outputs. For this purpose, we have different input resources as factors of production i.e Land, Labour, Capital and Entrepreneur. Man has learned in his early life that he cannot have everything simultaneously. It is an accepted reality that for adding more land for wheat we must forgo some of other crops, to build more houses we must sacrifice other food stuff, by spending more budget on defence requirements we must sacrifice other social needs like, roads, schools, hospitals and power generations etc.

In a nutshell, we can say that all economic decisions have their opportunity costs. Production possibility Frontier is the most appropriate way to explain opportunity cost.

5 PRODUCTION POSSIBILITY FRONTIER

Production Possibility Frontier demonstrates those baskets of goods which can be produced when all scarce resources of an economy are employed efficiently.

To elucidate the production possibility curve or frontier, we must understand some *key concepts*;

- **Trade-off:** To get something we must forgo something else as resources are limited. To get more of guns a state must compromise some of food. In other words, a situation where production of one product cannot be increased without restricting the production of another good is a trade-off situation.
- **Choices:** Due to limited income, one should make choices on the basis of needs and priority. For instance, a head of the family must forgo some of the luxuries to provide other necessities for the family. To grow more of wheat a farmer must sacrifice some of rice as piece of land is limited.
- **Efficient and inefficient use:** Efficiency states that the maximum attainable combinations a society is achieving, while the in-efficiency termed as the underutilization of resources due to different macro-economic affairs such as; any pandemic like COVID-19 when people stop spending on consumer and capital goods, builders stop building more houses etc.
- **Growth:** Increasing ability to produce more goods and services in an economy over time, through inventions, innovations, discoveries etc.
- **Increasing opportunity cost:** Law of diminishing returns increases the opportunity cost by continuous switching of resources to some other uses.

► Formula

The opportunity cost of X commodity in terms of units of Y given up can be written as

$$\text{Opportunity Cost: } \frac{Y_2 - Y_1}{X_2 - X_1}$$

Assumptions:

To illustrate *production possibility frontier* in a complex economy is not possible without simplifying the model through some core assumptions.

- **Efficient use of resources:** It is assumed that economic resources are used efficiently
- **Full employment:** It is assumed that all available economic resources are fully employed.
- **Input resources are fixed:** It is further assumed that economic resources are given and fixed. The change in quantity and quality of input resources is not possible.
- **Two goods model:** It is assumed that society's resources are deployed to produce only TWO goods like, guns (for defense requirements) and bread (representing social needs)
- **Constant state of technology:** It is further assumed that techniques of production remain unchanged during production process.

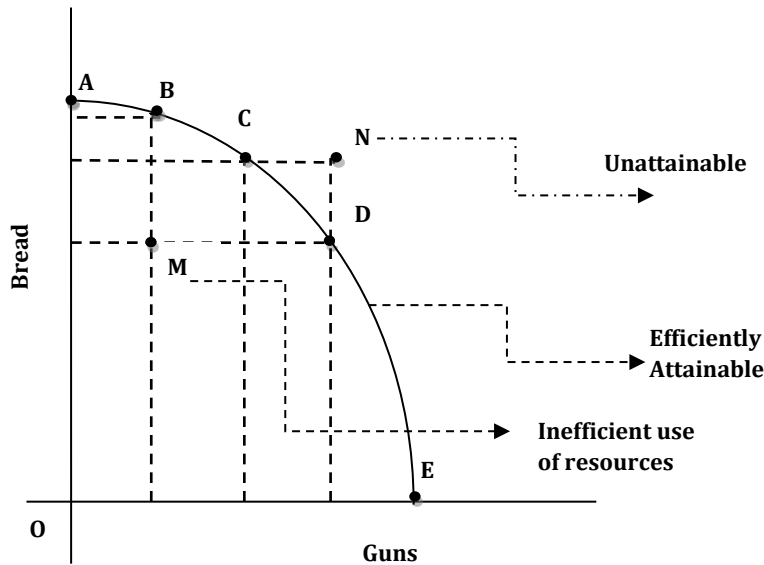
► Illustration:

Hypothetical data about an economy will be helpful to demonstrate the production possibility frontier. An economy which is producing **TWO goods** like Guns and Bread:

Possible Combinations	GUNS (10 thousands)	BREAD (100 thousand pounds)
A	0	100
B	1	90
C	2	70
D	3	40
E	4	0

From the table it can be concluded that given the Limited input resources and state of technology, the production of guns and bread is limited. Moving from combinations A to E, we are transferring labour, machines, and land from the bread industry to gun industry in order to increase quantity of guns to be produced. Moreover, table is

representing that when switching of scarce resources from bread industry to gun industry, the forgone is increasing gradually.



Each point on the production possibility curve represents the attainable combinations of Guns and Bread when all the available resources are fully and efficiently employed. Combination *N* which is lying outside the PPF represents as unattainable within given quantity and quality of resources. Whereas the point *M* given within the PPF represents that resources are not fully employed or inefficient use of resources.

5.1 Properties of Production Possibility Frontier (PPF)

There are TWO distinguished properties of an ordinary PPF:

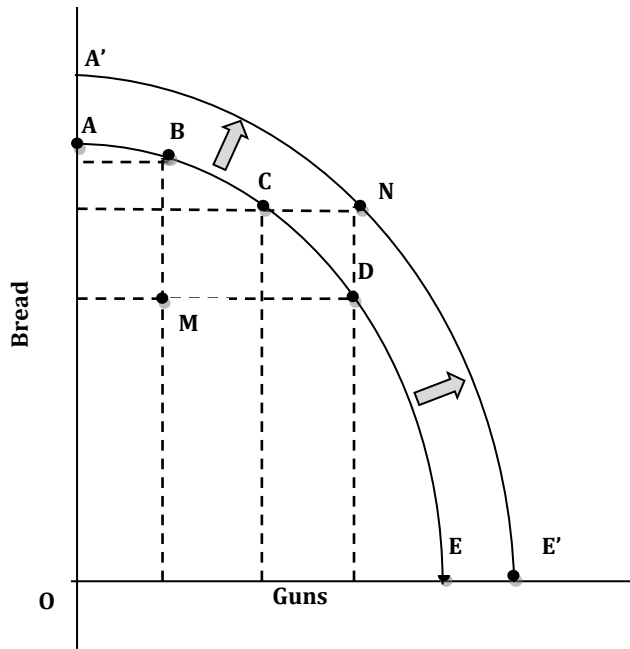
- **Down sloping left to right:** This implies the trade-off between two goods due to constraint of input resources.
- **Concave to origin:** It implies an increase in slope of PPF, as the opportunity cost of producing more of one product increases due to two reasons:
 - i. Law of diminishing returns and,
 - ii. Some resources are not compatible for some goods, by switching resources from compatible goods to non-compatibles, more of one product has to forgo to get a little of other good.

► For Example:

Land A is more fertile for rice crops and land B is for cotton. By switching land, a form rice crop to cotton, we will get little of cotton by sacrificing much of rice crop.

5.2 Economic Growth and Shift in Production Possibility Curve

During the phase of economic growth of a country, it experiences expansion in its productive potentials. For example, in a growing nation government has more resources to spend on building human resources. By investing in man, nation would have more doctors, engineers, chartered accountants and skilled entrepreneurial etc. Such investments enable the agents of an economy to produce more goods and services than before. As a result, economy will be able to produce even those combinations which was a dream before.



Before economic expansion the point N was unattainable as the resources were not sufficient to achieve it and it was lying outside the PPF. But with economic growth as economic resources increases, then the economy can experience to produce even point N which was unattainable before. This is shown with outward shift of PPF (from AE to A'E').

SECTION II ECONOMIC SYSTEMS

AT A GLANCE

SPOTLIGHT

STICKY NOTES

1 ECONOMIC SYSTEMS AND CENTRAL ECONOMIC QUESTIONS

From a simple day to day life to the complex world economy one thing is common, that we have multiple desires and there are plenty of goods and services available to satisfy them. When visiting a mall, you may come across different sections such as; grocery, dry fruits, toys, books, garments, electronics and beverages etc. If you are being asked that; Who have produced these things? Which techniques of production have been used to produce them? How the producers came to know that you need these products and the quantum? How they determined the price for product you will be willing to pay for it?

Simply we can say that there are following central economic questions:

- What to produce?** Which goods and services are to be produced as we have scarce resources?
- How to produce?** Which method an entrepreneur should adopt to maximize the profits?
- For whom to produce?** Goods are being produced with intentions to sell them who have ability to buy them. Who will be the potential buyers?

In this section we will answer these frequently asked questions through different economic systems.

Before moving into details of different economic systems, we must understand that how the economic activities are being done in day-to-day market. We will use a simple market model in this regard where there are only two sectors like; Firms (production side) and households (consumers of final goods and services and owners of factors of productions).

► *Figure:*

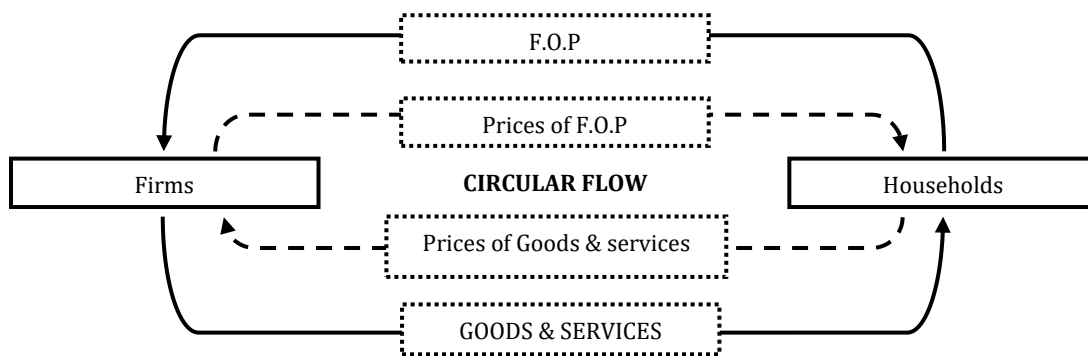


Figure describes the flow of resources for Factors of Production (F.O.P) from and to households and firms to produce and buy goods and services. Firms can reward those factors, on the other side firms sell products to households through product market and gets the prices for those goods and services.

An Economic System:

Every economy needs a system to respond and address its economic issues which arises due to scarce resources and multiplicity of ends for individuals, firms and state as well. An economic system is the set of principles by which central economic questions are addressed. It may involve production and distribution of economic goods. It also deals with the efficient use of economics resources land, labour and capital resources.

Although the major economic systems are Capitalism and Socialism, but pure capitalism and socialism do not exist anywhere in the world. Practically we observe a mix of the two systems which can be called Mixed Economic System. However, if in an economic system the features of capitalism are dominant it is called Mixed Capitalist System to distinguish it from Mixed Socialist System which is said to exist when the features of socialism are dominant.

Real world economies all differ according to the extent to which they rely on the free-market to allocate resources, and the extent to which they rely on the state to take these decisions.

Following are the main Economic Systems:

- Capitalism
- Socialism
- Mixed Economic System

Generally, we can group the economic systems into market, command and mixed systems. A market system is under the control of forces of demand and supply, where centralized authority influences command systems and mixed economies are a combination of command and market systems.

Type of Economic System	Depiction	Countries
Free market (or laissez-faire) economy	All economic decisions taken by the free interplay of market forces	Canada, Chile, Germany, Japan, South Korea
Command (or centrally planned) economy	All economic decisions taken by a central planning body	North Korea, Cuba, Finland,
Mixed economy	Combination of market forces and central planning	Sweden, France, United Kingdom, United States, China, Netherland

1.1 Capitalism

A situation that brings buyers and sellers of goods or services together is known as **Market**. Buyers and sellers might be individuals or group of individuals (businesses). In such economy, the economic decision-making takes place through market forces.

This style of thinking was developed in the 18th Century as an argument for government to not intervene with market forces. For example, this could mean no influence on what the price of fuel should be and no minimum wage for workers. It comes from the French language, and translates to “leave alone”.

This is also known as Laissez faire or Free Market Economy or “**hand-off**” by the government. The followers of this economic system believe that there is no or very little intervention by the state in economic matters. Role of government is limited up-to providing a legal environment for business to look after the contracts for selling and buying of goods and services.

Furthermore, government role is restricted to provide peace and security for agents of an economy for healthy business activities. By limiting its role in economic activity, the buyer and sellers can interact freely to protect their rights and can maximize their benefits (although this argument has proven weak in case of market imperfections).

Summing up we can say, that the capitalism is an economic system in which all economic resources are owned and managed by individuals. The raw materials, machines and other factors of production are owned and managed by individuals who are at liberty to use them within the prevalent laws of the country.

Characteristics of Capitalism

Following are the key features or characteristics of market economy:

- **Price Mechanism:** It is one of the most important features of capitalism. Price mechanism refers to the determination of prices of all goods and services through free market demand and supply forces. Under capitalism price mechanism operates automatically without any state intervention.
- **Competition:** As in market economy the firms and individuals have large extent liberty of enterprises, creating competition among economic units. It allows agent of an economy freedom to enter and exit from market.
- **Freedom of Enterprise:** Similar to private property rights, the market economy provides the owners freedom of enterprise. Everyone is free to choose profession of his choice he feels fit for him such as; form any firm and set up a factory anywhere he likes etc. Although, capitalism refers absolute freedom of enterprise, however in concern of general welfare certain restrictions are imposed by the state on individual rights.
- **Right of Private Property:** In market economy all the economic resources are owned and controlled by private individuals rather by government. It reflects that the owner of a land, factory, plant or building may use it according to his taste. Government has no right to direct him regarding the use of his resources until and unless he will not use his assets for illegal or harmful act of businesses.

- **Self Interest:** Self-interest simply means doing economic activity only to achieve individual goals as everyone has full autonomy of private property. Entrepreneur tries to maximize profits, land lords try to get maximum rent or price of their land, labour tries to get maximum wages, and consumers struggle for maximum utility.

1.2 Socialism

The primary distinction between socialism and capitalism is the degree to which the government can control the productive resources for social benefit. Socialism is opposite to the capitalism. In such economic system government controls the economic resources to large extent in best interest of nation. Allocation of economic resources in order to produce goods and service is largely decided by the state authorities. Central planning body dictates which goods or services are produced, how they are produced, and who will receive them. Socialism doesn't mean that economic resources are in absolute control of the state; rather only major instruments of production should be owned by the state to ensure the use of productive resources for social welfare rather than private profit.

Furthermore, government determines the prices of all goods and services produced in the country. It is the government who decides methods of production that will be used and how much workers will be paid. Under socialism, government owns the key industries which provide essential services, such as utilities, education, and health care and are mostly offered free as public needs them.

Summing up we can say, that the socialism is an economic system in which all economic resources are largely owned and managed by state or government.

Characteristics of socialism:

Following are some of the features of socialism.

- **No private ownership:** In socialism there is no concept of private property, ownership and inheritance. Only state has all the rights of ownership and inheritance.
- **Centrally planned and command economy:** All the decisions made regarding production, consumption, distribution and exchange are planned and executed by the state.
- **Welfare state:** In socialism state is responsible for providing the basic needs of life to people like food, shelter, clothing, health, security etc.
- **No competition:** Socialism neither allows any competition nor any motivation for profit. Every person is a state employee and works for the state institutions.
- **Equal opportunity for all in economic activity:** It ensures equal opportunities for all the persons to participate in economic activities.

1.3 Mixed Economic System

According to Prof. Samuelson, "Mixed economy is that economy in which both public and private sectors cooperate."

In simple words we can say: "*Mixed economy is a system in which both government and private individuals share the economic control.*"

It is a blend of both capitalism and socialism. Mixed economic system is newly emerging concept, which is widely popular due to drawbacks of both extremes i.e capitalism and socialism.

Most of the developing and developed countries have adopted mixed economy to accelerate the pace of economic development.

Types of Mixed Economy:

The mixed economy may be classified in two categories:

- **Capitalistic Mixed Economy:** It is also called as capitalistically dominating mixed economic system. This is most popular and workable type of mixed economy where ownership of private sector remains responsible for utilization of various factors of production, while government does not interfere in any mode. Government is mainly responsible to ensure sustainable economic growth without concentration of economic power in the few hands.
- **Socialistic Mixed Economy:** We can say that in such system the government dominates the major economic decisions. Under this system government largely shares means of production while primary economic decisions are taken through controlled market forces. In such economic system numerous basic and strategic industries are owned by the state and their operation and management is done through centrally planned bodies.

Features of Mixed Economy:

Following are the main characteristics of a mixed economy:

- **Co-existence of Private and Public Sector:** The government controls industries like defense and energy, while private enterprises manage consumer goods, agriculture, and basic accessories. Both sectors are encouraged to develop, with the government providing essential infrastructure.
- **Personal Freedom:** Freedom of choice regarding economic decision is most prominent feature of mixed economy. Although government has some controls over economic resources, yet people enjoy relative freedom about what to produce and consume to maximize their benefits. Consumers are free to consume goods and services of their own choices and entrepreneurs can produce what they feel best in their interest. Government controls prices in public interest.
- **Pricing system:** Prices for inputs and outputs are determined by both market forces and government policies. Consumer goods are priced by the free market, while the government intervenes to correct market imperfections.
- **Social Welfare:** In a mixed economy as government is also involved in economic matters of the country, so effort is to be made to protect weak agents of the economy through laws like, minimum wage rate, support price and labour law etc.

Discouragement of economic Inequalities: The system aims to reduce wealth disparities through progressive taxation, subsidies for the poor, and policies like job opportunities based on merit. Measures such as old age allowances and medical facilities further address income inequality.

2 ISLAMIC ECONOMIC SYSTEM

Islam provides a complete code of life, addressing both material and spiritual aspects, including economic matters. The Quran and Hadith emphasize fairness and human welfare in economic practices, with resources created by God for the benefit of humanity. Islam encourages rational profit while considering the future. The Islamic economic system is based on principles derived from the Quran and Sunnah, focusing on justice and well-being. These principles guide economic policies that address fundamental economic issues while promoting ethical and fair practices.

In this section we will discuss economic principles of Islam to address the fundamental questions of economics.

Features of Islamic Economic System

A number of features in the Islamic economic system will be shared with those of a mixed economy. Though there might be idiosyncrasies between different Islamic nations, in aggregate there are a number of features that are consistent throughout Islamic economies.

The core features are as follows:

- **Allah is the Sustainer:** God created all resources and is responsible for sustaining life. Islam encourages earning a livelihood through lawful (Halal) and fair means while discouraging idleness.
- **God is the true owner of everything:** Humans are trustees of resources, not owners. They can use resources fairly but must respect God's ownership, unlike the capitalist belief in private ownership.
- **State ownership:** There is no ban on the state owning an enterprise. However, a free market still exists where entrepreneurs can profit so long as they abide by the other rules of the Islamic economic system.
- **Practicing moderation:** Islam aims for a fair distribution of resources and so the population is taught to share wealth where they can. They are also taught to abstain from extremes aiming for the 'middle way'.
- **Prohibition of charging interest (Riba):** It is forbidden for a lending party to earn interest from a transaction without taking on as much risk. Instead there is a system whereby both parties must gain or lose from the transaction.
- **Earnings:** Earnings must only be made from goods which are allowed in Islamic teachings.
- **Hoarding of wealth is discouraged:** Resources should be utilized for a good cause rather than remaining in private possession. This is linked to the Islamic view that distinction in wealth should not exist beyond reasonable limits which could threaten the stability of community.
- **Zakat:** This is a financial tax on the wealthy in order to aid the poorer in society. It reinforces the above points.

Comparing Islamic and Capitalist Economic Systems

The following table helps distinguish Islamic and capitalist economic systems:

Capitalism	Islamic system
Distribution of wealth	
Full economic liberty and private ownership resulting in significant disparities and concentrated wealth accumulation.	Fair and equal distribution aimed at balancing the distribution of economic resources. Uses mechanisms such as zakat, sadaqat and bequest to help re-distribute wealth.
Exploitation	
Exploitation of the weak agents through relatively unlimited authority for economic freedom and unhindered private ownership is a common practice in capitalism.	It helps to minimise human exploitation through prohibition of activities such as usury, gambling, speculation and taking interest from perceived weaker classes.

Capitalism	Islamic system
Institutions of interest	
Large banking institutions facilitate access to capital through intermediation and justify interest as service charges.	Concept of interest is effectively eradicated by introducing legitimate mode of financing such as Murabaha and Musharikah etc.
Monopoly	
In capitalism this is an accepted reality that firms through cartelisation and other deterrents enjoy high profit on the cost of weak agents of an economy.	Public-interest businesses are generally maintained under joint ownership of the community with direct government intervention to prevent such monopolistic exercises.
Right to ownership	
Unrestricted right for private ownership of property. This leads to wealth accumulation and imbalanced distribution of wealth in society.	To prevent concentration of wealth in few hands and economic equalities Islamic system supports nationalization of privately owned organization.
Economic freedom	
In capitalism firms enjoy unconstrained economic freedom regarding production and distribution of goods and services to maximize their profits in any way.	Economic freedom and profit motive are acceptable to a certain extent subject to the concepts of halal (legitimate) and haram (forbidden being unlawful).

2.1 Sharia Law and Islamic Financing

Sharia law is the branch of statute that formalises the previously discussed principles of Islamic economics into law. It is derived from Quran and Sun'nah. For example, under Sharia Islamic law:

- Making money from money – e.g. charging interest – is usury and therefore not permitted
- Wealth should only be generated through legitimate investment in assets and legitimate trade
- Investment in companies involved with gambling, tobacco, and alcohol is prohibited
- Short selling and non-asset backed derivatives are not permitted

There are now a range of products freely available on the global financial markets that comply with Sharia Islamic law. These include bank current accounts, mortgages and even personal loans.

Moreover, Islamic financial model works on the basis of sharing risk. The bank and customer agree terms on how to share risk of an investment then divide profits or losses between them. Whilst customers risk losing their money if the investment is unsuccessful, the bank will not charge a handling fee unless it secures the customer a profit.

Whilst the range of available financial product types continues to grow, some of the key categories of Islamic finance are:

- **Mudaraba** – This is where a financial expert offers specialist investment in which the customer and bank share profits.
- **Musharaka**– This is an investment partnership with profit sharing terms agreed in advance and losses limited to the initial capital invested.
- **Murabaha**– This is a form of credit that enables customers following Islamic principles to make a purchase without the need to take out an interest-bearing loan. The substance of the transaction is that the bank buys an item then sells it to the customer on a deferred basis.
- **Ijara**– This is a leasing agreement whereby the bank buys an item for a customer then leases it back to them over an agreed time period. The bank makes a fair profit by charging rent on the property.
- **Ijara-wa-Iqtina** – Similar to Ijara but the customer is able to buy the item at the end of the contract.

STICKY NOTES

According to Lionel Robbins; “Economics is a science which studies human behaviour as a relationship between ends and scarce means which have alternative uses”.

Positive economics is branch of economics which study and explains factual statements as there are available in economy while Normative economics not only study the economic facts but also put its judgements like, what ought to be.

Microeconomics deals with the behaviour of the individual agents of an economy such as; households, firms, and employees.

Macroeconomics deals with economic issues in a broader way such as; situation of employment and inflation in a country, economic growth, balance of payment conditions etc.

Merit goods are those which create positive externalities to the society whereas demerit goods which create harm for society.

Public goods are those which are readily available for society as a whole while Private goods are characterised with rivalry and excludability.

Division of labour, refers to producing goods or services by dividing into a number of tasks that are carry out by different workers, rather being done by an individual.

Capital formation or Capital accumulation refers to increase in existing stock of manmade capital of a country.

Production Possibility Frontier (PPF) demonstrates those baskets of goods which can be produced when all scarce resources of an economy are employed efficiently.

Capitalism is a system of economic organization featured by the private ownership and the use for private profit of man-made and nature-mad capital”.

Socialism is an economic system in which all economic decision such as; what, how and for whom to produce are largely taken by the state.



According to Prof. Samuelson, “Mixed economy is that economy in which both public and private sectors cooperate.”



Sharia law is the branch of statute that formalises the previously discussed principles of Islamic economics into law.

REFERENCES

Boulding, K. E., (1996). Economic Analysis: Volume 1: Microeconomics. Fourth Edition.

Kalpana, S. (2009). Textbook on economics for law students. Place of publication not identified: Universal Law Publishing.

Marshall A. (1961). Principles of Economics. Variorum edition. W Guillebaud ed., Macmillan, London, 2 voll.

Samuelson, P. A. & Nordhaus W. D. (2009). Economics. McGraw-Hill. Nineteenth Edition.

SELF-TEST

1. Which of the following is not an economic resource?
 - a) Air
 - b) Water
 - c) Sulphuric Acid
 - d) Books
2. Which of the following concepts is not illustrated by the production possibility curve?
 - a) Efficiency
 - b) Opportunity Cost
 - c) Equity
 - d) Trade-Off
3. Which of the following are regarded as withdrawals from the circular flow of income?
 - a) Saving and Taxation
 - b) Export and Import
 - c) Investment and Saving
 - d) Government Spending and Saving
4. The curvature of the production possibility curve is due to:
 - a) Change in Opportunity Cost
 - b) Increase in Resources
 - c) Decrease in Demand
 - d) Decrease in Supply
5. Which one of the following is a basic economic problem?
 - a) Unlimited Wants and Scarce Resources
 - b) Lower Incomes and Higher Indirect Taxes
 - c) Unemployment and Inflation
 - d) Recession
6. In economics we know a fact that unemployment increases poverty and hurts living standard of the people, it is said:
 - a) Normative Economics
 - b) Positive Economics
 - c) Economics Is an Art
 - d) Modern Economy
7. _____ Economics not only highlights the economic problems but also suggest solutions.
 - a) Normative Economics
 - b) Positive Economics
 - c) Economics Is an Art
 - d) Modern Economy

8. Microeconomic study doesn't cover
 - a) Consumer Theory
 - b) Theory of Firm Behaviour
 - c) Theory of Unemployment
 - d) Theory of Market Equilibrium
9. What macroeconomics doesn't cover?
 - a) Theory of Firm Behaviour
 - b) Theory of Unemployment
 - c) Public Debt
 - d) Interest Determination
10. Which one is not a participant of economy?
 - a) Household
 - b) Students
 - c) Firms
 - d) Government
11. Which one is not a factor of production?
 - a) Land
 - b) Air
 - c) Capital
 - d) Labour
12. Which one is non-human factor?
 - a) Land
 - b) Labour
 - c) Entrepreneur
 - d) None of The Above
13. Interest is the reward of:
 - a) Labour
 - b) Capital
 - c) Land
 - d) Entrepreneur
14. Demand for land is:
 - a) Direct Demand
 - b) Passive Demand
 - c) Complementary Demand
 - d) Derived Demand

15. Goods create positive externalities and contribute significantly to the social welfare household are:

- a) Merit Goods
- b) Public Goods
- c) Demerit Goods
- d) Free Goods

16. National defence is the example of:

- a) Private Goods
- b) Public Goods
- c) Demerit Goods
- d) Club Good

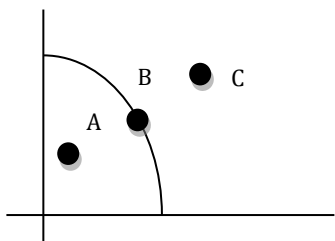
17. Goods for which demand decreases as income of households increases are known as:

- a) Normal Goods
- b) Inferior Goods
- c) Superior Goods
- d) Capital Goods

18. Rational behind a curvature production possibility curve is;

- a) Scarcity of Resources
- b) Non-Compatibility of Resources
- c) Rising Opportunity Cost
- d) Decreasing Opportunity Cost

19. About given PPF which one statement is true:



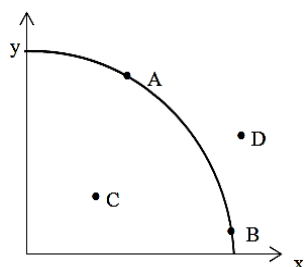
- a) A Is Inefficient Use of Resources
- b) B Is Most Efficient Use of Resources
- c) C Is Unattainable
- d) All of Above

20. Free price mechanism, competition, self-interest; refers to:

- a) Socialism
- b) Capitalism
- c) Mixed Economic System
- d) Command Economy

21. Consumer sovereignty, capital accumulation, less waste of resources; refers to:
- Capitalism
 - Mixed Economic System
 - Socialism
 - Command Economy
22. Which one is not a demerit of socialism?
- No Cartels
 - Transparency Issue
 - Bureaucratic Issues
 - Incentive Less
23. Which one is not prohibited in Islamic economic system?
- Making of Money
 - Investment in Prohibited (Haram) Businesses
 - Short Selling
 - Investment in Non-Asset Backed Derivatives
24. A leasing agreement whereby the bank buys an item for a customer then leases it back to them over an agreed time period is:
- Murabaha
 - Mudaraba
 - Ijara Wa-Iqtina
 - Ijara
25. The central problem of economy is:
- To achieve maximum growth in production
 - To allocate resources between alternative uses
 - To ensure all resources are fully exploited
 - To overcome inequalities in income distribution
26. Resources allocation refers to the apportionment:
- Consumer's income
 - Productive capacity
 - Factors of production
 - Raw materials
27. Name of Book of Lionel Robbins is:
- Wealth of Nations (1776)
 - Nature and Significance of (1932) Economic Science
 - Principles of Economics ((1890)
 - None of above

28. _____ economics involves ethical precepts and norms of fairness.
- Normative
 - Positive
 - Applied
 - All of above
29. The system in which the government keeps its hands off economic decisions is called.
- Free market economy
 - Capitalist economy
 - Laissez – faire economy
 - All of above
30. A centrally planned economy which seeks to maintain full employment can achieve this because.
- Economies of scale
 - Firms are not permitted to earn super normal profit
 - Net investment can within limits, represents any desired proportion of National product
 - The public sector is obliged to employ all workers left after private sector demands have been met
31. What must be true of a positive statement:
- It is one that can be shown the correct or incorrect
 - It is one that deals with positive changes in economic well being
 - It is one that is true by definition
 - It is one which agreed by everyone
32. The cost of next best alternative foregone is called:
- Explicit cost
 - Economic cost
 - Accounting cost
 - Opportunity cost
33. In the production possibility curve below what combination of two goods cannot be produced given current levels of resources.



- A
- B
- C
- D

34. Which of the following will move on economy's P.P.F. outwards?
- a) Improvement in labour skills
 - b) A fall in prices
 - c) A rise in prices
 - d) A reduction in unemployment
35. In economics a good is called scarce if:
- a) If Demand is more than its supply
 - b) Only exist in small quantities
 - c) Provides welfare to economy
 - d) If supply is more than its demand
36. In command economy resources are allocated by:
- a) Market forces
 - b) Entrepreneurs
 - c) Government decisions
 - d) None of above
37. Goods which are non-excludable and non-rivalrous known as:
- a) Merit goods
 - b) Public goods
 - c) De merit goods
 - d) Inferior goods
38. A good may be classed as _____ if it causes positive externalities.
- a) Merit good
 - b) De-merit good
 - c) Public good
 - d) Private good
39. Goods which are deemed to be socially undesirable are known as:
- a) Public goods
 - b) Private goods
 - c) Merit goods
 - d) Demerit goods
40. P.P.F. is concave to the origin because of:
- a) Increasing opportunity cost
 - b) Decreasing opportunity cost
 - c) Efficient use of resources
 - d) Full Employment

41. Which one the following best describes the opportunity cost to society of building a new school?
- Increase in Taxes
 - The money that was spend on school
 - The running cost of school
 - The other goods that could have been produced with the resources used to build the school
42. The best definition of economics was presented by Prof. Lionel Robbins name of his book was _____ published in _____. He defined economics as “the science which studies human behaviour as relationship between _____ and _____ which have alternative uses”

ANSWERS TO SELF-TEST QUESTIONS

1	(a)	11	(b)	21	(a)	31	(a)	41	(d)
2	(c)	12	(a)	22	(a)	32	(d)	42	(a) = An Essay on Nature and Significance of Economic Science (b) = 1932 (c) = Multiple Ends (d) = Scarce Means
3	(a)	13	(b)	23	(a)	33	(d)		
4	(a)	14	(d)	24	(d)	34	(a)		
5	(a)	15	(a)	25	(b)	35	(a)		
6	(b)	16	(b)	26	(c)	36	(c)		
7	(a)	17	(b)	27	(b)	37	(b)		
8	(c)	18	(c)	28	(a)	38	(a)		
9	(a)	19	(d)	29	(d)	39	(d)		
10	(b)	20	(b)	30	(d)	40	(a)		

DEMAND, SUPPLY AND MARKET EQUILIBRIUM

IN THIS CHAPTER

AT A GLANCE

SPOTLIGHT

1. Market environment
2. Demand
3. Supply
4. Price determination
5. Shifts in demand and supply and their impact on market equilibrium
6. Government policies to increase price stability in agriculture
7. E-business and market price

STICKY NOTES

SELF-TEST

AT A GLANCE

It is market that brings together buyers and sellers. We have seen different traditional markets in our surroundings, such as, goods market, financial markets, factors market, which bring together potential buyers and sellers to determine prices and quantities.

Markets can be local and national or international. Some of them are highly personal in which people are involved physically while others are in form of virtual contact, in which buyer and seller may not know each other.

We will start our chapter by looking at a market with many buyers and sellers, i.e. a market where there is a large amount of competition. Detail discussion about such markets and other types of markets will be undertaken in later chapter.

Market conditions are always changing, sometimes hot sometimes cool. What is working behind these dramatic changes? Economics has wonderfully explained such changes in the economic environment i.e., the theory of supply and demand. To estimate prices and outputs in individual markets, we must grip the concepts of supply and demand.

In this chapter we will discuss that for every market changes in supply and demand drive changes in output and prices. If we understand how supply and demand works, we can easily understand a market economy. All such markets involve demand, supply, price, and quantity. In later section we will see how the equilibrium price and quantity is determined by these two forces.

1 MARKET ENVIRONMENT

It is the market that brings together buyers and sellers. There are different types of markets such as, goods market, financial markets, factors market (we will discuss in later chapters), which bring together potential buyers and sellers to determine prices and quantities.

Markets can also be local, national, international or virtual. Some of them are highly personal in which people are involved physically while others are beyond borders, in which buyer and seller do not know each other.

Some of the types of market include:

- Local markets
- Regional markets
- National markets
- International markets
- Online or virtual markets

Other types of markets

- Goods market
- Factors or resource market
- Financial markets

2 DEMAND

Demand is the quantity of a good or service which buyers are ready or willing to buy at a given time and at a given price. Every desire or want is not demand, but it implies the ability to purchase the good or service. If a consumer holds only one of them demand does not exist. As in the case of a poor farmer, he may be willing to purchase an expensive harvester, but his willingness is not supported by the ability to purchase due to insufficient amount of money. On the other hand, a student may afford a burger, however he has no mood for it. Therefore, he abstains from purchasing that burger, even though he has the ability to purchase. In both these cases demand does not exist.

Simply we can say demand schedule shows the various amounts of a product that a consumer is willing and able to purchase at different prices in a given period of time.

2.1 Law of Demand

To understand the law of demand, we need to understand the relationship between the quantity demanded of any product and price of that product. It's obvious that there is always more than one product that will satisfy any desire or need. For example, the desire for a new smart phone may be satisfied by variety of different smart phones of a certain kinds or brands in the market: Samsung, Apple, Huawei, etc.

This is simply an illustration of the general relationship between price and consumption: "when the price of a good rises *ceteris paribus*, the quantity demanded will contract and vice versa". Economists called this relationship the law of demand.

In short, there is an inverse relationship between the both.

Income and Substitution Effect:

There are two main reasons for this predictable response to a price increase:

- People will feel poorer. They will not afford to buy so much of the good with their money. The purchasing power of their income has fallen in economic theory this is known as income effect of a price rise.
- The good will now be dearer relative to other goods. People will thus switch to alternative or substitute goods. This is called the substitution effect of a price rise.

However, this law will hold true only if following conditions are held constant.

Essentials or Assumptions or conditions of the law of demand

- There is no change in average income of consumers.
- There is no change in population size.
- No change in prices of related goods that is prices of related goods like, substitutes and complements are not changed.
- No change in taste, habit, fashion and weather
- No change in future expectations that is consumer's expectations regarding the prices of any product remains unchanged.
- There is no change in advertisement that will impact demand.

We shall give an example using a hypothetical schedule and diagram to explain this law.

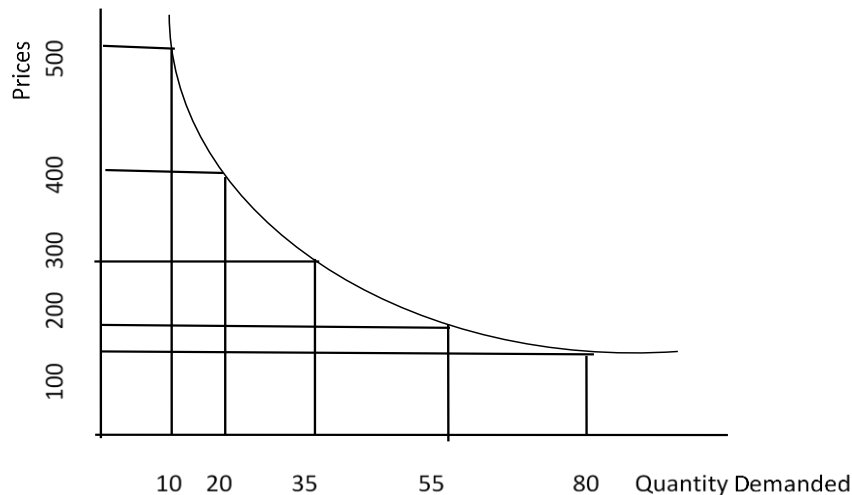
► **Illustration:**

An individual consumer's demand curve for chicken

Let's consider, quantity demanded of chicken at different prices.

Price Rs. /kg	Quantity Demanded (kg)
500	10
400	20
300	35
200	55
100	80

The above schedule shows different price-quantity combinations.



When price is Rs. 500 per kg. the demand is just 10 kg. As price decrease the demand increases and when price is as low as Rs. 100 per kg, the demand is its highest i.e. 80 kg. That reflects the inverse relationship between price and quantity demand for chicken.

In the graph, we have measured quantity demanded on x-axis and price on y-axis. Different combinations have been plotted according the values given in table. By joining these points, we derive curve D which is downward sloping. It indicates that there is an inverse relationship between price and quantity demand, *ceteris paribus*.

Consumer will buy more as its price declines and less of the product when its price increases. (In our theory P stands for price and Q stand for quantities).

Market demand and individual demand

Generally, students confuse the market demand with individual demand. While market demand is the collective demand of all consumers for a product in the market intend to buy at different possible prices while the individual demand curve represents individual consumer or household in the market.

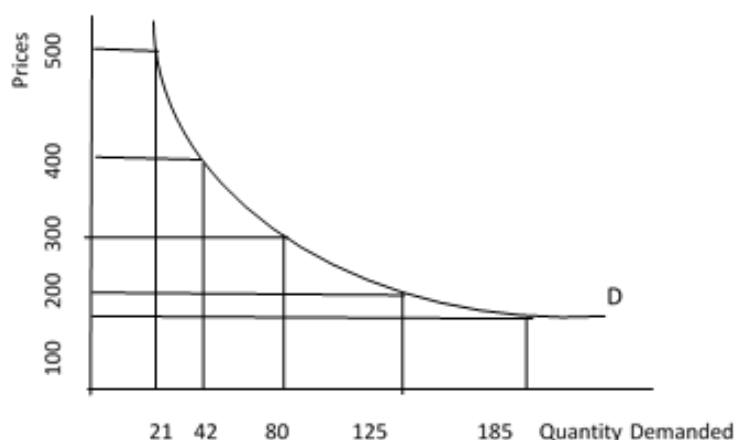
The market demand curve is obtained by adding up all the individual demand curves for every consumer in the market or it is the horizontal summation of all individual demand curves.

► *Illustration: Market demand schedule and curve*

Let's consider, quantity demanded of chicken at different prices. Market demand schedule for chicken with three buyers to explain market demand for chicken.

Last column is showing the market demand for chicken which is the sum of demand for all buyers at prevailing market prices

Price per kg (Rs.)	Buyers			Market Demand
	Mr. A	Mr. B	Mr. C	
500	10	5	6	21
400	20	10	12	42
300	35	25	20	80
200	55	40	30	125
100	80	60	45	185



Exceptions or Limitations

There are certain cases wherein the law of demand does not apply i.e., the demand does not rise when the prices fall and vice versa. These exceptions or limitations are as under:

- **Basic necessities of life** – The law of demand is not applicable to the basic necessities such as sugar, rice, wheat because people will keep on buying these commodities regardless of the increase or decrease in prices.
- **Unique and distinctive products** – Those goods which possess some distinctive features, are considered as exception of law of demand. Because as price of such goods increases, their demand increases for a particular group of society.
- **Change in income** – The rise and decline in income of people also have a reverse effect on law of demand. If a price of a commodity rises it is unlikely that the demand will rise, however it happens if the income has increased because then the power of spending also increases.
- **Ignorance of the consumer**: Often the consumer is not unduly bothered about the price he is paying for a product, even though it is possible that he may be able to pay less for the same good somewhere else as he does not have the complete knowledge of the market.
- **Uncertain conditions** – If high uncertainty is prevailing in the market, and there is a fear of being shortage of a commodity in near future, people will buy more of it in spite of higher prices.

Practical importance of the Law

- i. **Price determination:** The law of demand contributes to the determination of price of a certain commodity. Also, the producer can see the effect on demand due to increase or decrease in price and can take decisions accordingly.
- ii. **Firm's decision making:** The demand schedule helps the entities plan for future by analysing the impact of change in prices on the quantity demanded at both; the national and international level.
- iii. **Helpful for finance minister:** It is of great help for the state as well in the due course of raising tax on certain commodities. If the increased tax causes the price of a commodity to be increased to a level where the demand falls, then there would be no use raising the tax level as ultimately the overall amount of the taxable revenue would remain almost the same.

2.2 Movement along the demand curve, and shift:

Most often during study of consumer behaviour, we confuse change in demand and change in quantity demanded and extension or contraction with rise and fall. The relation between price and quantity that is described by the demand curve is valid only when it is the price of the product itself that changes (change in quantity demanded or extension and contraction in demand). If instead, something else, changes then the demand curve will shift (change in demand or rise and fall in demand).

► Illustration:

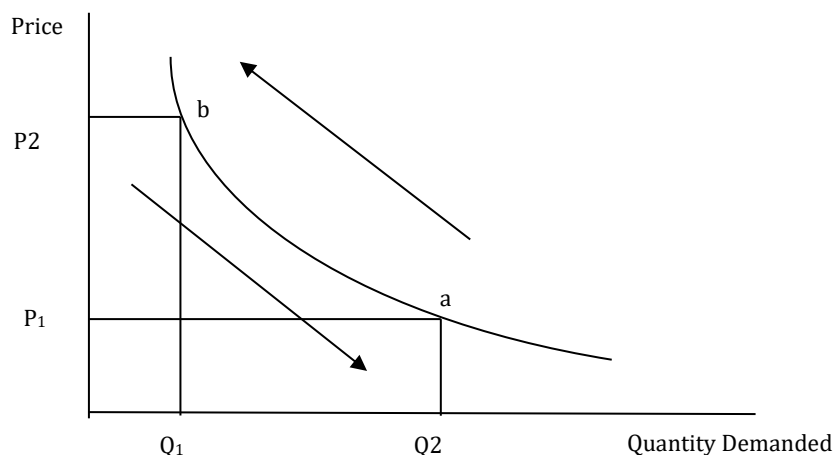
A change in demand occurs when one of the underlying elements except price of the product under consideration (income, taste, weather, population size, etc.) change then the demand curve shifts.

Let's see what is happening in case of room coolers, for which demand increases as weather gets change. With increasing temperature, people rush to buy more room coolers in spite, change in its price. In this case the new demand curve will shift outward. This is known as rise in demand.

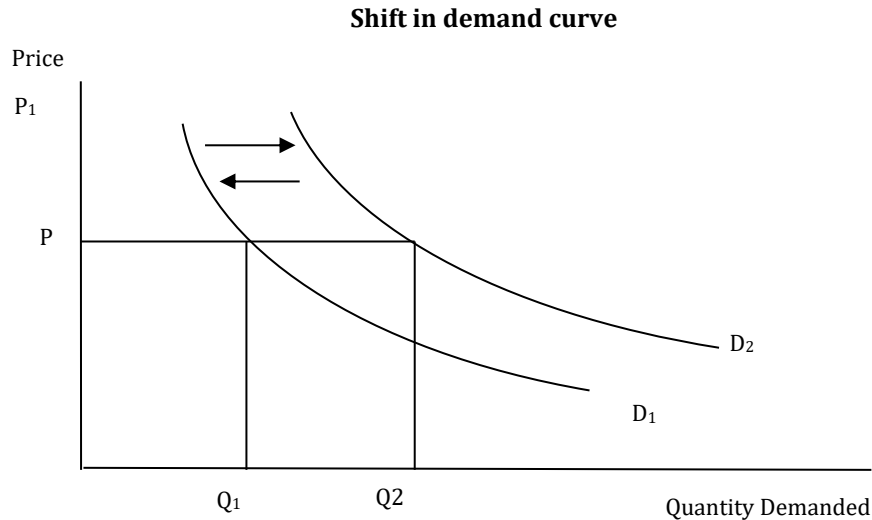
On the other hand, if all else equal, as price of the product its decreases, its quantity demand increases and movement occur along the existing demand curve. This is known as extension in demand or change in quantity demanded.

It is shown in following graphs:

Movement along the curve



The figure has shown the movement along demand curve from point a to b or b to a, due to change in price of the room coolers from P1 to P2 or vice versa. Note that movement means that more room coolers will be bought only when its price will be low.



The net effect of the changes in underlying influence is what we call an increase in demand. An increase in the demand for room cooler is shown in above diagram as a rightward shift in the demand curve.

Note that the shift means that more room coolers will be bought at every price.

Factors responsible for change in demand or shift in demand curve

- i. **Changes in Income:** As the income of the consumer rises, he will purchase more of those products which are still available at the same prices. Hence their demand will rise and vice versa.
- ii. **Taste:** Change of taste or liking/disliking can affect demand for a product. For example, someone likes to use more of sugar but later taste gets change, the demand for sugar will fall without bothering its price.
- iii. **Weather conditions:** During the winter season, the demand for tea or coffee is very high because consumers prefer such things. However, during the summer season the situation is just the opposite as people prefer soft drinks.
- iv. **Changes in population:** A larger population will mean, all things remaining equal, that demand for most goods and services will increase. As in case of housing industry, the demand for houses increases with increase in population in town.
- v. **Changes in price of substitutes:** Prices of substitutes also affect the demand for a product. An increase in the price of one good will cause an increase in demand for the other products as well as that product will become relatively less expensive. For instance, if the price of LG products will increase, few customers will shift to its substitute in spite to change in price of other product.
- vi. **Changes in advertisement:** A successful advertising campaign for a certain good will increase demand for it.

3 SUPPLY

The counterpart of the demand curve is the supply curve. In study of behaviour, the most important element which is needed to understand what to produce and sell in a market to maximize profit?

Now turning from demand to supply, we will consider those terms on which firms produce and sell their goods and services.

In this regard, the understanding of the basic relationship between the price of a product and the quantity produced and offered for sale is required. Moreover, we should attempt to understand what other factors are in play which determine the quantum of supply other than its own price.

At the outset, we should examine the origin of supply. For this purpose, we will learn the basic difference between quantum of product produced and the part which is offered for sale into market.

Suppose a farmer has produced 1,000 tons of rice and put into a warehouse waiting for a good price. Initially he has offered 300 tons of rice at price of Rs. 650 per ton in a market while remaining is left in the store. In economic theory, the 300 tons which have been offered for sale is considered as supply and the remaining is called stock.

Therefore, the quantity supply refers to the amount of a given product or service which is offered for sale at a given moment and at a given price. Supply does not necessarily comprise the entire stock of any commodity in existence but only the amount put on to the market at a given price and at a particular moment in time.

Supply Schedule or Supply Curve

The main intension behind all activities of production is to earn profit by selling those goods and services in a market. Generally, we would expect more of a good or service to be supplied at a high price, and less of a good or service supplied at low price.

More precisely, the supply schedule relates the quantity supplied of a good to its market price, other things constant. In considering supply, the other things that are held constant include input prices, prices of related goods, and government policies.

3.1 Law of Supply

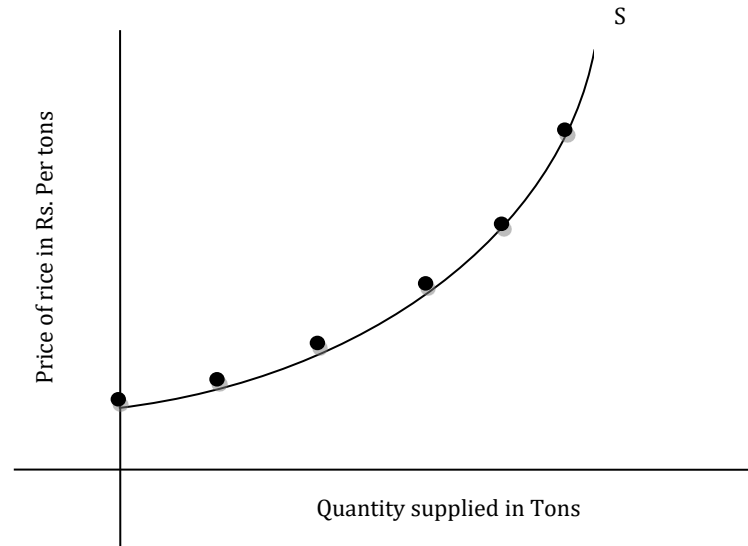
“Ceteris paribus, as price rises, the quantity supplied extends as price falls, the quantity supplied contracts”. In economic theory this relationship is known as **law of supply**.

A supply curve shows, that keeping all else equal, firms will produce and offer for sale more of their product at high prices and less for low price. From this discussion, we can derive that the supply curve will be positively sloped upward as there as price of the product and quantity offered in a market are directly proportional.

► Illustration: An individual producer's supply curve for rice

The table below shows, for each price, the quantity of rice that producer wants to produce and sell. Note the positive or direct relationship between price and quantity supplied.

Price (Rs.) Per Ton	Quantity supplied (Tons)
10	0
20	5
30	15
40	30
50	50
60	65



The supply curve plots the price and quantity pairs from given table. A smooth curve is passed through these points to give the upward-sloping supply curve, S.

Assumptions of Law of Supply:

The direct or positive relationship between price and quantity supply is only possible when following conditions hold true.

- Cost of production should remain constant
- Technology or techniques of production should remain alike
- There should not be any change in taxes or subsidies
- Prices of the inputs or raw material should remain unchanged
- Prices of the other goods should remain unaffected

Changes in Quantity Supplied or Extension and Contraction in Supply

Distinction between change in supply and change in quantity supplied are alike distinction between change in demand and change in quantity demanded. Change in supply mean shift in supply curve due to change in factors other than own price.

In contrast, change in quantity supplied is the movement from one point to another point along the existing supply curve. The cause of such changes is only the price of the product under consideration.

Rise and Fall in Supply or Shift in Supply Curve

The supply of a good may alter although there has been no change in price. There are several factors which may cause a change in supply.

The most important factors, beside the price, that affect supply are:

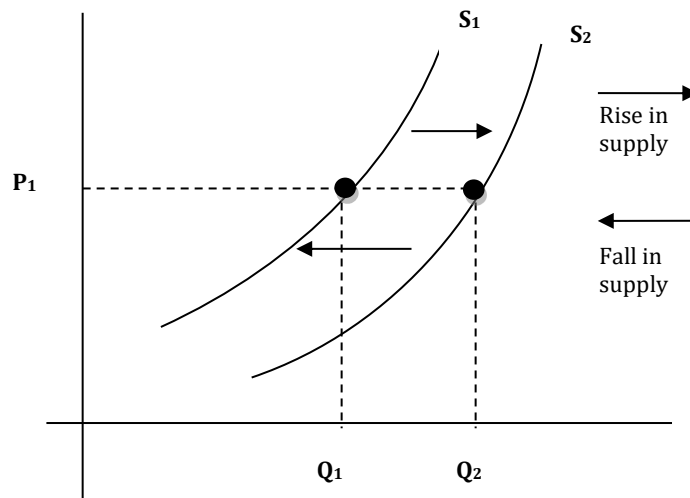
- **Resource cost/Input prices:** Resources are important factors required during production process. Prices of resources also determine the cost of production incurred by the firm. Increasing resource cost raises the cost of production of a particular product, assuming a particular price of a product constrict profits, which dishearten the firms to produce more.

Input prices or prices of raw material also contribute the overall cost production. If price of raw material will increase, it will increase the cost of production and the profit margin of the firm will get smaller.

- **State of technology use in production:** Another important determinant of production cost is technological advancements, which consist of changes that lower the quantity of inputs needed to produce the same quantity of output. Improved technology or techniques of production facilitate firms to produce units of output with less resource. This way the profit margin for the firms increases without changing the price of product to be sold in the market.
- **Taxes and subsidies:** Business decisions are sensitive to government policies. Government policy such as Taxes and Subsidies (fiscal policy) also has an impact on the supply curve as they significantly contribute to overall cost of production. Taxes will increase cost of production and reduce supply while in the case of subsidies it is reverse.
- **Prices of other goods:** Some time firms are able to produce different goods such as ladies hand bags or school bags by using same plant and equipment. If profit margin increases in production of school bags, the firms will switch resources from ladies' bags to school bags. This substitution in production results in decline in the supply of lady's bags in the market.

► *Illustration:*

The supply curve behaves in a way that is similar to the demand curve. In this figure it is clear that supply curve moves from S_1 to S_2 at a particular price P_1 . It is due change in some other factors discussed above. For instance, the wages increase so that it becomes more expensive to produce a product; the whole supply curve will shift inward. That is shown from S_2 to S_1 .



4 PRICE DETERMINATION

There are two types of prices that exist in markets:

1. **Equilibrium price or Market price:** It is determined by market forces, i.e. demand and supply (at market equilibrium).
2. **Regulated market price:** It is determined by the government or state departments.

The equilibrium market price is one where both suppliers and consumers are willing and able to exchange a quantity of goods for money. This is at the intersection of the downward sloping demand curve and the upward sloping supply curve. In this section we will deal with market price.

4.1 Market Equilibrium

We have seen, in the earlier section that consumer's demand is inversely proportion to its price, while firm's supply is directly proportion to its price.

By putting these both concepts together, the market will be in equilibrium or state of rest where these both forces intersect each other. This shows that supply and demand interact to produce an equilibrium price and quantity, or a **market equilibrium**. The market equilibrium comes at that price and quantity where the forces of supply and demand are in balance. Households and firms will be in equilibrium if they can both fulfil their market plan at this price. The equilibrium price is the only price which is consistent with the market plans of both households and firms, who consequently have no reason to change their plans. At the equilibrium price, planned demand is equal to planned supply.

In nutshell, a market is in equilibrium when both of these conditions are fulfilled:

No agent wants to change its strategy or decision.

The decisions of all agents are compatible with each other, so that they can all be carried out simultaneously.

► Illustration:

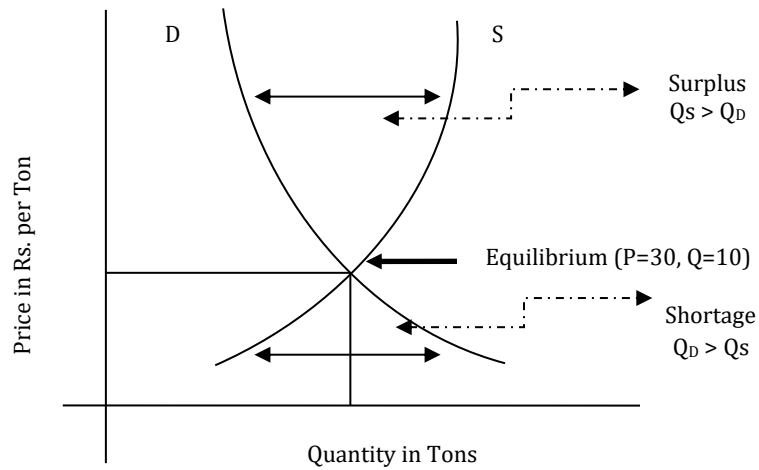
Let us work through the example of rice and construct a table using hypothetical numbers.

In the table below: the quantities supplied and demanded at different prices are taken.

Price Rs. (in 000) Per Ton	Q.D (Tons)	Q.S (Tons)	Comparison of QD& QS	Market position	Price direction
50	5	15	$QD < QS$	Surplus	Will depress the price
40	7	13	$QD < QS$	Surplus	Will depress the price
30	10	10	$QD = QS$	Equilibrium	Neutral
20	14	6	$QD > QS$	Shortage	Will drag the price up
10	19	1	$QD > QS$	Shortage	Will drag the price up

Only at the equilibrium price of Rs. 30 per ton does amount supplied equal amount demanded. At too low a price there is a shortage and price tends to rise. Too high a price produces a surplus, which will depress the price. It means that equilibrium price will be established at Rs. 30 per ton where 10 tons are demanded by consumers and 10 tons are supplied by suppliers. While at a price below that equilibrium price, the market shows a shortage, or excess of quantity demanded over quantity supplied. Under conditions of shortage, the competition among buyers for limited goods causes the price to rise. On the other side, any price above than equilibrium price will drag the price down, as the competition will among the sellers to sell that surplus. That's how the automatic price mechanism works.

This information can be illustrated graphically:



The market equilibrium price and quantity come at the intersection of the supply and demand curves. At a price of Rs30, firms willingly supply what consumers willingly demand.

If a price of Rs. 40 was charged for the good, the supply would exceed demand, there would be an excess of the good on the market and this would decrease the price. Price would restore back at equilibrium.

If a price of 20 was charged for the good, supply would be less than demand, there would be a shortage of the good on the market and this would increase the price. Price would restore back at equilibrium.

5 SHIFTS IN DEMAND AND SUPPLY AND THEIR IMPACT ON MARKET EQUILIBRIUM

Dynamic Demand and Supply

When we draw a demand curve to show how much of a product households intend to demand at the various possible prices, it is assumed that all the other variables which may also influence intended demand are held unchanged or constant. This is known as the *ceteris paribus* or assumption. In similar way all the other variables which may influence supply are held constant when a supply curve is drawn. But in day-to-day life these conditions are not as, as we have assumed.

Like weather, fashion, consumer's income influence demand and factors of cost of production influence the supply decisions.

In this section, we shall focus the analysis to a brief explanation of a change in the conditions of demand and supply and their impact on market equilibrium.

Assuming the change increase in demand due to increase in consumer's income

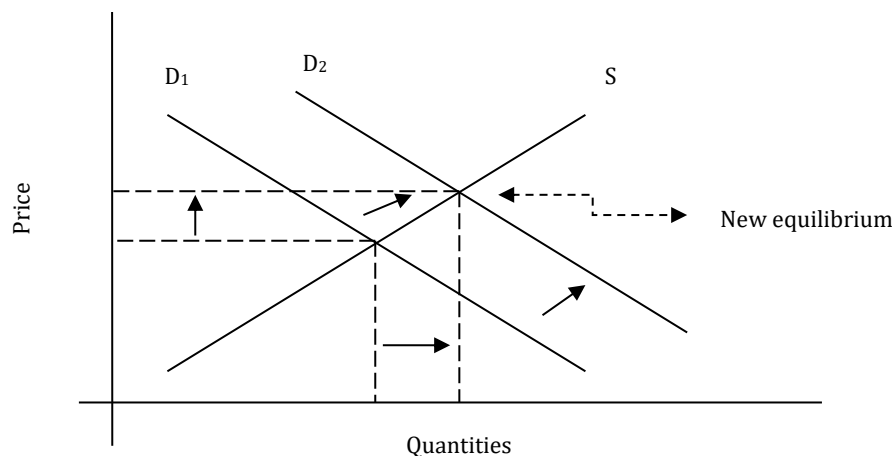
For example, if income of the consumer increases, they start spending more on chicken. This will shift the demand curve to the right. The results will be a higher equilibrium price and a greater quantity supplied. An increase in demand for chicken, all other factors remaining equal, will cause an increase in the price of chicken and greater quantity supplied by poultry farmers.

► Illustration:

In the figure below, it can be observed that, due to increase in consumer's income, they spend more in chicken and demand curve get shift outward from D_1 to D_2 . Rising demand has pushed the price up and poultry farmers start offering more chickens in the market. Eventually new equilibrium established in the market.

Market for chicken

Figure:

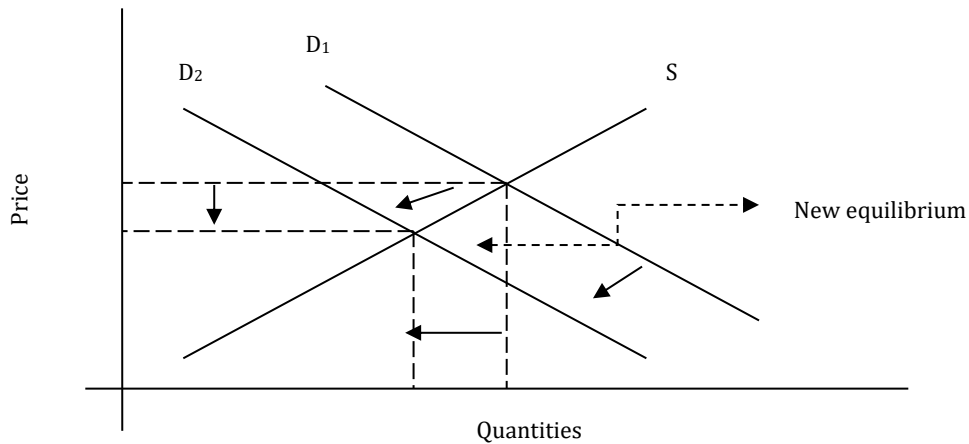


Assuming decrease in demand for room coolers, due to change in weather conditions.

For example, if weather changes from summer to winter. This will shift the demand curve for room coolers to the left. The results will be a lower equilibrium price and a lesser quantity supplied. A decrease in demand for room coolers, all other factors remaining equal, will cause a decrease in the price of coolers and lesser supplied by producers.

► **Illustration:**

In the figure it is clear that, due to weather conditions, consumers spend less on coolers and demand curve get shift inward from D_1 to D_2 . Falling demand has dragged the price down and producers start offering less room coolers in the market. Eventually new equilibrium established in the market.

Market for room coolers**Assuming an increase in supply**

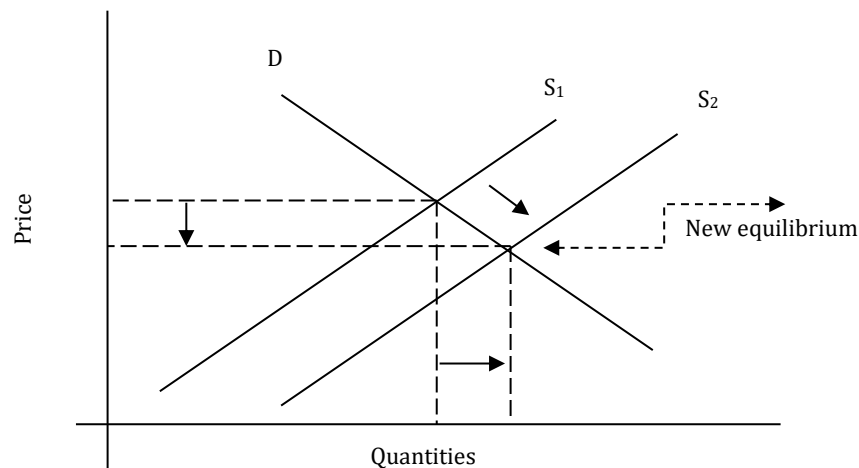
An increase in supply will shift the supply curve to the right the result will be a lower equilibrium price and a greater quantity demanded. For example, an increase in the supply of mobile phones (due to new factory within the region), all other factors remaining equal, will cause a decrease in the price of phones and a greater quantity of phones demanded.

► **Illustration:**

In the figure it is clear that, due to good harvest, the supply of phones increase in the market, which will put downward pressure on market of phones. Decreasing price will attract the buyers and quantity demanded increase in market. A new equilibrium established in the market.

Market for phones

Figure:



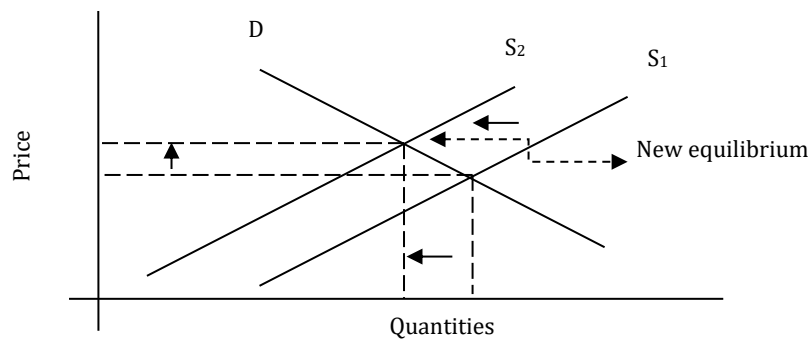
Assuming a decrease in supply

A decrease in supply will shift the supply curve to the left. The result will be a higher equilibrium price and lesser quantity demanded. For example, a decrease in the supply of cars due to higher input prices will cause a shortage in the market and push the price up and lesser quantity demanded.

► Illustration:

In the figure below, it can be observed that, due to increase in input prices, the supply of cars decreases in the market, which will put upward pressure on market price of cars. Increasing price will discourage the buyers and quantity demanded decrease in market. A new equilibrium established in the market

Market for cars



5.1 Determination of Market Price

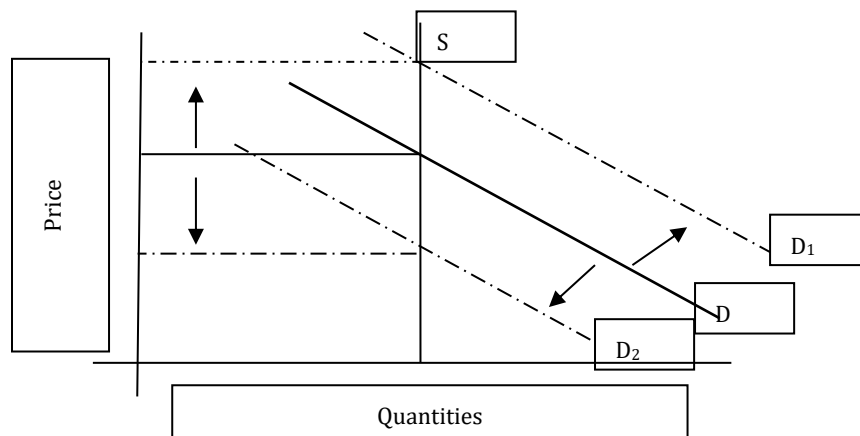
Market Price for Perishable Goods

Perishable goods are those which have less life to store. This is generally consumed quickly in one go e.g. demand for dairy products, fruits, vegetables etc.

Such goods have short life, and producer doesn't produce in bulk to store. Producers want to get rid of immediately after production of such goods. Supplies of such goods mostly remain fixed during a course of time in a market.

► Illustration:

In this diagram vertical supply curve shows the supply of perishable goods which once produced is being offered for sale into market (as cannot be shelved or stored for long time). While the price is fluctuating along the demand curve, as the demand side is dominant in price determination in such cases. D1 shows a rise in demand for perishable goods which is putting upward pressure on market price and D2 showing fall in demand, putting downward pressure on market price.



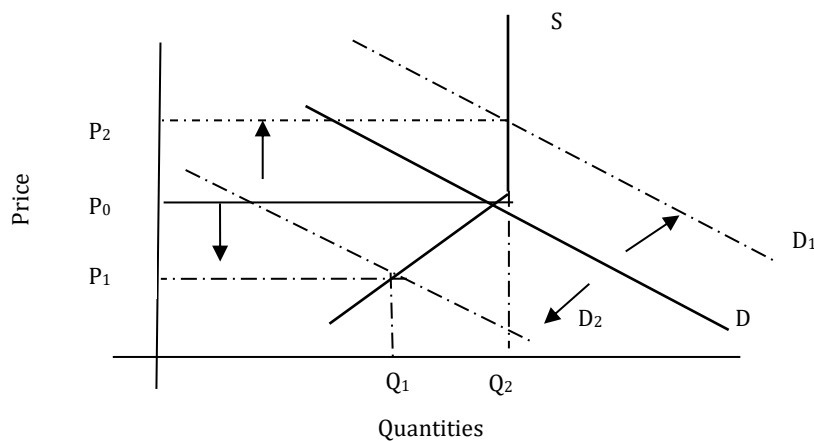
Market Price for Durable Commodities

Durable goods are those which have long life and can be stored. This is generally kept in stores or shelves to wait for good time to supply in to market. Typically, these goods are a bit more expensive because they tend to last for long periods of time. Durable goods are also known as durables or consumer durables. For example, machinery, motorbike, mobile handsets, etc. (in this case the supply curve will be usual positively sloped supply curve).

► **Illustration:**

Figure shows the effect of change in demand on the price of durable commodities in the market.

The supply of printers is fixed after a certain quantity available in stock. Although it can be increased initially by taking more from the store, up to that limit the supply curve will be positively sloped upward, but once the stock will be exhausted, it will become vertical. After this limit the rising demand will put drastic pressure on the price of printers.



5.2 Reservation Price

The reservation price is the lowest price at which someone is willing to sell a good or provide a service to the market.

If each firm is looking to receive the best price possible for its stock of goods, so if it is offered more than the reservation price, the firm will, of course, take it.

A firm will not sell at a price lower than reservation price. Knowing the reservation price for firms is useful as a way of evaluating firm behaviour.

5.4 Price Mechanism, Price Instability and Role of Government

In previous section, we have discussed in detail about the price determination in fairly competitive market (where demand and supply forces freely move to determine the equilibrium price and output).

We have seen in that discussion that; demand and supply fluctuations consistently influence the market price and output. However, there is a bitter reality that sometimes prices produced, by supply and demand, are unfairly high for buyers and low for sellers. Similarly, through artificial control on demand and supply forces, the strong market agents can exploit the weak agents. Typically, it is agriculture sector, in which, thousands of producers (weak and strong) are involved in production of agriculture products. Some of those are strong (big landlords), who can influence the market price by individual decisions to supply or not. For example, if large scale cotton is hoarded intentionally and not yet offered for sale into market, what will happen to textile sector? Obviously, the supply will fall in the market, which will create supply shortage and push the market price upward. Finally, textile mills owners have no other option, but to get cotton at high price, which will cause to increase of cost of production and so on.

Same is in the case of sugar cane. If sugar mills owners form a hidden cartel among them (which is often illegal), and decide not to buy the sugar cane for upcoming season, what will happen after harvest, as farmers are unacquainted about it? There will be a surplus of sugar cane in market, which can cause fall in price as farmers are not equipped to tackle the situation at the moment.

To overcome such probable situations, which can be harmful for economy in both, short run and long run, it is the government, who should intervene and place legal limits on how high and low price may go.

In this section, we will examine the causes of fluctuating prices and incomes, and compare some of the ways in which governments can intervene to create greater stability.

Price and Income Fluctuations in Agriculture Sector *(When there is no government intervention in the market).*

Over the years, instability in farm prices and income, is caused by difference in elasticities of supply and demand pooled with unsystematic variations in the harvest. Because in case of agriculture products, the length of the production period between planting and harvesting a crop is often as long as producers remain unable to predict the ultimate volume of output (as many exogenous factors are involved in cultivation). While dealing with agriculture sector, once the crop is harvested, it will be sold for whatever it will bring. However, due to unanticipated weather conditions and other factors outside the farmers will determine the position of the supply curve over the years. The size of the resulting price fluctuations will depend upon the price elasticity of demand indeed. As demand for highly perishable agriculture products such as food crops, the demand generally, is inelastic because food is a necessity. Significant fluctuations in price occur as the inelastic supply curve shifts up or down with relatively inelastic demand curve. From producer's point of view fluctuations in income become more serious than fluctuations in price, if demand is elastic. A little rise in price causes a drastic fall in demand and then farmer's income. As a consequence, it called an irony for agriculture sector, that even having a good harvest; farmers lose a major fraction of their income.

6 GOVERNMENT POLICIES TO INCREASE PRICE STABILITY IN AGRICULTURE

Buffer stock scheme

Stable prices of agricultural commodities are often subject to political influences for most governments. The price of a good is the main source of income for those individuals and firms that work in the agriculture sector. Therefore, in order to ensure that they receive a stable, predictable income, the government often acts to stabilise the price.

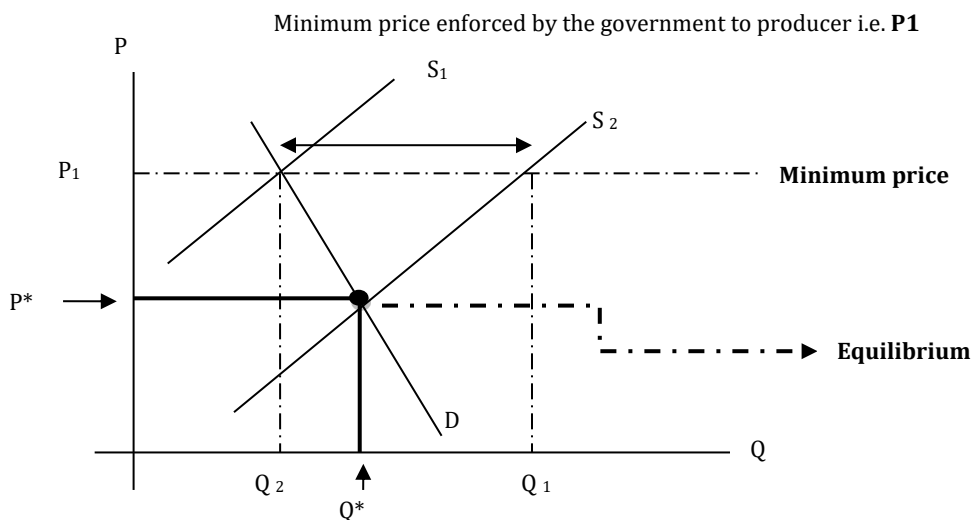
This is usually done by the government through a buffer stock scheme, which is a measure that uses commodity storage for the purpose of stabilising prices in a market.

The government agrees to pay a fixed price (minimum price floor price), above the market rate, for the commodity. This means that buyers and sellers interact to the market equilibrium, and then the government intervenes to purchase the surplus in order to maintain the floor price to protect producer's rights.

► Illustration;

In the diagram below, supply shifts outwards from S_1 to S_2 meaning (with no intervention) the price will fall to P^* .

However, because the government guarantees the price at P_1 (minimum price) it buys the surplus stock: $Q_1 - Q_2$



The fact that farmers receive this price, naturally means that the price is stable, thus achieving the policy goal. If in future there is a commodity shortage, these stock levels could be used to release onto the market and reduce the upward pressure on price

Disadvantages of buffer stock scheme

Although government may achieve its policy goals through buffer stock, yet there are some fears or threats attached with this policy.

- **Higher opportunity cost:** The main disadvantage that comes from this policy is the upfront cost of purchasing excess stock above the market price. This requires capital that, as we have seen through the concept of opportunity cost, could be spent meeting other policy objectives.
- **Apprehension of excess production:** It can also encourage over-production of certain commodities, as the pricing signal of the market mechanism is no longer in action.
- **Administrative concerns:** There are also a lot of administrative and storage costs associated with the maintaining levels of buffer stocks.

7 E-BUSINESS AND MARKET PRICE

Price is the monetary value of any tangible or intangible product. It is the key stimulus for a firm to achieve its goals. Pricing decisions can have engraved consequences for an organisation. It is one of the most complex and tricky matters to deal in any organisation.

Market price of the product is determined by market demand and supply forces. Any change in demand or supply of a product leads to change in its price. Buyers and sellers can influence the market price through various tactics. Lack of information, cost of the product, availability of substitutes, features of the product, being scarce or excess supply etc., affect both buyers and sellers significantly.

7.1 E-business or Online Business

E-business, short form of 'Electronic Business', generally refers to business activities using internet (also known as 'Online Business').

'It is the process of buying and selling of goods and services or exchange of information regarding business activities through digitalized systems including internet'.

E-business refers to shopping of goods and services or exchange of information anytime anywhere.

Role of internet has become now a permanent part of our lives. Apart from changing the ways of thinking, communication, correspondence and amusement, internet has also changed our shopping habits. With just one click, we can gather ample information regarding our shopping decisions. Internet provides limitless information to both buyers and sellers regarding their areas of interests.

7.2 E-business and Market decisions

Online business has immense impact on decision making process for both buyers and sellers. It can impact in following ways:

Benefits for business

- It provides a comparative study of different customer and their needs, which helps business community to take necessary actions accordingly.
- It helps in reduction of inventory and then reduction in storage and other administrative expenses.
- It helps business men to find new business partners all over the world.
- It helps in speedy marketing of their products which incur less cost as compared to other traditional channels.
- No or less need for 'brick-and-mortar' business handling.

Benefits for customers

- It helps to provide goods of their interest at their door step.
- It helps customers to get benefit from reverse auction.
- Greater choice for customers which ensures more consumer sovereignty.
- Better price bargains as comparison of prices is accessible.
- Better selection of goods is possible as numerous goods and their sublimities are available on one click.

Impact of E-business on market prices

Offering a low price is not enough, rather it is important to create an attractive price of the product.

E-business has changed the pattern in which firms conduct their businesses and customers make their purchases. Including buying and selling of products and mode of payments, everything has been digitalized. Access to information for both buyers and sellers regarding cost of product, price and quality of available substitutes etc., has made pricing strategy more complexed. Online access has left great impact on traditional interaction of demand and supply forces to determine market price.

7.3 Determinants

Following are the key factors which determine the market price in presence of E-business:

- i. Access to information about floor pricing (lowest or minimum price) as firms cannot charge higher prices of their product knowing the customer's access to information about prices of competitor products.
- ii. Firms offer more attractive and economical prices as there is no or less cost of traditional business such as 'bricks-and-mortar', where firms have to bear intense inventory and other administrative cost.
- iii. Availability of several options also makes easier for customers to compare the prices and quality of different products.
- iv. Less brand loyalty as customers have complete information about new arrivals.
- v. Online prices are more attractive than offline; hence customers change their brands more frequently.
- vi. Targeted marketing is possible by using digital marketing tools such as, social media, text messaging, internet advertisement etc., rather using traditional channels which allow firms to create customers demand. By highlighting the appealing features of products firms can convince to get relatively high prices for their products.
- vii. It enables customers to buy what, when and where they want to buy, which shifts the demand curve more frequently.

STICKY NOTES

Demand shows the quantities of a product that will be purchased at various possible prices

Horizontal summation of the individual demand curves represents the market demand curve.

A substitute is one that can be used in place of another good; while complementary goods are those which are used together with one another.

There is nothing to confuse between demand curve and demand schedule. 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.

Supply is an economic term that refers to the amount of a given product or service that suppliers are willing to offer to consumers at a given price level at a given period.

Smooth supply curve is the case of product market only. In case of factor market, the supply curve can be of different shapes.

Giffen paradox is an exception to the law of demand. British economist, Sir Robert Giffen has introduced this concept in 19th century. He found that when price of bread fell, its demand also decreases. He stated that as price of bread fell, the real income of the consumer rose and he came in the position to buy better quality bread.

Direct and derived demand: demand for consumer goods or goods which consumer buy directly to satisfy its needs are known as direct demand whereas in contrast, demand for capital goods or factors of production is known as derived demand

Equilibrium: A situation in which no agent wants to change his decision and all decisions are compatible. This is the situation where market demand and market supply become equal $Q_d = Q_s$

Price ceiling and price floor: A price ceiling is the legal maximum price for a good or service, while a price floor is the legal minimum price. Although both a price ceiling and a price floor can be imposed, the government usually only selects either a ceiling or a floor for particular goods or services.

Reserve price is that minimum price a firm is willing to receive for its good.

Demand curve, being the graphical representation of the demand schedule, slopes downward. These graphs always have price on the vertical axis and quantity demand or supplied on the horizontal axis. Though, it is not fair mathematically, but is common in economic practice. The graphical representation of the above demand schedule is smooth. But be careful that this is not essential. What essential is that the curve maintains a general downward slope; that depicts that lower the price more you are likely to buy.

SELF-TEST

1. In a free market, price is determined by:
 - a) The consumers
 - b) The producers
 - c) Cost view
 - d) Market forces
2. The individual's demand curve for a commodity represents?
 - a) A maximum boundary of the individual's intentions
 - b) A minimum boundary of the individual's intentions
 - c) Both maximum and minimum boundaries of individual's intentions
 - d) Neither a maximum nor a minimum boundary of individual's intentions
3. If the price of a substitute of commodity X falls, the demand for X will?
 - a) Rise
 - b) Fall
 - c) Remains unchanged
 - d) Both a & b depends on conditions
4. All else equal, if demand for a product falls greater than fall in supply, then which of the option will be the correct option?
 - a) price will fall with decrease in quantity
 - b) Price will rise with increase in quantity
 - c) Price will increase with fall in quantity
 - d) Price will fall with increase in quantity
5. Due to COVID-19 world has gone for lockdown. Consequently, in international market the prices for petroleum products have shown historical cut along with less consumption of Oil too. In economic theory this is known as?
 - a) Contraction in quantity demanded
 - b) Extension in quantity supply
 - c) Fall in demand
 - d) Fall in supply
6. Which one is not a precondition of law of demand?
 - a) Price of substitutes
 - b) Income of the consumer
 - c) Wages
 - d) Population

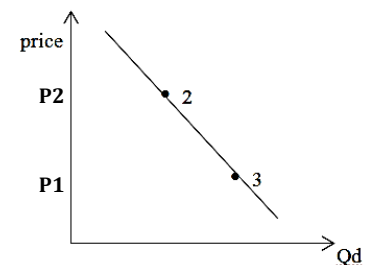
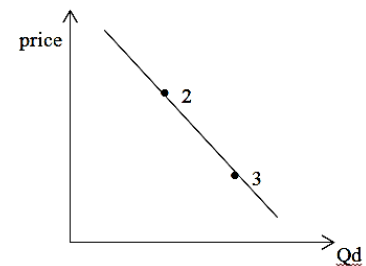
7. Which one is not a precondition of law of supply?
- Oil prices
 - Income of the consumer
 - Wages
 - None of the above
8. Rise in demand for Face Masks during Covid-19 is termed as:
- Movement along demand curve
 - Rise in demand
 - Inward shift in demand curve
 - Increase in price of Face Mask
9. ABC motors has shown historical decline in its sales during Covid-19. In economic terminology it is known as:
- Fall in demand
 - Inward shift in demand curve
 - Change in demand
 - All of above
10. Change in demand and supply due to other factors are described as:
- Change in demand and supply
 - Rise and fall in demand and supply
 - Shift in demand and supply curve
 - All of above
11. Fall in supply of a product greater than fall in demand will cause:
- Decrease in price and quantity
 - Decrease in price and increase in quantity
 - Increase in price and quantity
 - Increase in price and decrease in quantity
12. A price above than market price will show:
- A surplus
 - A shortage
 - Equilibrium
 - Maximum price
13. A support price or minimum price always set:
- Above than equilibrium price
 - Below than equilibrium price
 - At equilibrium price
 - It depends upon elasticity

14. Rise in demand for leather in foreign market the supply of beef will increase in domestic market. It will affect market for beef and:
 - a) Price and quantity of beef will decrease
 - b) Price and quantity of beef will increase
 - c) Price of beef will decrease and quantity will increase
 - d) Price of beef will increase and quantity will decrease
15. An increase in price of butter will affect the market for margarine (substitute):
 - a) Price and quantity of margarine will decrease
 - b) Price and quantity of margarine will increase
 - c) Price of margarine will increase and quantity will decrease
 - d) Price of margarine will decrease and quantity will increases
16. Reservation price is:
 - a) Minimum price set by government
 - b) Maximum price set by government
 - c) Minimum price a producer is willing to get for its product
 - d) Maximum price a buyer is willing to pay for its product
17. Buffer stock helps government:
 - a) To protect producers
 - b) To encourage production of a particular product
 - c) To maintain price stability into market
 - d) All of above
18. Which one is most important factor of reservation price?
 - a) Disposable income of consumer
 - b) Availability of substitutes
 - c) Cost of production
 - d) All of above
19. For buffer stock, government may face:
 - a) Over production of a particular crop
 - b) Less opportunity cost
 - c) Less administrative expense
 - d) b & c
20. Increase in labour productivity can cause:
 - a) Shift in supply curve to right
 - b) Shift in supply curve to left
 - c) Shift in demand curve to left
 - d) Shift in demand curve to right

21. A surplus in goods market will _____ price.
- Decrease
 - Increase
 - Remain stable at equilibrium
 - It depends upon market conditions
22. Demand for land is:
- Less elastic
 - Derived demand
 - Resource demand
 - b & c
23. Supply curve for Land is:
- vertical
 - horizontal
 - negatively sloped
 - positively sloped
24. Demand curve for Normal goods is downward sloping to the right because of:
- Price effect
 - Income effect
 - Substitution effect
 - All of above
25. Which one of the following rightward shifting in market demand curve?
- Change in product price
 - Change indirect taxes
 - Change in subsidies
 - Change in money income of consumers
26. A rise in demand for petrol by motorists likely to follow a rise in:
- The price of second-hand car
 - The price of steel
 - Bus fares
 - Motor vehicle tax
27. Demand for factors of production is known as:
- Individual demand
 - Market demand
 - Derived demand
 - Effective demand

28. Which of the following is not complement to cars?
 - a) Petrol
 - b) CNG
 - c) Navigation Systems
 - d) I – Phone
29. The Demand for fashion goods is not affected by:
 - a) Price of goods it self
 - b) Income of consumers
 - c) Quality of product
 - d) Age
 - e) Gender
30. If the price of tea falls, which one of the following outcomes would be expected?
 - a) A fall in the demand of tea.
 - b) A rise in price of coffee
 - c) A fall in the demand of coffee
 - d) A fall in the demand of drinking cups
31. A good having negative income effect is called:
 - a) Normal good
 - b) Inferior goods
 - c) Public good
 - d) Merit good
32. The part of output which not offered to sale in market is called:
 - a) Supply
 - b) Stocks
 - c) Buffer stock
 - d) None of above
33. Supply curve of perishable good is always:
 - a) Horizontal
 - b) Vertical
 - c) Upward to the right
 - d) Downward to the right
34. Following will cause a leftward shifting in market supply curve.
 - a) Increase in price of good
 - b) Improvement in technology
 - c) Increase in direct taxes
 - d) Increased in indirect taxes

35. Indirect taxes & subsidies both increases in the same proportion on a product following will be the effect on market supply curve.
- Supply curve will shift towards right
 - Supply curve will shift towards left
 - No change
 - Change along the same supply curve
36. The government introduces a maximum price below the equilibrium price level. What effect will this have on market?
- Surplus
 - Shortage
 - No change
 - None of above
37. The government introduces a minimum wage rate beyond the equilibrium wage rate. What effect will this have on labour market.
- Unemployment
 - Surplus of labour
 - Decrease in labour demand
 - All of the above
38. For price stability buffer stock policy can be used by government for:
- Agricultural goods
 - Primary goods
 - Perishable goods
 - All of the above
39. The diagram shows the demand curve for good A.
What could cause a movement along the curve from 2 to 3?
- A change in season
 - A change in price of A
 - A change in cost of production
 - A change in price of substitute good
40. The diagram represents the market for a good 'x'.
Which of the following could cause an increase in price from P1 to P2?
- A rise in wage rate
 - A rise in indirect taxes
 - A rise in price of raw material
 - All of the above
41. Supply curve of a ____a____ good is always vertical that is why is changes in price of good depends upon changes in ____b____ curve.



ANSWERS TO SELF-TEST QUESTIONS

1	(d)	11	(d)	21	(a)	31	(b)	41	A=Perishable B=Demand Curve
2	(a)	12	(a)	22	(d)	32	(b)		
3	(b)	13	(a)	23	(a)	33	(b)		
4	(a)	14	(c)	24	(d)	34	(d)		
5	(c)	15	(b)	25	(d)	35	(c)		
6	(c)	16	(c)	26	(c)	36	(b)		
7	(b)	17	(d)	27	(c)	37	(d)		
8	(b)	18	(d)	28	(d)	38	(d)		
9	(d)	19	(a)	29	(a)	39	(b)		
10	(d)	20	(a)	30	(c)	40	(d)		

ELASTICITY OF DEMAND AND SUPPLY

IN THIS CHAPTER

AT A GLANCE

SPOTLIGHT

1. Elasticity of demand
2. Other elasticities of demand
3. Elasticity of supply

REFERENCES

STICKY NOTES

SELF-TEST

AT A GLANCE

As we know that, demand curve for most of the goods is usually sloped downward (from left to right) and a supply curve is normally sloped upward. Yet, the gradient of a demand or supply curve is not always a perfect display of the extent to which households or firms retort to price change. Or we can say in law of demand, the inverse relationship between price and quantity demanded was given, but one most important thing was missing, that is to what extent the quantity demanded will respond to its price change. There is no simple answer to it. Would every consumer be willing to pay the same price for a particular product? If not, then why? To answer such complex questions, we need to know the degree of responsiveness for a change in quantity demanded to its price change. In this chapter we will try to answer this question by using the concept of price elasticity as a measure of the responsiveness of households or firms to a change in a good's price. After that we will show how elasticity of demand or supply can be measured with respect to changes in any of the conditions of demand or supply, that is income elasticity of demand and cross elasticity of demand.

1 ELASTICITY OF DEMAND

The law of demand states the relationship between price and quantity of demand for a certain good but, it does not explain that how much of an increase or decrease in quantity demanded occurs due to a change in price. The elasticity of demand explains the level of change in quantity demanded in response to change in price. Although, there exist an inverse relationship between price and quantity demanded but there some other factors which determine the degree of responsiveness of change in demand to change in its price.

For example, a firm is thinking to increase price of its product to know that how their customers will respond. Obviously as per law of demand, the quantity demanded for their product will contract, but how much it will contract, depends on multiple factors such as; brand loyalty, income group of the buyers, is there any impact of weather conditions for that product or the number of substitutes available for that product.

In economic theory, to know the degree of responsive of change in demand to the change its price is called **elasticity of demand**.

1.1 Estimation of Demand Elasticity

There are mainly three types of elasticity of demand regarding a product. They are:

- Price elasticity of demand:** Proportionate change in quantity demanded/Proportionate change in price
- Income elasticity of demand:** Proportionate change in quantity demanded/Proportionate change in income.
- Cross-elasticity of demand or elasticity of demand between related goods:** It is the proportionate change in quantity demanded for X product / proportionate change in price of Y product

For better understanding of the concept of elasticity, it is important to know the degrees of elasticity and its interpretation.

1.2 Interpretation of elasticity

Elasticity refers to the sensitivity of demand to price change.

- Elastic demand = sensitive** to price changes
- Inelastic demand = insensitive** to price changes

Degree of elasticity	Condition	Characteristics
Elastic demand	If percentage change in quantity demanded is greater than percentage change in its price	A decrease in price will increase revenue due to the increase in quantity demanded more than offsetting the decrease in price. An increase in price will decrease revenue due to the decrease in quantity demanded more than offsetting the increase in price. Price and revenue move in opposite directions.
Inelastic demand	If percentage change in quantity demanded is lesser than percentage change in its price	A decrease in price will decrease revenue as the increase in quantity demanded fails to compensate the fall in price. An increase in price will increase revenue due to the decrease in quantity being more than compensated by the increase in price. Price and revenue move in the same direction.
Unit elastic	Demand responds in exact proportion to price Price changes do not affect revenue	Revenue remains unchanged by price change because the change in price is offset by the change in quantity. The total expenditure method offers a simple solution to ascertaining whether or not a good has elastic, inelastic or unitary demand.
Perfectly elastic	Smallest price change will affect the demand largely	
Perfectly inelastic	Demand totally unaffected by price changes	

There are several methods that can be used to measure the price elasticity of demand.

Each can be useful in different scenarios, depending on the data that is available.

In general, they are all used to calculate how a change in the price of the good affects the quantity demanded. The symbol η is used to represent elasticity.

1.3 Methods to Measure Elasticity of Demand

1.3.1 Total expenditure method Total outlay method or Total revenue method

This way of determining elasticity is to inspect the total expenditure of the consumer, or total revenue to the firm, after a change in price. This method was first proposed by Alfred Marshall. The method simply compares the total revenue (price $\times$ quantity) at one price level to the total revenue at another.

The following are true:

- If total consumer expenditure increases in response to a price fall, demand is relatively elastic.
- If total consumer expenditure decreases in response to a price fall, demand is relatively inelastic.
- If total consumer expenditure remains constant or unchanged in response to a price fall, elasticity of demand said to be unity.

Above discussion is based on total revenue test, to infer the degree of elasticity of demand

For further explanation of this method we can use following illustrations.

A simple hypothetical data of a household, spending income on cooking oil in a month in a given set of prices, is used below.

► Illustration 01: Relatively inelastic demand ($\eta < 1$)

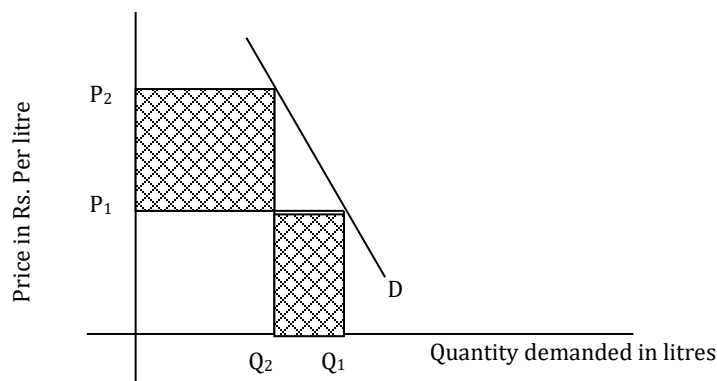
Let's suppose following prices of cooking oil.

Price (Rs. Per kg)	Cooking oil (litres)	Total expenditures (Rs.) Price $\times$ Quantity purchased
200	30	6,000
400	25	10,000

This data is showing that as price of the cooking oil increases, consumers are buying less of the quantity but not as much, as price increases. In result the total expenditure increases

In plotting a graph, a sharp increase in price is matched with a slow decrease in quantity demanded resulting in the total expenditures increasing from 6,000 to 10,000 can be observed.

This highlights how the demand is inelastic ($\eta < 1$).



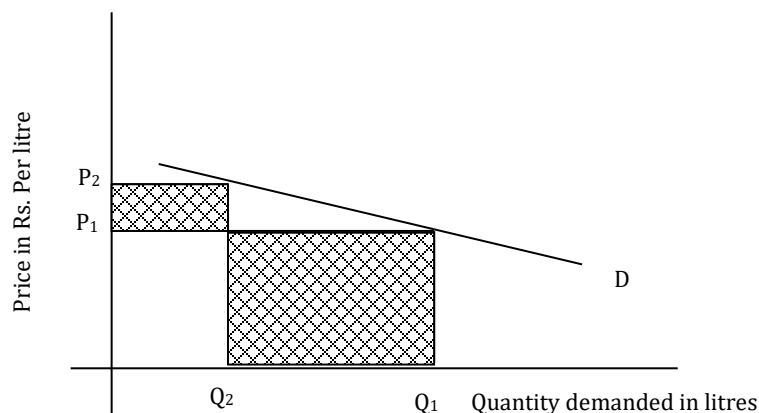
► *Illustration 02: Relatively elastic demand ($\eta > 1$)*

Let's suppose following prices of cooking oil.

Price (Rs. Per kg)	Cooking oil (litres)	Total expenditures (Rs.) Price $\times$ Quantity purchased
200	30	6,000
400	10	4,000

This data is showing that as price of the cooking oil increases, consumers are buying less of the quantity but with more percentage as price increases. In result the total expenditure decreases

Plotting a graph, sharp decrease in quantity demanded is matched with a slow increase in price resulting in the total expenditure decreases from 6,000 to 4,000, can be observed.

► *Illustration 03: Unit elastic demand ($\eta = 1$):*

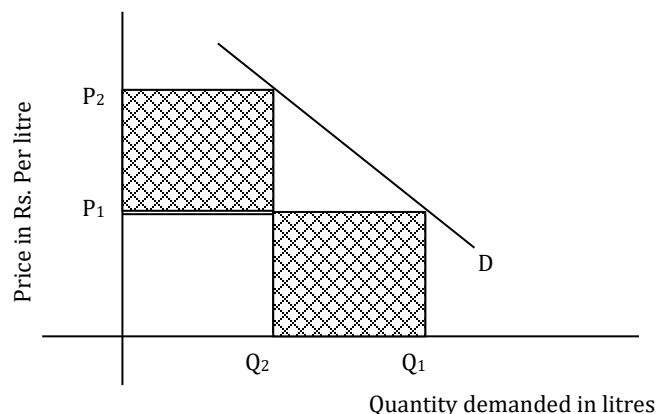
Let's suppose following prices of cooking oil.

Price (Rs. Per kg)	Cooking oil (litres)	Total expenditures (Rs.) Price $\times$ Quantity purchased
200	30	6000
400	15	6000

This data is showing that as price of the cooking oil increases, consumers are buying less of the quantity as much, as price increases. In result the total expenditure remains unchanged.

In Plotting a graph, increase in price is matched with decrease in quantity demanded with same proportion, resulting in the total expenditures constant, can be observed.

This highlights that the demand is unit elastic ($\eta = 1$).



1.3.2 Percentage method

The previous method gives only a rough measure of elasticity of demand. But with the percentage method we are able to be more precise as to how much elastic the demand is

To get the accurate value of elasticity of demand we will use percentage method, which describes the ratio between percentage change in quantity demanded to percentage change in its price.

The possible outcomes are:

- If Percentage change in quantity demanded (i.e. is **numerator**) is greater than percentage change in its price (i.e. is **denominator**), then the demand is relatively elastic.
- If Percentage change in quantity demanded (i.e. is **numerator**) is lesser than percentage change in its price (i.e. is **denominator**), then the demand is relatively less elastic.
- If Percentage change in quantity demanded (i.e. is **numerator**) is equal to the percentage change in its price (i.e. is **denominator**), then the demand is unit elastic.

For further explanation, we will use following formula and some numerical example and will try to understand, that what is happening with degree of elasticity of demand during different scenarios.

Elasticity of demand = percentage change in quantity demanded / percentage change in price

$$\eta = \frac{\text{change in quantity}}{\text{sum of quantities} / 2} \div \frac{\text{change in price}}{\text{sum of prices} / 2}$$

The average price and demand are used to ensure the elasticity is the same regardless of whether we go from Point 1 to Point 2, or vice versa.

► Problem: Elastic Demand

If $\eta > 1$; the percentage rise in quantity demanded is more than the percentage fall in price.

Quantity demanded decreases from 30 to 10 as price of the product increases from 200 to 400. Let's have some calculation, to infer some results.

$$\eta = \frac{10-30}{10+30 / 2} \div \frac{400-200}{400+200/2}$$

$\eta = -1.5$ by taking absolute value we will get $\eta = 1.5 > 1$

► Problem: Inelastic demand

If $\eta < 1$; the percentage rise in quantity demanded is less than the percentage fall in price.

Quantity demanded decreases from 30 to 25 as price of the product increases from 200 to 400. Let's have some calculation, to infer some results.

$$\eta = \frac{25-30}{25+30 / 2} \div \frac{400-200}{400+200/2}$$

$\eta = -0.27$ and the absolute value is $\eta = 0.27 < 1$

- Unit elastic demand

If $\eta = 1$; the percentage rise in quantity demanded is equal to the percentage fall in price.

Quantity demanded decreases from 30 to 15 as price of the product increases from 200 to 400. Let's have some calculation, to infer some results.

$$\eta = \frac{15-30}{15+30 / 2} \div \frac{400-200}{400+200/2}$$

$\eta = -1$ and the absolute value is $\eta = 1$

This method can be used in two cases:

a) Point Elasticity of Demand

When elasticity of demand is to be measured for a very small change in price, such as in case of petroleum products, we use point elasticity of demand.

When there is a small change in the quantity demanded of a product in response to a small change in its price, there will appear as just a point on the demand curve. The measurement of elasticity of demand at that point can be done with the help of the following formula:

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

$$\eta = \frac{\frac{Q_1 - Q_0}{Q_0} \times 100}{\frac{P_1 - P_0}{P_0} \times 100}$$

as $\Delta Q = Q_1 - Q_0$ & $\Delta P = P_1 - P_0$

So, we can write this formula as: $\frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$

► **Problem:**

Let's consider following prices and Quantity demanded

Price Rs.	Q.D kg
12	100
11.75	101

As here, nominal changes are occurring, so we will use point elasticity to estimate the degree of elasticity of demand

$$\eta = \frac{\frac{Q_1 - Q_0}{Q_0} \times 100}{\frac{P_1 - P_0}{P_0} \times 100}$$

$$\eta = \frac{1}{-0.25} \times \frac{12}{100}$$

$\eta = -0.48$ or inelastic

b) Arc Elasticity of Demand

When elasticity of demand is to be measured for a significant change in price, such as poultry, dairy or case of crops etc., it is said to be arc elasticity of demand.

Arc elasticity of demand is the value of PED over a range of prices or in other words, if quantity demanded of a product and its price change considerably such that there appear two distinct points on the demand curve, the elasticity of the arc or the line segment can be measured as follows:

$$\eta = \frac{Q_1 - Q_0}{Q_1 + Q_0} \times \frac{P_1 + P_0}{P_1 - P_0}$$

► **Problem:**

Let's consider following prices and quantity

Price Rs.	Q.D kg
8	300
12	100

As here, bigger changes are occurring, so we will use point elasticity to estimate the degree of elasticity of demand

$$\eta = \frac{100 - 300}{100 + 300} \times \frac{12 + 8}{12 - 8}$$

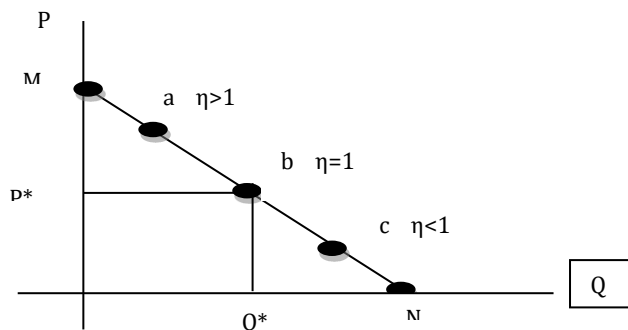
$\eta = -2.5$ or elastic

1.3.3 Geometric method

This method enables us to measure elasticity of demand at any point on the demand curve.

To use this method, we will take a hypothetical demand curve.

Illustration:



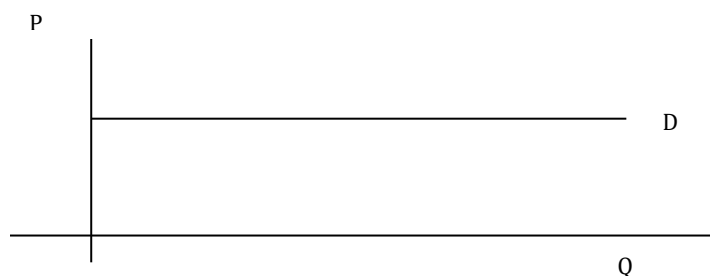
In the above diagram, we have purposely derived a demand curve. We have taken different points (a, b & c) along demand curve. For this purpose, we will use the following formula:

$$\eta = \frac{\text{Lower part of the demand curve}}{\text{Upper part of the demand curve}}$$

Two extremes of the Price Elasticity of Demand

Perfectly Elastic demand

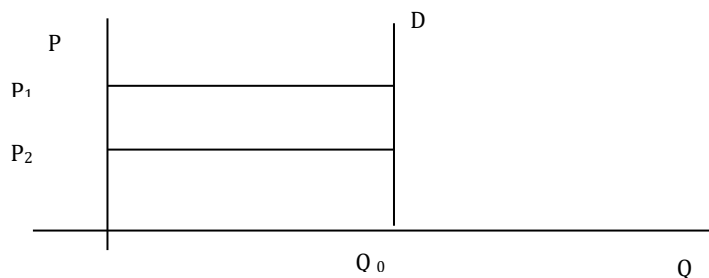
A nominal change in price will largely affect the demand for the product.



In case of perfectly elastic demand, the demand curve will be parallel line to the horizontal axis. This shows that with a minuscule change in price cause an infinitely change in demand.

Perfectly inelastic demand

A perfectly inelastic demand is a demand where the quantity demanded does not respond to price.



In this diagram it is clear that however much the rise or fall in price occurs, quantity demanded remains the same. In this diagram the amount demanded is Q_0 , both when the price is P_1 and P_2 .

2 OTHER ELASTICITIES OF DEMAND

It is not just a product's sensitivity to its own price which will be of importance when it comes to economic analysis.

The relationship of the quantity of a product demanded to changes in other variables can also offer insight about its characteristics.

2.1 Income Elasticity of Demand

The income elasticity of demand measures how demand responds to a change in income the society. In contrast with price elasticity of demand the income elasticity of demand is positive for **Normal goods** whereas is negative for **Inferior goods**. In other words, income elasticity of demand measures the degree to which consumer respond to a change in their income by buying more or less of a commodity.

To estimate the income elasticity of demand we will use the formula;

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

$$\eta = \frac{\Delta D/D}{\Delta I/I}$$

- **Normal Goods:** Those goods for which, consumers buy more quantity as their income increases. For such goods the income elasticity coefficient is positive. Normal goods are also categorized as superior or luxurious goods. Although the quantity demanded for normal goods always rises as income of the consumer increases, but it rises more than proportionately with income for superior goods as compare to necessities.

► **For example:**

Income elasticity of demand for luxury cars may be relatively elastic, but in case of basic necessities, it is always inelastic.

- **Inferior Goods:** Those goods for which, consumers buy relatively less quantity or less attractive, as they switch over to other superior goods. Income elasticity coefficient is negative for inferior goods, the quantity demanded decreases along with an increase in income of the consumer.

► **For example:**

Inexpensive food, frozen food, long route bus tickets, reconditioned cars are the popular examples of inferior goods.

► **Problem:**

A person's income increases from Rs. 10,000 to Rs.15,000.

As a result, his demand for a product goes from 50 units to 40 units

Percentage change in quantity demanded	$\frac{40 - 50}{(40 + 50)/2} = \frac{-10}{45} = 0.222 = -22.2\%$
Percentage change in level of income	$\frac{15000 - 10000}{(15000 + 10000)/2} = \frac{5000}{12500} = 0.4 = 40\%$
Income elasticity (η)	$\frac{-22.2\%}{40\%} = -0.56$

In this case the income elasticity of demand is inelastic, but nature of the product is Inferior as the coefficient is negative that is the candidate of inverse relationship between income and demand for the product.

Here, we pay particular attention to the sign of the result because it is negative. This means that the good is inferior.

As income has increased, demand for it has decreased.

An applied view

Coefficient of income elasticity has a great importance to predict that demand for which product will decline more rapid than other especially during economic crises. Such as in recent COVID-19, as income gone down, we have seen that the effect on demand for cars was worse than demand for food or other basic needs. Products with high income elasticity of demand get more hit by recession as compared to those with low income elasticity of demand.

As we discussed in previous chapters, this can occur for a number of reasons, such as consumers choosing to consume higher quality goods.

Knowledge of income elasticity of demand is important for a business when deciding on its future product range.

Firms can use the information to forecast the impact that forecasted changes in income will have on the demand for individual products. This in turn aids sales and production planning.

As an economy grows and incomes rise, firms need to be producing goods which have a high income elasticity of demand, so that business grows and sales increase. This might require the switching of resources from the production of goods which have a low income elasticity of demand to those with a high income elasticity of demand. Alternatively, existing products may be graded to give them a higher income elasticity of demand.

2.2 Cross-Elasticity of Demand or Cross Price Elasticity of Demand

In economics frequently we have discussed about the related goods. Means, those goods for which price of one product influence the demand for other.

In our day to day lives, it simply observed that the price of one commodity has great impact the sales of some other products. A layman remains unable to understand this matter.

► For example,

If 10% decrease in price of the butter hits to the demand for margarine by 5%, then the cross price elasticity of demand will be -0.5. On the other hand, if 10% increase in price of the petroleum products will hit to demand for cars by 20%, then the cross price elasticity of demand will be +2.

The cross price elasticity of demand measures how sensitive consumer purchases of one product are to change in the price of some other product. The calculation of cross price elasticity of demand is just like the simple price elasticity of demand, only by taking the price of related goods.

$$\eta = \frac{\text{Percentage change in quantity demanded for product A}}{\text{Percentage change in price of product B}}$$

$$E_c = \frac{\Delta Q_a}{Q_a} \times \frac{P_b}{\Delta P_b}$$

$$E_c = \frac{P_b}{Q_a} \times \frac{\Delta Q_a}{\Delta P_b}$$

Where:

P_b = Original price of Product B

ΔP_b = Change in price of Product B

Q_a = Original quantity demanded of Product A

ΔQ_a = Change in quantity demanded of Product A

Unlike price elasticity of demand, the coefficient of cross elasticity of demand may be positive or negative.

Cross elasticity of demand for Substitutes

If the coefficient of cross elasticity of demand is positive, then the products are graded as substitutes, as the demand for one product moves in the same direction to the change in price of other product.

► *For example:*

Any increase in price of Lipton tea bags will cause the shift of consumers to Supreme tea bags resulting in positive cross elasticity of demand.

The value of cross elasticity depends on the degree of substitutability of the product.

► *Problem:*

Let's Consider following prices and quantity of two products

Price (Rs.) of A product	Q.D (units) For B product
110	200
100	150
$\eta = \frac{\text{Change in quantity B}}{\text{Sum of quantities B} / 2} \div \frac{\text{Change in price of A}}{\text{Sum of prices of A} / 2}$	
$\eta = \frac{150 - 200}{150 + 200 / 2} \div \frac{100 - 110}{100 + 110 / 2}$	

$$\eta = -0.286 \div -0.095$$

$$\eta = +3.01 \text{ elastic demand}$$

Positive sign shows that the products are substitutes.

Cross elasticity of demand for complements

Goods, which are consumed or purchased together, are known as complementary goods. For example, cell phone and charger, shoe pair and shoelaces. For complementary products, coefficient of cross elasticity of demand is negative, as the demand for one product moves in the opposite direction to the change in price of other product.

► *For example,*

Any increase in price of shoe pair will reduce the use of shoelaces also, resulting in negative cross elasticity of demand.

Larger the negative coefficient, greater will be the complementarity of products.

► *Problem:*

Let's Consider following prices and quantity of two products

Price (Rs.) of A product	Q.D (units) For B product
100	200
110	150
$\eta = \frac{\text{Change in quantity B}}{\text{Sum of quantities B} / 2} \div \frac{\text{Change in price of A}}{\text{Sum of prices of A} / 2}$	
$\eta = \frac{150 - 200}{150 + 200 / 2} \div \frac{110 - 100}{110 + 100 / 2}$	

$$\eta = -0.286 \div 0.095$$

$$\eta = -3.01 \text{ elastic demand}$$

Negative sign shows that the products are complements.

2.3. Determinants of Elasticity of Demand

Determinants are those factors, which affect the degree of elasticity of demand. These factors describe that how the elasticity of demand gets change from product to product, time to time, or for different income groups. Such determinants are very helpful while formulating economic business plans for both government and individuals.

- **The possibility of substitution:** If there are close substitutes for a good, its demand is likely to be more elastic. For example, a rise in the price of coffee will cause people to take more tea. In contrast, if there are no close substitutes within the same price range, the demand for a commodity is more likely to be inelastic as people do not have any option to switch.
- **The case of complementary goods:** As we know the complementary goods are those, which are being used jointly or which are complement of each other such as, bread and butter, TV set and electricity, shoe pair and laces etc. In such cases if the price of one product decreases, its demand become inelastic as the price of its complement increases.
- **Necessities or Luxuries:** Demand for necessities is inelastic, while for luxuries it is relatively elastic. For example, in case of salt, demand tends to be inelastic as it is a necessity and we have to use it in spite of the price change. On the other hand, in case of luxuries or comforts, the demand is relatively elastic as people can stay without using the product shortly.
- **Habit of brand loyalty:** Degree of brand loyalty is another important determinant of degree of elasticity of demand. People may be used to of buying a particular good or brand of a product and may be unwilling to a change even if price increases. Demand will be inelastic for such cases. Popular examples are tobacco, TV shows, hand wash etc.
- **Proportion of income spent for a product:** The smaller the proportion of total income spent on a commodity, the more inelastic will be demand for it. For example, a rise in the price of tomato ketchup will not stop people buying it, because it is less frequently purchased, and it does not account for a great deal of a person's total expenditure.
- **Time-period:** The longer the time-period involved, the greater the elasticity of demand is likely to be. This is because it takes time to adjust to a change in price. Suppose if price of a product increase, people need some time to switch for experiment with new product whether that is compatible or not. People may not decrease the demand immediately as price of the product under consideration increases. For example, if price of chicken increases by 10 percent, consumers will not decrease their spending for chicken immediately as they will wait to switch over other form of meat gradually.

2.4 Application or Importance of Elasticity of Demand

Elasticity of demand has a great role in economic life. Here we will have a brief discussion of its role.

- i. **Price determination:** In the case of products having relatively elastic demand, the price will not be so high. Otherwise consumers will not consume more of these products. If the prices would be high the consumers would go for the substitutes. However, in the case of inelastic demand, price of these products may be quite high because these goods are usually necessities.
- ii. **For finance minister (taxation):** Elasticity of demand also helps government (finance minister) to tax different commodities. If authorities increase taxes on a good with inelastic demand such as tobacco, electricity, luxury cars or luxury apartments etc., demand will remain the same to some extent and increase the tax revenue. However, if they tax a good with elastic demand, this may cause demand to decrease to a great extent and tax revenue will be less than before.
- iii. **Guidance for monopolists:** This is another important aspect of application of elasticity of demand. In the case of inelastic goods, price will be higher and it will be sold in a smaller quantity as the monopolists know that the consumer will buy the product at any price as demand is inelastic. In case of market demand for elastic goods, price will be kept low intentionally to retain the maximum buyers with the product and demand for the good is stimulated through some other activities such as promos, exhibitions, or advertisement etc.

- iv. Determination of fares: For those means of transportation whose demand is elastic, such as buses, taxis etc., the fare has to be low as these are the main means of transportation on land. Therefore, if price on transport were increased there would be some substitute, like, railways, Uber, Indrive, etc. However, for inelastic transport, such as airways, the fare is quite high as there is no other alternative for a person to get to one place from another as quickly as by air.
- v. For Balance of Trade and Payments: If the demand for a product in the international market is elastic, export earnings will remain low and the balance of trade will remain unfavourable for the country. To make it favourable, a country always desires to make the demand for its products inelastic in the international market which will allow it to raise the price and boost its export.
- vi. Decision making during economic recessions: Elasticity has a great role for the firms to take rational decisions during recessions. Elasticity helps firms to predict, that which product with what intensity will hit during recession, when the income shrinks. Accordingly, firm can change their decision to avoid their losses.

3 ELASTICITY OF SUPPLY

In case of elasticity of supply, if quantity supplied by the producers is price sensitive, then the supply is elastic. Conversely if quantity supplied is price less sensitive, then the supply is said to be inelastic.

For elasticity of supply we will use E_s

To estimate the degree of elasticity of supply, simply we will use the concept of elasticity of demand with a little exchange of “percentage change in demand” with “percentage change in supply”:

$$E_s = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in its price}}$$

$$E_s = \frac{Q_2 - Q_1}{Q_2 + Q_1 / 2} \div \frac{P_2 - P_1}{P_2 + P_1 / 2}$$

As we know that there is a direct relationship between price and quantity supplied, the coefficient of elasticity supply will be positive ever.

- If a linear supply curve intersects the price axis, the curve is elastic at all points.
- If a linear supply curve intersects the quantity axis, the curve is inelastic at all the points.
- If a linear supply curve intersects the origin, the elasticity is unity at all points along supply curve.

Note: in case of non-linear supply curve these rules are not compatible.

5.1 Estimation of Elasticity of Supply

Here we will use the same formula to estimate the elasticity of supply as we have used in demand.

► Illustration: Inelastic supply ($E_s < 1$)

Let's Consider following prices and quantity

Price (Rs. Per unit)	Q.S (Units)
100	50
200	60

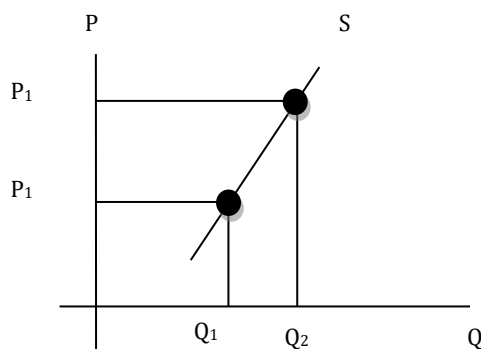
In Calculating elasticity,

$$E_s = \frac{60-50}{60+50 / 2} \div \frac{200-100}{200+100/2}$$

$$E_s = 0.18 \div 0.66$$

$$E_s = + 0.27 < 1 \text{ (Inelastic)}$$

Figure:



► *Illustration: Elastic supply ($E_s > 1$)*

Let's Consider following prices and quantity

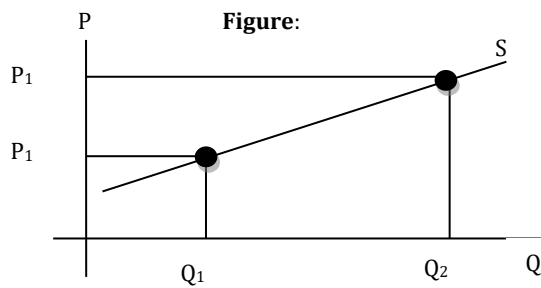
Price (Rs. Per unit)	Q.S (Units)
100	50
200	150

For Supply Elasticity Calculations

$$E_s = \frac{150-50}{150+50/2} \div \frac{200-100}{200+100/2}$$

$$E_s = 1 \div 0.66$$

$$E_s = + 01.5 > 1 \text{ (Elastic)}$$

► *Illustration: Unit Elastic supply ($E_s = 1$)*

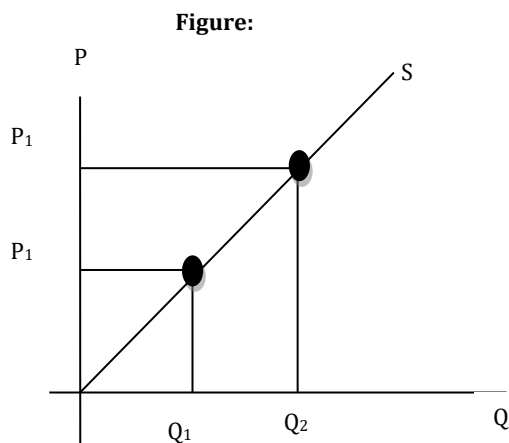
Let's Consider following prices and quantity

Price (Rs. Per unit)	Q.S (Units)
100	50
200	100

$$E_s = \frac{100-50}{100+50/2} \div \frac{200-100}{200+100/2}$$

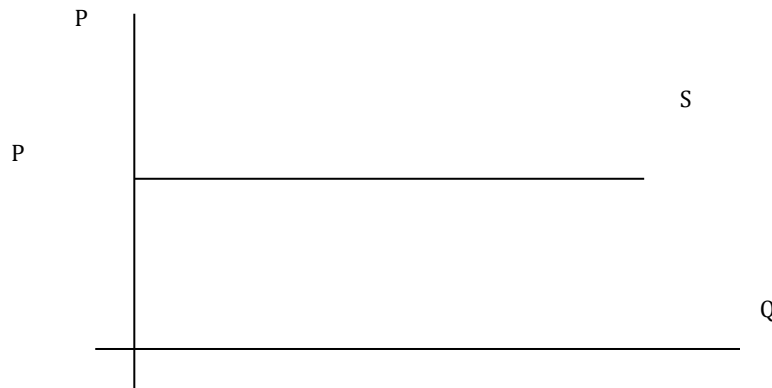
$$E_s = 0.66 \div 0.66$$

$$E_s = + 1 \text{ (Unitary Elastic)}$$



Perfectly Elastic supply ($E_s = \infty$)

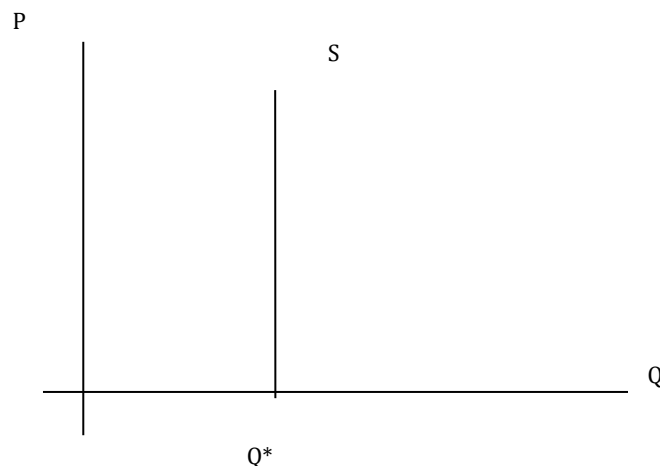
In this case, the supply is infinitely responsive to any price change however small. In this situation the supply curve will be horizontal or parallel to x-axis.



Here, the supply curve is horizontal, indicating that at a given price, supply can be increased infinitely. However, if the price falls even slightly below that level, supply drops to zero. So, the idea of supply being "infinity" is only on the right track when discussing **perfectly elastic supply**, but remember, it's only true at a **specific price point** and in short run.

Perfectly inelastic supply ($E_s = 0$)

In this case, the supply remains unchanged despite the change in its price. In this situation the supply curve will be vertical or parallel to Y-axis.



5.2 Determinants or Factors Influencing Elasticity of Supply

Broadly speaking, elasticity of supply is the degree of responsiveness. The degree of elasticity of supply depends how promptly producers can respond to the change in demand in a market. If the supply of a good can be expanded or contracted comparatively easily in response to any change in price, then it is elastic. If, however, supply remains comparatively fixed despite to any change in price, then supply is inelastic. The following are some factors which will determine the elasticity of supply for a particular good.

- **The number of firms in the industry.** Usually, the greater the number of firms in an industry, the more elastic is the industry supply. As firms can respond to change in demand fairly easily.
- **The availability of stock:** If stocks are available with firms, then supply will be relatively more elastic because an increase in demand can be met with an increase in supply without any change in structure etc.

- **Existence of spare capacity:** If the industry is operating below full capacity or it has spare capacity within existing structure, then the supply will be more elastic, as it will be able to use up vacant factors of production in order to meet up with an increase in supply. Conversely, if firm is already using its available resources at its full capacity, the supply will be inelastic.
- **Ease of switching resources:** If the firm has ability to switch its factors of production to other products, the supply will be elastic, because firm can respond to any change of demand in a market. Conversely, if firm has such resources which cannot be used in production of other goods, the supply will be inelastic.
- **Time:** The longer the time period under consideration, the greater the ability of firms to adjust to a price change. Some goods take short time to complete their production process, have elastic supply. Conversely some goods take long time to be completed, have inelastic supply.

5.3 Elasticity of Supply and Time

What is particularly interesting about the elasticity of supply is that it changes over **time**.

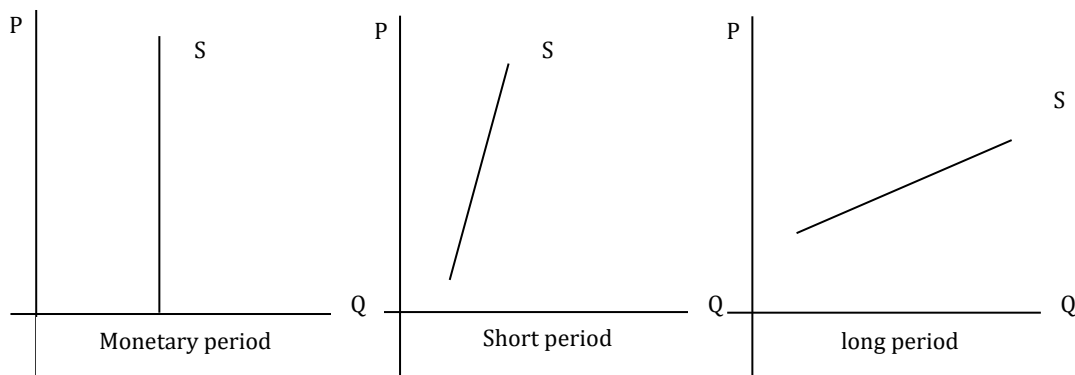
In economics there are three separate **time periods**, the monetary period or immediate market period, the short time or short run, and the long run. As we shall see, in this section, that in the momentary, short-run, and long-run, supply tends to get more and more elastic. This is because in the long run, all adjustments are able to take place.

The larger the time span producers have to adjust to a change in demand, the greater will be the output response.

- In **monetary period** or immediate market period, there is insufficient time to change output, and so supply is perfectly **inelastic**.
- In **short period** of time, although the plant capacity is fixed, with little alterations in techniques of production or with more efficient use of resources, supply can be adjusted up to a little extent, and supply is therefore relatively **inelastic**.
- In **long run** or long period all required adjustment can be made, including change in structure of the building, plant size etc., in order to meet any change in demand and therefore supply will be highly **elastic**.

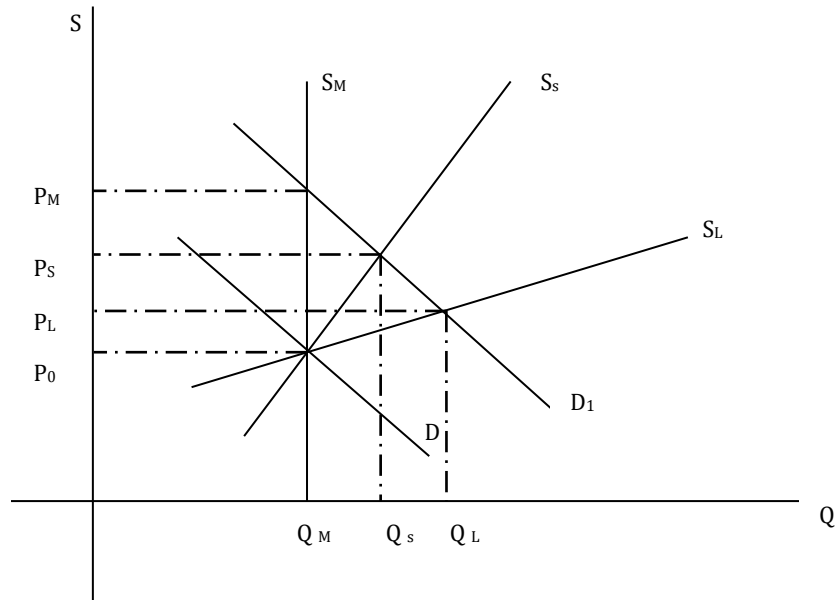
► Illustration

Let's have a review of different slopes of supply curve and their relationship with degree of elasticity of supply.



A combine effect of different amount of time periods, to respond a particular change in demand

Graphically, this can be represented like so:



In the above diagram equilibrium is initially at P_0Q_M , a position of long-run equilibrium. Demand rises from D to D_1 at price P_0 .

In the *momentary period* the prices rise towards P_m

In the *short-run period* the increased elasticity of supply adjusts price towards P_s

In the long run the price adjusts to P_L

In above diagram it is clear that as the amount of time to supply a product into a market in order to meet the demand is increasing, the elasticity of supply also increasing.

REFERENCES

Marshall A. (1961). Principles of Economics. variorum edition. C.W Guillebaud ed., Macmillan, London, 2 voll.

STICKY NOTES

Elasticity is a very useful descriptive statistic of the relationship between any two variables because it is independent of the units, such as quantity and price units, in which the variables are measured.

As we know that there is a direct relationship between price and quantity supplied, the coefficient of elasticity supply will be positive ever.

In elasticity estimation, the negative sign shows the slope of the demand curve and the absolute value is the coefficient of elasticity of demand.

Degree of Elasticity

Absolute value of coefficient or numerical value of Elasticity	Degree of Elasticity	Description
$E = 0$	Perfectly inelastic	There is no change in quantity demanded in spite of change in its price
$0 < E < 1$	Relatively inelastic	Rate of change in quantity demanded is lesser than change in its price
$E > 1$	Relatively Elastic	Rate of change in quantity demanded is greater than change in its price
$E = 1$	Unit Elastic	Rate of change in quantity demanded is equal to the change in its price
$E = \infty$	Perfectly elastic	A nominal change in price of a product will largely affect the demand for the product

Cross price elasticity of demand for independent goods is Zero or near zero. Zero cross price elasticity of demand depicts that there is no relation between two goods. Change in price of one product has no effect on demand for other product.

SELF-TEST

1. Which of the following products is likely to have the lowest price elasticity of demand?
 - a) Salt
 - b) Cars
 - c) Houses
 - d) Apples
2. Which statement is true of a curve with a constant slope?
 - a) It is a straight line
 - b) It is non linear
 - c) It runs parallel to Y-axis
 - d) It runs parallel to X-axis
3. Production and employment in which of the following industries would be least affected by recession?
 - a) Sugar
 - b) Steel
 - c) Garments
 - d) Vehicles
4. If the market price of a product increases from Rs. 35 to Rs. 40 and in response, the quantity demanded decreases from 1400 units to 1200 units, the value of its price elasticity of demand is:
 - a) 0.9
 - b) 1
 - c) 1.1
 - d) 1.2
5. Which of the following is NOT a method for the measurement of price elasticity of demand?
 - a) Total outlay
 - b) Total savings
 - c) Point method
 - d) Arc method
6. If the price of a good fell by 10% and, as a result, total expenditure on the good fell by 10%, the demand for the good would be described as
 - a) perfectly inelastic
 - b) perfectly elastic
 - c) unitary elastic
 - d) elastic
7. Which one of the following statements about the elasticity of supply is not true?
 - a) It tends to vary with time.
 - b) It is a measure of the responsiveness of supply to changes in price.
 - c) It is a measure of changes in supply due to greater efficiency.
 - d) It tends to be higher for manufactured goods than for primary products.

8. If the demand for a good is price inelastic, which ONE of the following statements is correct?
 - a) If the price of the good rises, the total revenue earned by the producer increases.
 - b) If the price of the good rises, the total revenue earned by the producer falls.
 - c) If the price of the good falls, the total revenue earned by the producer increases.
 - d) If the price of the good falls, the total revenue earned by the producer is unaffected.
9. An inferior good is one which has an income elasticity of demand that is
 - a) positive but less than unity
 - b) negative
 - c) unitary
 - d) zero
10. A business, currently selling 10,000 units of its product per month, plans to reduce the retail price from £1 to £0.90. It knows from previous experience that the price elasticity of demand for this product is -1.5.
Assuming no other changes, the sales which the business can now expect will be
 - a) 8,500 units
 - b) 9,000 units
 - c) 11,000 units
 - d) 11,500 units
11. If the demand for a good is price elastic, a fall in price will lead to
 - a) a rise in sales
 - b) a fall in sales
 - c) a rise in total expenditure on the good
 - d) a fall in total expenditure on the good
12. Which of the above are correct?
 - a) (i) and (iii) only
 - b) (i) and (iv) only
 - c) (ii) and (iii) only
 - d) (ii) and (iv) only
13. The price elasticity of supply means the
 - a) change in supply divided by price
 - b) responsiveness of the quantity supplied to a change in price
 - c) responsiveness of the quantity supplied to a change in demand
 - d) time taken for supply to adjust to a change in price
14. Price elasticity coefficient of 0.2 implies that the %age change in quantity for a 5% change in price will be:
 - a) 0.2
 - b) 2.5
 - c) 5
 - d) 1

15. Assume that a fall in price of a commodity from Rs10 to Rs.9 per unit results in an increase in weekly sales from 100 units to 110 units. Price elasticity of demand would be:
- 1.9
 - Unity
 - 2
 - Zero
16. Very small or zero Co-efficient of price elasticity of demand means that the good is:
- a necessity
 - a comfort
 - a luxury
 - any of the above
 - none of the above.
17. The standard measure for measuring demand and supply elasticity is
- Zero
 - Unity
 - Infinity
 - Two
18. The income elasticity of demand for an income inferior good has an arithmetic sign.
- Positive
 - Zero
 - Negative
 - No sign
19. From the demand schedule below, the price elasticity of demand following a fall in price from Rs 25 to Rs. 20 is:

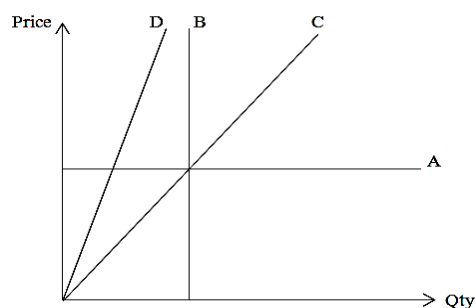
Price (Rs.)	Quantity (units)
15	30
20	25
25	20
30	15

- 1
 - 1.25
 - 1.50
 - 1.75
20. If the price of a good fell by 20% but total expenditure on the good remained the same, the demand curve could be described as
- Perfectly elastic
 - Elastic
 - Perfectly inelastic
 - Unitary elasticity

21. Prices are less volatile when:
 - a) supply is elastic, demand is elastic
 - b) supply is inelastic, demand is inelastic
 - c) supply is elastic, demand is inelastic
 - d) supply is inelastic, demand is elastic
22. If the quantity of a commodity demanded remains unchanged as its price changes the coefficient of price elasticity of demand is:
 - a) Greater than one
 - b) Equal to 0
 - c) Smaller than one
 - d) Equal to 1
 - e) Zero
23. If a straight line demand curve is tangent to a curvilinear demand curve, the elasticity of the two demand curves at the point of tangency is:
 - a) The same
 - b) Different
 - c) Can be the same
 - d) It depends on the location of the point of tangency
24. A negative income elasticity of demand for a commodity indicates that as income increase then amount of the commodity purchased:
 - a) Rises
 - b) Falls
 - c) Remain the unchanged
 - d) Any of the above
25. If the amounts of two commodities purchased both increase or decrease when the price of one change, the cross elasticity of demand between them is:
 - a) Negative
 - b) Positive
 - c) Zero
 - d) One
26. If percentage change in quantity demanded is greater than percentage change in price demand said to be:
 - a) Less elastic
 - b) More elastic
 - c) Inelastic
 - d) Perfectly elastic
27. If total consumer's expenditure increases in response to price fall, demand is:
 - a) Relatively elastic
 - b) Relatively inelastic
 - c) Unitary elastic
 - d) All of the above

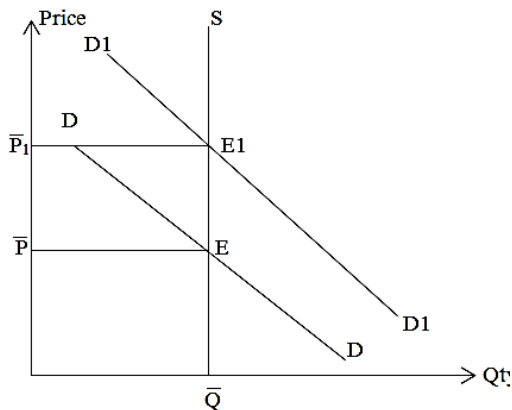
28. Let quantity demanded decreases from 30 to 10 as price of the product increases from 200 to 400. Price elasticity of demand would be:
- a) -2.5
 - b) -1.5
 - c) -0.5
 - d) zero
29. When there is a small change in the quantity demanded of a product in response to a small change in its price. Elasticity method will be known as:
- a) Point elasticity
 - b) Arc-elasticity
 - c) Gross elasticity
 - d) None of the above
30. Income elasticity of demand for inferior goods is always:
- a) Positive
 - b) Negative
 - c) Zero
 - d) Infinity
31. Price elasticity of demand for Giffen goods is always.
- a) Positive
 - b) Negative
 - c) Zero
 - d) Infinity
32. Cross elasticity of demand for complementary goods is always.
- a) Positive
 - b) Negative
 - c) Zero
 - d) Infinity
33. Main determinant of Elasticity of Demand is:
- a) Time period
 - b) Brand loyalty
 - c) Possibility of substitution
 - d) All of the above
34. The supply of a particular product will be more inelastic.
- a) The longer it takes to produce the good
 - b) The longer the good can be store
 - c) The greater the number of firms in the industry
 - d) The greater the amount of spare capacity in the industry

35. As the period of time to supply a product into a market in order to meet the demand is increasing the elasticity of supply also.
- Increasing
 - Decreasing
 - Remains same
 - None of the above
36. A shift to the right in the supply curve of a good, the demand remaining unchanged, will reduce its price to a greater degree.
- The more elastic the demand curve
 - The less elastic the demand curve
 - The elasticity of demand is unity
 - Supply curve is less inelastic
37. If the price of a good fell by 5% and as a result, total expenditure on the good fell by 10% the demand for the good would be:
- Elastic
 - Unitary elastic
 - Perfectly inelastic
 - Perfectly elastic



38. In the above diagram curve "C" having elasticity of supply.
- Less elastic
 - More elastic
 - Unitary elastic
 - Perfectly elastic
39. Elasticity of supply of perishable goods is generally:
- Less elastic
 - More elastic
 - Unitary elastic
 - Inelastic
- (i) & (iv)
 - (i) & (iii)
 - (ii) & (iii)
 - (iii) & (iv)

40. Elasticity of supply of durable goods is generally
- Unitary elastic
 - More elastic
 - Inelastic
 - Less elastic
- (i) & (ii)
 - (ii) & (iii)
 - (ii) & (iv)
 - (iii) & (iv)
41. _____ measures the sensitivity of demand for a good to change in money income of consumer.
- Income elasticity
 - Price elasticity
 - Cross elasticity
 - None of the above
42. In __A__ unless there are substantial stocks of the commodity an increase in demand cannot be met immediately. In __B__ partial adjustment can be made to enable producers to increase the supply of the product. In __C__ it can be expected that the whole supply position will change.



43. In the above diagram supply curve represents.
- Perishable good
 - Perfectly inelastic good
 - Normal good
 - Durable good
- (i) & (ii)
 - (ii) & (iv)
 - (ii) & (iii)
 - (ii) & (iv)

ANSWERS TO SELF-TEST QUESTIONS

1	(a)	11	(a)	21	zero	31	(b)	41	(a) = Very Short Run (b) = Short Run (c) = Long Run
2	(a)	12	(b)	22	(d)	32	(d)	42	(a)
3	(a)	13	(d)	23	(b)	33	(a)		
4	(b)	14	(b)	24	(a)	34	(a)		
5	(b)	15	(a)	25	(b)	35	(b)		
6	(a)	16	(b)	26	(a)	36	(a)		
7	(c)	17	(c)	27	(b)	37	(c)		
8	(a)	18	(a)	28	(a)	38	(a)		
9	(b)	19	(d)	29	(b)	39	(a)		
10	(d)	20	(a)	30	(a)	40	(a)		

AT A GLANCE

SPOTLIGHT

STICKY NOTES

FIRM THEORY

IN THIS CHAPTER

AT A GLANCE

SPOTLIGHT

1. Production and production function
2. Laws of returns (or return to factor) and law of variable proportions
3. Cost of production
4. Cost production in long run
5. Firm's revenues
6. Four market model
7. Globalization and firm's behaviour

STICKY NOTES

SELF-TEST

AT A GLANCE

In previous chapters, we have taken into account a rich discussion about market forces (Demand and Supply) and consumer behaviour. In this chapter, we will turn our discussion towards firm behaviour or producer's behaviour, dealing with business theory or firm's behaviour.

We come across variety of goods and services which can be produced to achieve firm's ultimate objectives and constraints that it faces during production and distribution of those goods and services. For this purpose, a firm needs some economic resources, termed as factors of production such as; Labour, Capital, Land and Entrepreneur. To get these resource factors, they make payment to these factors by calling them rewards of factors of production (i.e., rent, wages, interest and margin of profit or loss) afterward considered as cost of production.

Later sections, will discuss firm's revenues to determine their profit levels under different market models.

1 PRODUCTION AND PRODUCTION FUNCTION

1.1 Production

Production is the activity of making goods and services by combining input resources. In economics, these resources are known as factors of production including labour, capital, land and entrepreneur. Production decision is one of the most important factors to determine the firm's overall life. In this section we will use a simple model to determine the level of output for a firm.

As in consumer theory, the main objective of the consumer is to maximize their utility, while in firm behaviour, firm's objective is profit maximization. Similar to consumer theory, a firm also has some constraints for instance cost of labour and capital etc.

1.2 Production function

For better understanding of production decisions of a firm, we must keep in view that the quantity of output depends upon various inputs. This relation is more precisely described by production function which shows that the physical output is associated with some inputs. For example, if you are running a garments unit, that means you need some input resources such as, labour, machines, raw material, building etc. The quantity outfits are your output, whereas labour, machines and building etc., are required inputs.

Production function is a technical relationship between input and output of the firm. Precisely, production can be described as a schedule with shows the maximum output that can be produced from a given set of inputs.

In theory of firm behaviour, we deal with multivariable function, however, to avoid the complexity of the model we will use only traditional version of production function.

► Mathematically,

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

Where,

Q stands output or production

f represents the function

L for Labour

K for Capital

1.3 Total, Average and Marginal Products

For comfortable understanding of the firm's behaviour, we need to comprehend some basic concepts related to firm's product including, **Total Product**, **Average Product** and **Marginal Product** termed as **TP**, **AP** and **MP** respectively. *Total product* is amount of goods and services produced by utilizing all the available inputs in given period of time, where the *Average Product*, AP, is how much of the good that is produced on average by a certain input factor i.e. labour or capital.

► Mathematically,

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

and

$$AP_K = \frac{Q}{K}$$

The *Marginal Product*, MP, is rate of change in total product by using an extra unit of input, or marginal product expresses the contribution of an additional input factor to the total product. Marginal product also indicates the slope of total product to a particular input factor.

► *Mathematically,*

For labour as input, MP is denoted as

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

$$MP_L = \frac{\text{Change in total product}}{\text{Change in labour input}}$$

and for capital it is,

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

$$MP_K = \frac{\text{Change in total product}}{\text{Change in units of capital input}}.$$

1.4 Short Run and Long Run

In economic theory, we consider two different time spans as for production periods, termed as **short run** and **long run**. We have seen in previous sections (specially in market supply) that as demand for a product increase, all else remain equal, firm's profitability may increase. But it depends on firm's reaction that how quickly it can respond to change in demand. In theory of market supply, we have observed that firm's response depends upon the ability to switch resources or increase in existing resources.

Sometimes, it needs plenty of time to adjust its some of the input factors, particularly in case of plant, machinery or building. In some cases, like, cement industry, automobiles or aircraft industry; it needs even years, for any alteration in its productive capacity. These differences in time to alter the production capacity, require distinction between two time periods i.e., **short run** and **long run**.

A time period in which at least one input factor remains fixed while other are variable is termed as **short run**, while if none of the factors remain fixed is known as **long run**. Moreover, in short run the firm's existing plant capacity is fixed. However, in short run, firm can only alter its variable factors such as; labour, material, utilities etc., in order to increase production. Conversely, in long run, along with variable input factors, firm can also make some changes in its fixed input factors such as; building, plant and apparatus etc.

For instance, in our previous example of a garment's unit, suppose plant is operating at full capacity of 100 units with given number of workers for single shift of eight hours. To increase production to 200 units with existing capacity, what options can be exercised? Plant can operate in second and third shift with additional workers or by directing employees to work overtime. In both cases, only those factors which are variable are changed in given period of time.

Now suppose, an order of 5000 units is received. Is it possible to meet demand within given conditions? Certainly not. Alteration in existing plant, equipment and may be building structure will be required to meet this demand. Obviously, it takes couple of months or a year to make all these changes. In this example, the stated time period is exhibited as **short run**. Let's suppose if, you are given as much time as you needed to meet this demand, by altering all of the input resources including fix and variable. What you will do? Will you accept this order or not? Of course, yes. In economic theory, this span of time is called **long run**.

Short Run Production Function

To express short run production function, assume labour is the only variable factor, whereas the capital is fixed. We will add a line on K and the short run production function will be expressed as;

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

2 LAWS OF RETURNS (OR RETURN TO FACTOR) AND LAW OF VARIABLE PROPORTIONS

Operating under short run, as we kept the amount of capital input fixed, any change in total output will be attributed to additional unit of worker. During a production process in short run, with an increase in units of labour along with fixed capital stock, we see that;

- Initially the contribution per worker (labour) is greater than preceding one; it will increase the marginal and total product.
- Later on, the contribution of extra worker will decline, up to a certain limit, then the total product will increase.
- Subsequently, the contribution of successive unit of variable factor i.e., labour will become zero and then negative, as total product will start declining.

2.1 Law of variable proportions

Law of variable proportions states that by increasing the quantity of one factor (L) keeping the other factors (K) fixed, the marginal product of that factor will eventually decline.

Suppose in a garment factory, you are working alone with existing plant. No doubt if you will try to do all activities such as cutting, stitching and wrapping etc., alone, your efficiency will start declining. Suppose you have added one more worker and distributed your job, positively, your productivity will increase, termed as increase in marginal contribution. Although, productivity seems to be increasing, with a greater number of workers, but it's not true. As we are operating under short run and capital resources are assumed fixed, soon the marginal contribution of additional worker will start declining and eventually will decline the total product.

Assumptions

- Short run:** This law operates only in short run. As in long run we can change the techniques of production so, productivity of the labour can be increased.
- Labour is the only variable input factor:** In this model labour is assumed as variable input factor.
- Constant state of technology:** Due to short run its further assumed that there is no possibility to change the existing technology, otherwise the marginal product can increase.
- Homogeneous input factors:** This law is effective only, when all the input factors are homogeneous (equally efficient).
- Possibility to combine the input factors:** It is further assumed that there is no constraint to combine the resources in order to get output. All the resources are attuned with one another.

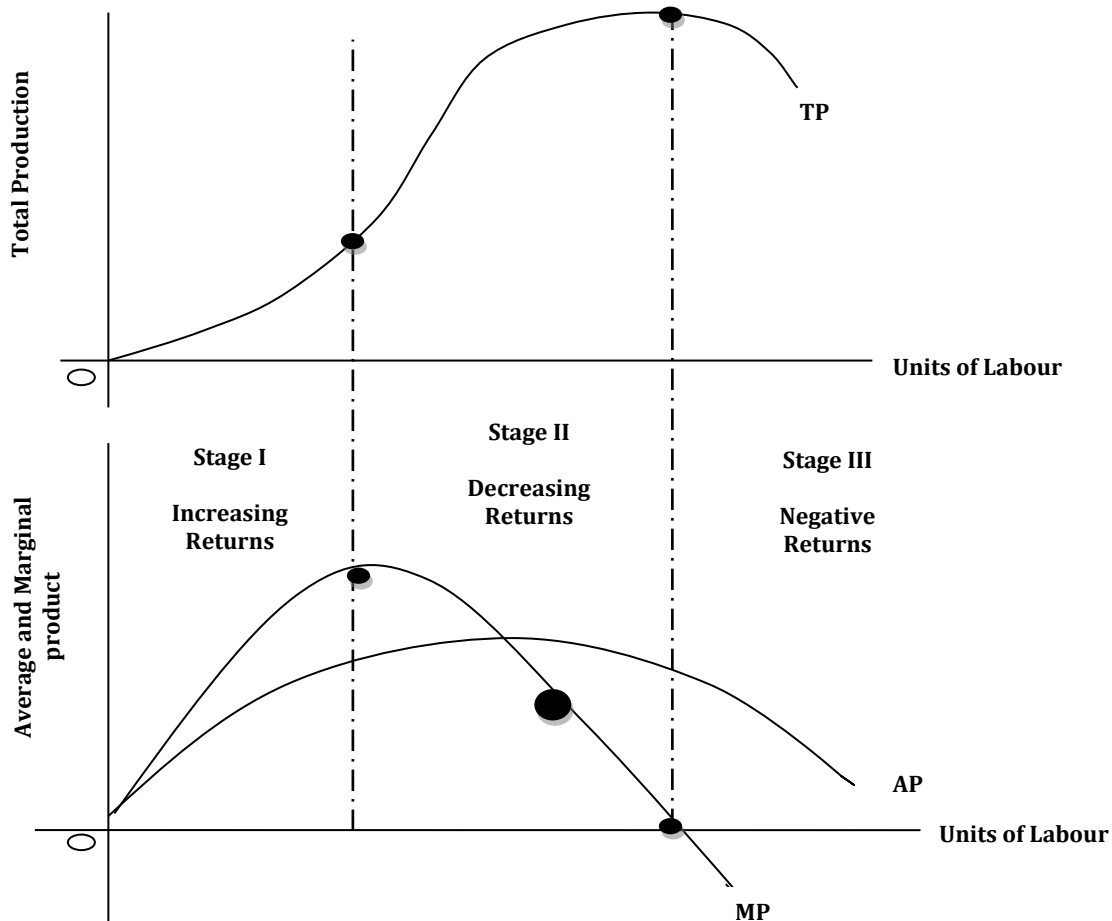
► Example:

The following table shows the stages of production, while combining variable input factors with some given input factors.

Units of Fixed F.O.P (K) (1)	Units of Variable F.O.P (L) (2)	Total Product (T.P) (Units) (3)	Marginal Product (M.P) (Units) (4)	Average Product (A.P) (Units) (5)
10	0	0	-	0
10	1	5	5	5
10	2	15	10	7.5
10	3	30	15	10
10	4	40	10	10
10	5	45	5	9
10	6	45	0	7.5
10	7	40	-5	5.7

Column (3) shows the total product which is the combined output from all variable input factors and one fix input factor. Column (4) shows that with additional variable input factor the marginal output or return is increasing till the third unit of labour. But after a while that fourth and fifth units of labour, the marginal product is diminishing continuously and reach zero with sixth and negative with seventh. Like marginal product, average product also initially increases, then decreases.

► *Graphically*



Upper panel of the graph, represents total product while lower panel shows marginal and average product. As variable input factors increase with some fix input factors, the total product initially increases with increasing rate and later with decreasing rate. As a result, marginal product first increases then decrease sharply. After reaching its maximum, the total product decreases, as a result marginal product becomes negative. Whereas average product simply first increases and then decreases. Marginal and average curves intersect each other at the point where average product is in its maximum.

Stages of Production

Law of diminishing returns passes through the three important stages of production:

- Stage (I) - Increasing returns:** Initially the contribution per worker (labour) is greater than the preceding one; increasing the marginal and total product.
- Stage (II) - Diminishing returns:** The marginal production decreases after a certain point even though the total production keeps on increasing.
- Stage (III) - Negative returns:** Subsequently, the contribution of successive unit of variable factor i.e., labour will become zero and then negative, as total product will start declining.

2.2 Production Function in Long Run

Production function when firm is capable to alter all its input factors including those which were fix in our previous discussion is referred to as long run production function. Resultantly the long run allows the firms to extend its production capacity by altering it's all input factors. That means the quantity produced is attributed with both labour and capital. Consequently, the production function will become:

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

2.3 Returns to Scale

Relation between output and variation in only one input factor is known as returns to factor. The relation between output and variation in all inputs, taken together, is termed as returns to scale (as all the input factors are variable here).

Like in short run, in long run also, firm experienced with different stages of production.

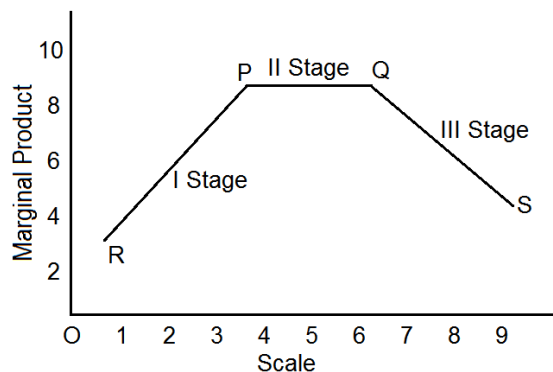
Suppose we are running our production unit in a building. Gradually we feel that the existing space is not sufficient to produce more goods. Eventually, we get one more building of the same size as previous with same number of workers. As that new building capacity is likely to be operating like the first one, then the production will be doubled now. In other words, as we double the resources the total product doubles. This scenario is known as constant returns to scale. However, as we have doubled our resources it is getting difficult and expensive to manage the extensive business.

The administrative requirements are increasing and more funds are required to manage it. The cost is increasing proportionally with an increase in production (the rate of change in output is lesser than rate of change in inputs). This is known as diminishing returns to scale (rarely happening). Mostly it has been observed that with expansion in business by increasing all input resources, we have more financial resources, and we can afford qualified and trained staff equipped with latest administrative and technological advancements. By utilizing such resources, the rate of change in output usually remains greater than the input resources. This situation is termed as increasing returns to scale.

► Table 1: Returns to Scale¹

Unit	Scale of Production	Total Returns	Marginal Returns
1	1 Labour + 2 Acres of Land	4	4 (Stage I - Increasing Returns)
2	2 Labour + 4 Acres of Land	10	6
3	3 Labour + 6 Acres of Land	18	8
4	4 Labour + 8 Acres of Land	28	10 (Stage II - Constant Returns)
5	5 Labour + 10 Acres of Land	38	10
6	6 Labour + 12 Acres of Land	48	10
7	7 Labour + 14 Acres of Land	56	8 (Stage III - Decreasing Returns)
8	8 Labour + 16 Acres of Land	62	6

Figure 1



¹ Extracted from: Ponnusamy, S. (2017) Law of Returns to Scale. As retrieved on October 10, 2021.
<https://owlcation.com/social-sciences/Law-of-Returns-to-Scale>

3 COST OF PRODUCTION

Conventionally speaking in market economies all types of business identities need some resources to produce their products. In order to obtain and use these resources firm faces some monetary and nonmonetary (opportunity cost or forgone benefits) payments (i.e., rewards of factors of production). These monetary payments and opportunity cost collectively frame the firm's cost of production.

3.1 Explicit and Implicit Cost

Dealing with firm's cost of production; we come across two different points of views. One is accountant and other one is economist point of view. An accountant considers those expenditures as cost of doing business which he records in expenditure account only; conversely as an economist, the expenditure showing in accounts books is only one part of the total cost termed as **explicit cost**. In economic theory, there is another important cost termed as **implicit cost** also known as opportunity cost that is also crucial in decision making.

We can infer that;

Total Economic Cost = Explicit Cost + Implicit Cost

► For example

Zain is serving somewhere, where he gets Rs. 100,000 per month. Now for some reasons he has decided to run his own business. Thus, the salary he has sacrificed to start his own business is designated as opportunity cost or *implicit cost*.

3.2 Short Run and Long Cost Functions

Same as the theory of production, theory of cost is also divided into subsections: **Short run** and **Long run**. Short run cost functions are used for day-to-day business operation, whereas the long run cost functions are used in the long run business strategies.

Sort Run Cost Concepts or Family of Cost

Short run is designated to a time period during which at least one of the input factors is fixed, while in long run firm is able to alter its all input resources (as discussed in production function). A **fixed input factor** is that which remains unchanged while making any change in output, whereas the **variable factor** fluctuates with variation in output. Accordingly, the **fix cost** is the cost which a firm compensates to its fixed input factors and remains unchanged during the production process. Conversely the **variable cost** fluctuates along a variation in production.

Mathematically,

Total Cost = TFC + TVC

In terms of Average Cost, the equation can be written as:

$$\text{Average Fixed Cost (AFC)} = \frac{\text{Total Fixed Cost (TFC)}}{\text{Quantity (Q)}}$$

$$\text{Average Variable Cost (AVC)} = \frac{\text{Total Variable Cost (TVC)}}{\text{Quantity (Q)}}$$

$$\text{Average Total Cost (ATC)} = \frac{\text{Total Cost (TC)}}{\text{Quantity (Q)}}$$

From the total cost function, we can derive the average cost function as;

$$\frac{TC}{Q} = \frac{TFC}{Q} + \frac{TVC}{Q} \quad (\because ATC = AFC + AVC)$$

Where, the marginal cost (MC) or incremental cost is the additional cost of producing an extra unit of given product. Marginal cost represents the slope of total cost function as;

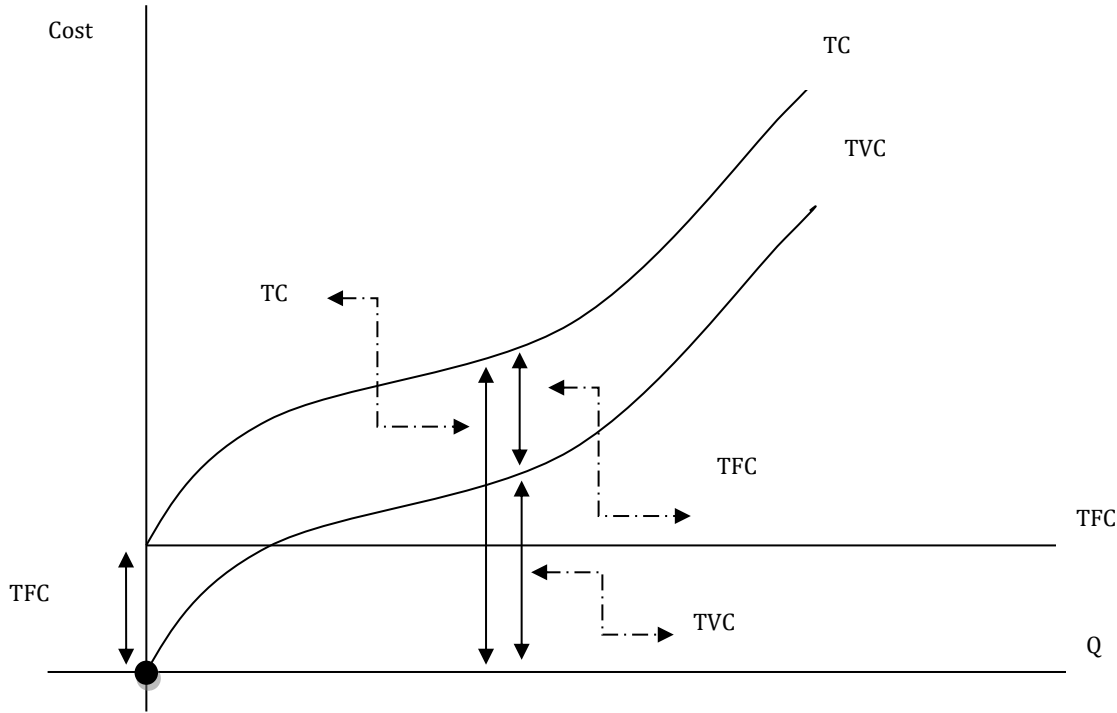
$$MC = \frac{\Delta TC}{\Delta Q}$$

► *Example:*

Following is the hypothetical data showing a firm's Total, Average and Marginal cost in short run.

By plotting the numbers given in table, along a defined axis, the graph below shows that the TFC remain independent of the level of output, while TVC is changing its position in output variation and TC is responding correspondingly.

An important point to be noted here, that is obvious that $TC > TVC$ as $TC = TFC + TVC$



Marginal and Average Cost Curves

Relationship between marginal and Average cost

- **Marginal Cost (MC)** is the additional cost incurred from producing one more unit of output. It reflects the change in total cost when output increases by a small amount.
- **Average Cost (AC)** is the total cost divided by the number of units produced. It shows the cost per unit of output.
- **When MC is less than AC:** Average cost is decreasing. This happens because producing one more unit costs less than the average, pulling the AC down.
- **When MC equals AC:** Average cost is at its minimum. This is the point where the cost structure is most efficient, as any further increase in production would raise the average cost.
- **When MC is greater than AC:** Average cost is increasing. Here, producing an additional unit costs more than the average, causing the AC to rise.

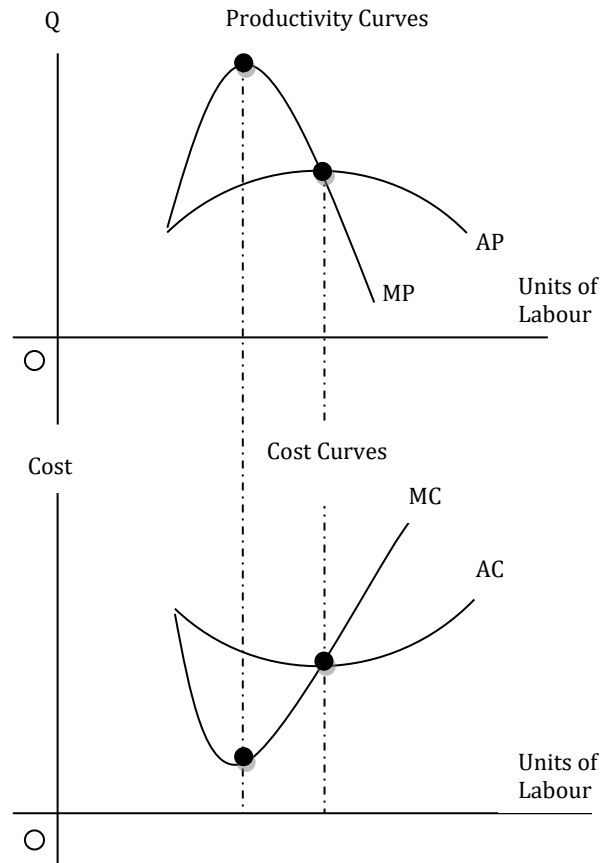
In summary, the marginal cost curve intersects the average cost curve at the lowest point of the average cost curve. This is a critical concept for businesses aiming to optimize production costs.

A comparative study of productivity curves and cost curves.

Marginal and average products move conversely with marginal and average products, when variable input factor i.e., labour, is coupled with fix input factor (law of diminishing returns also called law of increasing cost).

Upper section of the diagram represents the productivity curves and lower section shows cost curves. As marginal product is increasing (the 1st stage of the laws of returns), the marginal cost diminishes conversely. Marginal product turns down after touching its upper limit, at the same time marginal cost also turns into its increasing phase, but after touching its minimum.

In productivity curve the marginal and average curves are equal when average product is maximum, conversely in the cost section, marginal cost equals average where average cost is minimum.



4 COST OF PRODUCTION IN LONG RUN

In recent sections, we have observed time and again that the firm can alter its all input factors, in order to expand its scale of production in long run. In the long run, there is enough time for new firm to join and existing firms to leave industry. Additionally, in the long run as the firms are not facing any fix cost so the total cost will be same as total variable cost for that firm. Regarding cost curves, as in short run the gap between ATC and AVC was just because of AFC and in long run there is no reason for such gap. Resultantly, in long run only ATC will be used for all economic decision for a firm and as well as for industry.

4.1 Long Run Cost Concepts

In the long run, a firm can change even its fixed factors of production in order to increase its productive capacity. As the long run is the summation of couple of short runs, cost curves in long run also represents the aggregate of many short run cost curves. A firm can have different plants and each plant can be associated with a different scale of fixed capacity. So, firm can move from one plant to another with intension to increase its output. Eventually the **long run ATC** curve will rest on different **short run ATC**.

4.2 Economies and Diseconomies of Scale and Firm's Average Total Cost

The slope of long run ATC curve depends upon, whether the firm is enjoying economies of scale or experiencing with diseconomies. A long run ATC can go through the different stages of rise, fall or remain constant. During the phase of economies of scale, the firms ATC in long run will fall. While in the phase of diseconomies of scale a firm, the ATC will start rising. Exceptionally, if the firm is neither experiencing economies nor diseconomies of scale, the ATC in long run will be flatter or horizontal.

As a major part of our debate is occupied with **economies** and **diseconomies of scale**, so at the moment it's necessary to discuss economies and diseconomies in detail.

Economies of Scale

Economies of scale exist when long run average costs decline as output expands.

Here we will discuss few such benefits a firm can enjoy in long run that causes fall in cost of production for a firm.

- **Specialization in Labour** is very common in economies of scale. As small firms cannot afford a large number of workers and several jobs are generally distributed among few workers. By doing different jobs simultaneously, the skills of the workers suffer due to lack of specialization. Labour productivity increases in large firms as they adapt the division of work among the large number of workers which causes diminishing cost for the firm.
- **Technological factors** can also lead to economies of scale. In large scale operations, firm can move with highly specialized equipment, as opposed to less efficient machines used in smaller firms. The productivity of installed plants frequently increases with size much faster than its cost. For example, a small printer cost more than a large one if it is used at full capacity.
- **Buying in bulk** leads to discounts from sellers. If you are buying papers for your large printer being used for commercial purpose, one must offer you some discount to attract this bulk purchases. As firms are not only one input resource, they can get multiple discounts on different raw materials, supplies, and other inputs.
- **Cost of capital** for large firm is usually low as they have easy access to capital markets and can acquire funds at more favourable rates. As large firms have frequent interactions and they maintain heavy accounts with banks, such as salary account, trading accounts etc., resultantly, they have good bargaining position in banks to sanction loan at more attractive interest rates, (causing a greater decrease in cost of production).
- **Repairing and maintenance** facilities are only available for large scale production units. Large scale businesses have a number of plants operational which make repairing workshops and services available at their door step (reducing the transportation and time cost involved).
- **Start-up cost** for many businesses sometime become more crucial. Firms have to spent a minimum budget just to start a business regardless of the projected sales, such as product development, product and packaging design, printing etc. Such cost decreases on average as output increases.
- **Cost of advertisement** and other commercial activities such as exhibitions and billboard hoarding etc., decreases as output increases.

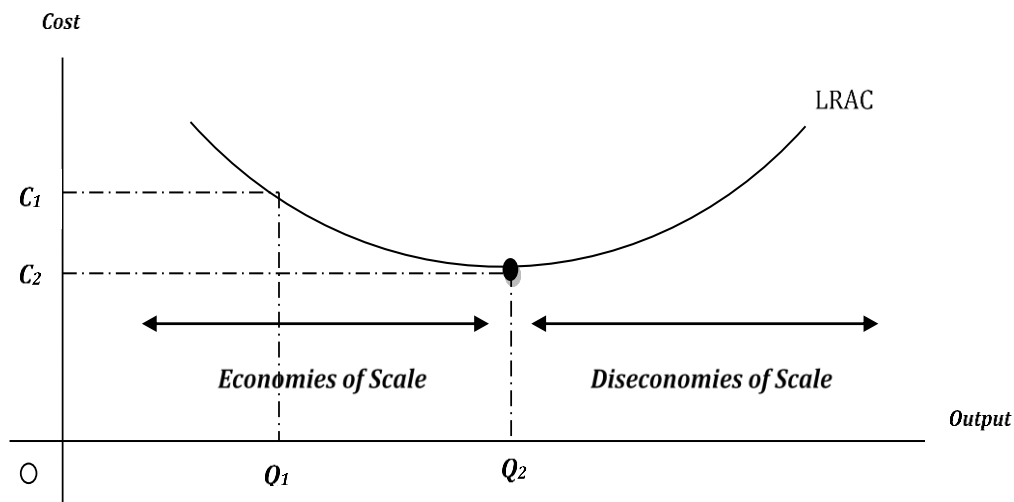
Diseconomies of Scale

Diseconomies of scale exist when long run average costs increase as output expands.

At some output level economies of scale are typically exhausted, and average costs get an upward push.

- **Coordination among units** in large scale organization is an expensive activity. Such coordination requires a lot of budgets to install surveillance systems.
- **Hierarchy of management** some time creates hurdles for quick decision making, due to procedural formalities as compare to small scale business operations. So many cost-effective decisions sometime suffer by not taking decision in time.
- **Staff overhead** also tends to grow more than proportionately with output, again raising unit cost.
- **Labour unrest** or tension prevailing among the workers due to various industrial disputes, also arises during expansion period. Gradually, it starts getting difficult to coordinate among employers and employees. Such factors reduce worker's efficiency and cause an increase in unit cost.

4.3 Long Run Cost Combined with Economies and Diseconomies of Scale



In the graph above, a firm's ATC in long run is expressed using a relatively flatter cost curve. It is explained with output along X-axis, that as firm expands its output from Q_1 to Q_2 , its average cost falls from C_1 to C_2 , where the firm is experiencing the economies of scale up to Q_2 . Furthermore, as firm expands its output beyond the Q_2 , the economies of scale exhausted. Here, the firm is facing diseconomies of scale, which cause an increase in long run ATC.

5 FIRM'S REVENUES

Cost of production and revenues are two major factors which determine the firm's profitability. In this section, we will analyse revenues under various market structures. Simply, revenue is that income (money) which a firm earns by selling its goods into market.

Total, Average and Marginal Revenues

Firm's *total revenue* is obtained by multiplying the total sales with its sale price.

Mathematically,

Total Revenue = Sale Price x Total Sales or

$$TR = P.Q$$

Whereas, the *average revenue* is the average price a firm received from market against its sold products.

Mathematically,

$$\text{Average Revenue (AR)} = \frac{\text{Total Revenue}}{\text{Total Sold Units}}$$

or

$$AR = \frac{TR}{Q}$$

Point to note:

As, $TR = P.Q$

and

$$AR = \frac{TR}{Q} \text{ or } \frac{P.Q}{Q} = P$$

Therefore, $AR = P$

The marginal revenue shows the rate of change in total revenue to change in its output. In other words, we can say the marginal revenue is the revenue generated by selling an additional unit of a product (it can be calculated by measuring the slope of total revenue curve).

$$\text{Marginal Revenue} = \frac{\text{Change in Total Revenue}}{\text{Change in Total Sold Units}}$$

or

$$AR = \frac{\Delta TR}{\Delta Q}$$

Revenues Under Different Market Structures

Market is a mechanism, which is used to determine the price and output by combining both market players i.e., buyers and sellers. Although, there are various forms of markets, categorized on the basis of geography, commodity or degree of competition.

In the following section, we will discuss market based on degree of competition.

Later, under each market model, we will determine the price and output levels for a firm and industry.

6 FOUR MARKET MODEL

Four types of markets, typically are based on the degree of concentration of buyers and sellers, degree of product differentiation and extent of barriers to new entrants.

Now we will take up the detailed discussion of each kind of market model.

6.1 PERFECT COMPETITION

A market will be perfectly competitive if fulfil the following preconditions:

- **Large numbers of buyers and sellers:** It is the most important characteristic of such markets, as there are large number of buyers and sellers. Buyers and sellers cannot impose their conditions on each other.
- **Homogenous product:** An identical product means no individual producer can charge more for a good that could be considered superior.
- **Free entry and exit:** Absence of barriers for new entrants and for those who want to leave market. Firms can leave and enter market any time as determined by fluctuations in profit.
- **Perfect knowledge of prices:** Buyers and sellers are fully aware of prices in the market.
- **Absence of transportation cost:** Despite the cost of production of a product, transportation cost also makes a difference between the prices of different products while reach to market for sale. That's why in this model transportation cost will not be considered.
- **Perfect factor mobility:** Factors of production are perfectly mobile, allowing free long term adjustments to be made by the firm.
- **Firms are price taker:** As there are large numbers of buyers and sellers in a market, every firm have no way to influence market price and is determined by free market forces. Resultantly, firms have to accept the market price in this model.
- **No advertising expenses are included in the price.**

6.1.1 Firm's Revenues Under Perfect Competition

By combining the stated features of a perfectly competitive market, the price under such market models is determined by free market forces (demand and supply). Furthermore, being a small player of mass market, firm has no influence on market price, leaving no option but to accept it.

► Illustration:

Price (Rs.)	Quantity (Units)	TR (Rs.)	AR (Rs.)	MR (Rs.)
10	0	0	0	0
10	1	10	10	10
10	2	20	10	10
10	3	30	10	10
10	4	40	10	10
10	5	50	10	10

This table is showing hypothetical data of a firm under perfectly competitive market, where the price is supposed to be Rs. 10, which is determined by free demand supply forces. Conclusively, we can see that under such markets as the price remains unchanged, the marginal and average revenues also remain unchanged as; $P = AR = MR$ (A special outcome of such market models)

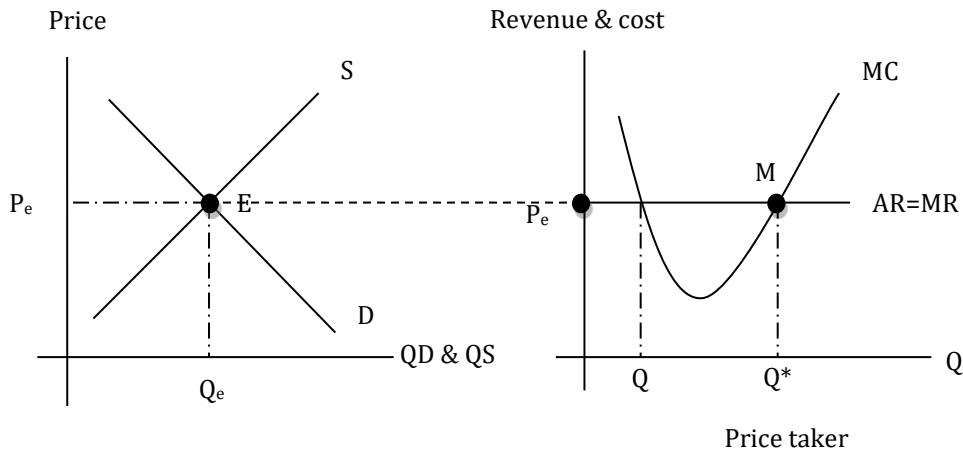
Firm's Price and Output Determination Rule

A firm's price and output determination rests on a **key rule**, which based on following conditions:

- Necessary condition: Firm's marginal cost, must be equal to its marginal revenue
i.e., $MC = MR$, this is the point where profit is maximized or loss is minimized.
- Sufficient condition: marginal cost equals to marginal revenues while it is increasing, this condition guarantees that the firm is at a point where increasing output any further would decrease profit, while producing less would not maximize revenue. Therefore, this ensures that the firm is maximizing its profit or minimizing its losses.

► **Graphically:**

Marginal cost curve cuts marginal revenue curve



In order to **maximize profits** in a **perfectly competitive** market, firms set marginal revenue equal to marginal cost ($MR=MC$). In the graph, both necessary and sufficient conditions are fulfilled at point M, and level of output Q^* is the profit maximization output level (all else equal).

6.1.2 Profit Maximization in Short Run and Long Run

It is said in introductory paragraph of firm's behaviour that the profit maximization is the ultimate objective of any firm in an industry. But firm's behaviour is different in short run and long run. We will start with the firm's profit maximization in short run, in the later section long run behaviour will be covered.

Profit Maximization in Short Run

In **short run**, firm is not independent, as far as all input resources are concerned. The firm is facing input constraint and is not capable of increasing its level of output beyond some limits. This inflexibility of input resources causes a sharp incline in its marginal and average cost of productions. Although, in a perfectly competitive market, there are no barriers for new entrants, however it is not easy for new firms to enter due to limited time to take advantage of demand variations. Consequently, the output remains restricted in a market, which can be advantageous for existing firms to maximize their profits only in short run.

Profit and Loss Situations

The firm's profit or loss depends on its TR and TC. Considering the profit equation as

$$\text{Profit } (\pi) = TR - TC$$

Therefore,

- If $TR > TC$, firms are enjoying profits
- If $TR < TC$, firms are facing losses
- If $TR = TC$, then firms are in break-even

A. In Case of Profits

Normal and Abnormal profits are entirely theoretical concepts, which have nothing to do with how an accountant will measure a company's profits. A normal profit is defined as the minimum level of profit required to keep existing firms in production, yet being insufficient to attract new firms into the industry. A normal profit mulls over both explicit and implicit cost. It is also termed as economic profit. This kind of profit occurs when firm's total revenues equals the sum of explicit and implicit cost ($TR = \text{Explicit cost} + \text{Implicit cost}$). Normal profit also represents the opportunity cost of the owner's resources. Whereas abnormal profit or excess profits (super normal profit) is defined as any extra profit over and above normal profit (TR is higher than both explicit and implicit cost).

Firm's accounting and economic profit.

In economic theory an **explicit cost** is also termed as **out-of-pocket cost** such as; interest obligations, wages paid to the workers, utility expenses, raw material payments and building rents etc. Whereas other noncash costs (opportunity cost) are called implicit cost of the firms. These costs do not involve cash expenditures and are therefore ignored in routine while taking business decisions. For example, the rent that a shop owner could receive on buildings and equipment if they were not used in the business is an implicit cost for landlord. Salary that an individual could receive by working for someone else instead of operating his own commercial activity.

► For example:

Mr. Zain currently works for a law firm. He has planned his own legal practice, where he expects to earn Rs. 200,000 per year once he establishes himself. To run his own firm, he would need an office and supporting staff. He has found the perfect office, which rents for Rs. 50,000 per year. He could hire supporting staff for Rs. 35,000 per year. If these figures are accurate, would Zain's legal practice be profitable?

To answer this question, first we have to calculate the costs. Here we will use our learned concepts of **explicit and implicit costs** and then sum up them:

Office rental: Rs. 50,000

Salaries of staff Rs. 35,000

Total explicit costs: Rs. 85,000

Now, subtracting the **explicit costs** from the total revenue gives us the accounting profit.

Total Revenues: Rs. 200,000

Explicit costs: Rs. 85,000

Accounting profit: Rs. 115,000

However, these calculations consider only the **explicit costs**. To run his own law firm, Zain would have to quit his current job, where he is earning an annual salary of Rs. 125,000. This would be an **implicit cost** (opportunity cost) of opening his own firm.

Now in order to get an **Economic Profit** we subtract both the **explicit and implicit costs**:

Economic profit = Total Revenues – (Explicit Costs+ Implicit Costs)

Economic Loss =Rs. 200,000 – (Rs. 85,000 + Rs. 125,000)

=Rs. 10,000 per year

Zain would be losing Rs. 10,000 per year. That does not mean he should not operate his own firm, but it does mean he would be earning Rs. 10,000 less than if he serves for that corporate firm.

To further explain this scenario, we need to understand implicit cost with little more depth. Implicit costs can include other activities also which cannot be measured in monetary term such as; leisure time, free from following rigid office timings, stress work to complete tasks, mental stress due to boss attitude etc.

These all factors have their own non-monetary cost. By not doing job in corporate office, in monetary terms may be he is losing Rs. 10,000 annually, but the leisure and free life which he will enjoy have a great impact on his health and may be much more than that monetary loss.

Super Profits

In the short run, super profit refers to the profit that a firm makes beyond the normal profit level. It occurs when the firm's total revenue exceeds both its total costs (including both fixed and variable costs) and its normal profit (the minimum amount needed to keep resources in their current use)

For a perfectly competitive firm to earn super profits in the short run, the condition is that the price (P) must be greater than the average total cost (ATC) at the output level where $MC = MR$

Normal Profits

Normal profit refers to the level of profit that a firm makes when its total revenue equals its total costs, including both **explicit costs** (such as wages, rent, materials) and **implicit costs** (the opportunity cost of the entrepreneur's time and resources).

In the short run, a perfectly competitive firm reaches equilibrium when its marginal revenue (MR) equals its marginal cost (MC). At this point firm produces equilibrium output and earns **Normal profit**

B. In Case of Losses

In short run, in case of losses a firm tries to minimize its losses by changing its variable factors only.

Subnormal Profit (Normal Loss)

Subnormal profit is that stage of firm's equilibrium where at the equilibrium level of output ($MC=MR$), the price exceeds average variable cost but is less than average total cost. Even at this level of output, a portion of the average fix cost is out of firm's revenues, but firm can survive as it is covering its average variable cost.

Shut Down Condition (Abnormal Loss)

In the short run the firm will continue to produce as long as total revenue covers total variable costs. In other words, the firm will continue to produce as long as price per unit is greater than or equal to Average Variable Cost ($AR = AVC$). This is because, a firm must pay its fixed costs even if there is no output. Assuming that these are sunk costs (and therefore would not be covered if the firm shuts down) then the loss per unit would be higher. The firm can be shut down, so long as they were still able to cover the variable costs.

It is, therefore, feasible for a firm not to shut down (in the short run) if $P < AC$.

Profit Maximization in Long Run

In long run, we know that there is no constraint of resource alteration as the firms have sufficient time to adjust themselves along demand variations. Moreover, in long run, not only existing firms can change its plant size but even new firms can enter into industry. Furthermore, the existing firms can continue to exist or cease to exist if it is no longer feasible to stay in the industry. Total market supply will fluctuate with entry and exit of the firms that will eventually affect the profitability of the remaining firms.

- i. New entrants will eliminate economic profit
- ii. Exit of the firm will eliminate the loss

Resultantly the existing firms will earn only normal profit in the long run

6.2 Monopoly

This is the other extreme market model, where only single firm is controlling the entire supply of a product. This is an opposite case of perfect competition.

The most common characteristics of a monopolist firm are:

- **Single seller:** One of the most noticeable features of such industries is that there is only one firm which has entire control over market supply. In other word the firm behaves like an industry
- **Heavy barriers for new entrants:** Another characteristic of such market structure is the existence of heavy barriers for new entrants. This is the pivotal reason for firm to behave like an industry.
- **Non availability of close substitutes:** Entry barriers make the monopolist product unique for consumers. They have no option but to purchase monopolist product.
- **Price maker:** Entire control over market supply and barriers for new entrants enable a firm to have substantial control over price. That is why a monopolist is known as "**price maker**".

► *For Example:*

Sui Southern Gas Company (SSGC and SNGPL): These are Pakistani leading incorporated gas companies.

The Water and Power Development Authority (WAPDA): Is a government owned public organisation for supplying and maintaining power in Pakistan.

Pakistan Telecommunication Company Limited (PTCL): It is a leading telecommunication authority in Pakistan providing telephonic and Internet related services

As we have discussed that the monopolist has entire control over market supply and behaves like industry and “price maker” too. There are couples of factors who work together commonly known as barriers or deterrents of monopoly setup. Here we will cover few but most prominent hurdles.

- **Control over key inputs:** Resourceful firms can create monopoly by controlling the essential inputs for some industry such as; cotton, sugar cane or oil seeds to have entire control over this input. Although, this is not an easy task, but competitors can be discouraged through such exercises.
- **Structural barriers** are those properties of the market that work to keep competitors out of industry like, economies of scale. As monopolist firms have large scale of production to deal with whole industry, which enables them to produce a product at such a lowest average cost that other firms cannot match. This is called a **natural monopoly**.
- **Cost management.** If a firm has ability to adopt a cheaper way of producing the good, it can prevent entry of new firms in the industry.
- **Predatory pricing or Dumping pricing,** is a strategy to keep competitors out of market. In this pricing strategy prices of goods or services are intentionally kept at such a low level that the rival firms cannot compete and have no other option but to leave the market.
- **Regulatory barriers.** Sometimes, state authorities may decide to allow only a particular firm to deal a particular product in a region. In such situation, no other firm can enter into market.
- **Legal barriers:** Patents and exclusive rights which a firm has on a certain good, where other firms are not allowed to enter. It is also possible to have exclusive right to extracting, for instance, oil or precious metals.

6.2.1 Firm Revenue Under Monopoly Structure

In a perfectly competitive environment as a firm has no or very little control over market supply, therefore they have to depend on market price (price determined by demand and supply forces known as **price taker**). In contrast, in a monopoly, firm enjoys complete liberty to determine its price and output. Consequentially, firm makes necessary changes in its price to maximize its total revenues.

Total, Average and Marginal Revenues

In a monopoly, firm faces a down slopping demand curve, average revenue equals to price and marginal revenues remain lesser than its price ($AR=P>MR$).

► *Illustration:*

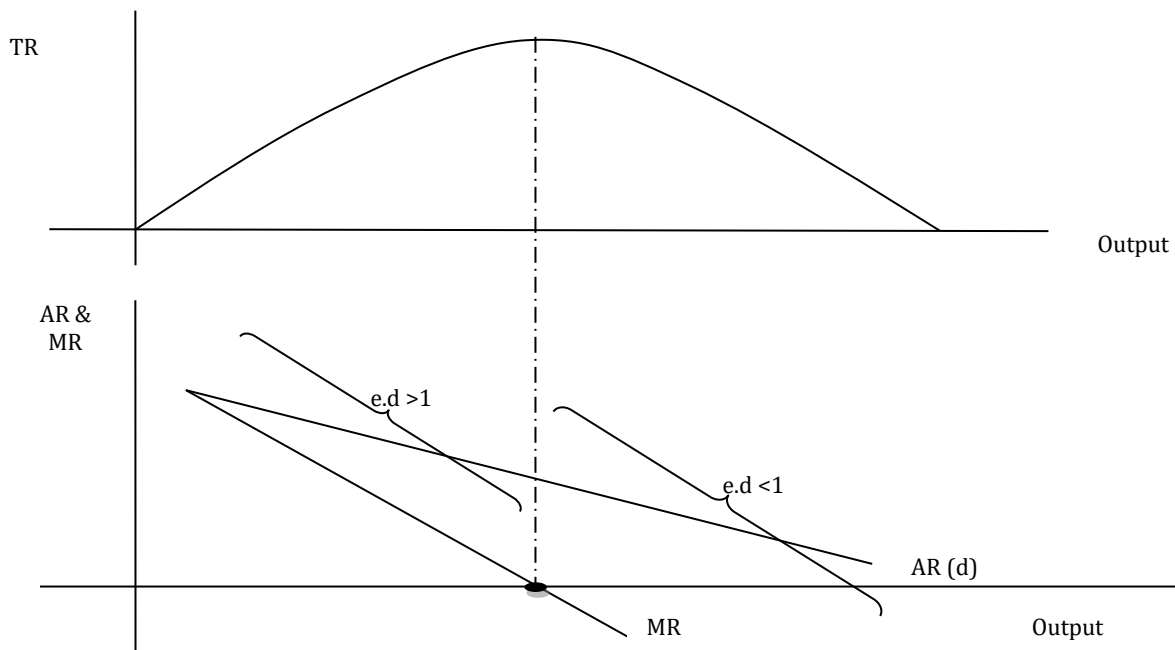
Following data shows that as the monopolist firm start decreasing its price of a product, its total sales increases.

Q Quantity of output (Units)	P Price (Rs.)	TR Total Revenue (Rs.)	AR Average Revenue (Rs.)	MR Marginal Revenue (Rs.)
1	10	10	10	10
2	9	18	9	8
3	8	24	8	6
4	7	28	7	4

Q Quantity of output (Units)	P Price (Rs.)	TR Total Revenue (Rs.)	AR Average Revenue (Rs.)	MR Marginal Revenue (Rs.)
5	6	30	6	2
6	5	30	5	0
7	4	28	4	-2
8	3	24	3	-4
9	2	18	2	-6
10	1	10	1	-8

► **Graphically:**

In the upper panel of the graph below there is an increase in TR as Price decrease under monopolist environment. Along with a decrease in price AR and MR both are down sloping but $MR < AR$ in the lower panel. Upward bend shaped TR curve is due to different degrees of elasticity of demand along a down sloping demand curve (AR). As TR increases with decreasing rate, MR decreases. When TR is maximum then MR becomes zero and then negative with decreasing TR.



6.2.2 Price and Output Determination & Profit Maximization Under Monopoly

i. Short Run

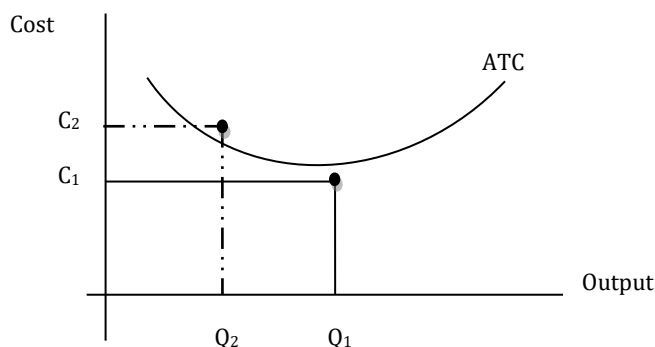
Similar to a firm operating under perfectly competitive environment, price and output determination under monopoly also follows the key condition of marginal revenue and marginal cost ($MC = MR$).

ii. Long Run

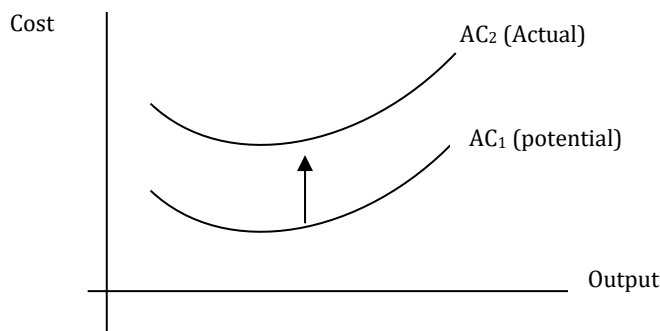
In long run, a monopolist firm can alter its all input resources in order to adjust variation in market demand for product. As a monopolist, firm is not utilizing its resources optimally (we will see in drawbacks of monopoly), the firm has ability to expand its output to adjust according to market situation. That is why a firm earns super normal profit even in long run.

- **Higher prices than in competitive markets:** As monopolist firms are “price maker” as they have either less or no close substitute in the market. Therefore, they can increase prices courageously.
- **Consumer surplus:** In presence of monopolist environment consumers do not have other choices but to purchase a product on a price set by the firm rather than the market forces. Under such circumstances they usually get fewer goods at higher prices, which cause the loss of consumer surplus.
- **Monopolist loses incentive to innovate:** In presence of plenty of barriers for new entrants into market, a monopolist can make enough profit without much effort. Therefore, it encourages organizational slack (they do not try to get possible output at minimum input cost).
- **Large Scale diseconomies:** Diseconomies occur usually during the organizational expansion. A monopolist firm may become inefficient because it is harder to coordinate and communicate at big scale.
- **Price discrimination:** Since Monopolies have decisive power to set their own prices in the markets, (with no competitor threat), the seller tends to charge different prices for same product, from different sets of consumers for, causing a discrimination in the prices.
- **Inferior quality of product:** Not only can monopolies raise prices, but they also can supply inferior products. As customer do not have any other option except buying inferior quality product from the only seller in the market.
- **Inefficient use of existing resources:** The firm operating under monopoly setup usually operates its plants inefficiently. As firm has no threat of competitors, therefore it does not bother to produce goods at minimum efficient scale rather, they tend to create artificial shortage to get high prices. These are termed as:

a) Inefficiency: Productive inefficiency occurs when a firm is not producing at its lowest average cost.



b) X-inefficiency: X-Inefficiency occurs when a firm does not have incentive to control costs. This causes the average cost of production to be higher than necessary.



Arguments in Favour of Monopoly:

- **Stability of prices:** Prices in a monopolistic environment are relative stable as for in a competitive market, where the prices are set by the unhindered market forces (demand and supply). As monopolist firms are price maker, so they determine the price of their product with their wishes and whenever and whatever they would like to. As a result, the prices in monopolistic environment remain much stable as compared to a competitive market.
- **Benefit from economies of scale:** Only at a monopoly's scale of production could an industry's long run average cost curve be at its lowest. This is the argument for natural monopolies and is the reason why many governments promote them.
- **Dominant domestically allows for international competitiveness:** By running a monopoly with the ability to produce at scale, a firm can then operate internationally at a much more competitive rate.
- **Supernormal profits:** Profits can be used to fund technological improvement, such as investment in R&D
- **Able to take a long term approach:** This allows for investment in long term projects, rather than short term.
- **Source of essential public utilities:** State controlled monopolies help in producing and making goods that are essential and important for public utilities. Such monopolies operate on large scale to provide the essential goods and services to the people in the community. There are many examples of such monopolies such as; those providing public transport facilities, water and electricity resources, etc.

6.2.4 Price Discrimination

Price discrimination refers the strategy of selling same product to different customers on different prices.

As we discussed earlier that firm under monopoly setup have price making power, therefore it can take advantage by selling its product at different prices to different group of society on the basis of their income, degree of demand elasticity etc. By exercising this strategy, a firm under monopoly can maximize its profits.

Pre-conditions of price discrimination

Although a monopolist firm has liberty to set price of its product in the market, however, a successful price discrimination depends upon some pre-conditions:

- Firm should be a price maker:** For a successful price discrimination, it is mandatory that a firm must have the ability to set price and output for its product.
- Segregation of market:** For successful price discrimination a firm must be able to segregate the market on the basis of the income or degree of elasticity of demand of different classes of the society.
- Prevention from resale:** Prevention from reselling the product one sold enables firms to discriminate prices for a good in different markets. Otherwise, buyers will purchase a product in low price market segment and sell them on high prices by themselves. The most popular example is of electricity prices, where a per unit price is low for domestic users and high for commercials. If state does not apply restriction of resale, the domestic users can use electricity for commercial purpose without making extra payment to the department.

► For Example:

- Peak and off-peak hours for electricity supply.
- Different price for a movie on weekend and on other week days.
- Discount on bulk buying of product while comparing with buying in small quantity at market prices.
- Price cut offer for a product off-season

6.3 Monopolistic Competition

After covering two extremes of markets, were monopoly and perfect competition. This section involve discussion on the blend of the features of both extremes. In real world market, many firms deal with differentiated products. In such environment a firm might be able to increase its profit by differentiating its products from those of its competitors. In such market models the firm partially behaves like monopolist and partially as competitive firm.

Broadly speaking we can say that the monopolistic competition is a market structure where the competition is among various monopolies.

► For Example:

In case of hand wash liquids, although, many similar brands are available in the market, however, every brand has its own customer group, which are ready to accept any price change by the firm. If the firm raises the price, some customers would move to the substitute, but not all of them. Similarly, if the firm would lower the price, they would attract some of the competitors' customers, but not all of them. Such kind of market models are known as *monopolistic competition*. (Blend of the features of monopoly and pure competition).

Characteristic of Monopolistic Competition

1. **Large number of firms:** Such markets consist of large number sellers, and everyone is controlling a small share of market.
2. **Differentiated products:** In contrast to perfect competition in monopolistic competition, every brand tries to create some differentiated features in his product over to its competitors to add an element of monopoly for that product.
3. **Fewer barriers for firm's entry or exit:** Although, product differentiation makes a little difficult for competitions to survive, however like in perfect competition, firms can enter and exit the market freely.
4. **High degree of brand loyalty:** In such markets, due to product differentiation, customers have high degree of brand loyalty. As every customer feels that the product is not only different from others but also of quality.
5. **Non-price competition:** Due to product differentiation and brand loyalty in monopolistic competition, sellers compete on factors other than the price. Such as massive allocation in budget for aggressive advertisement, product development, better distribution, after sale services, etc.

These conditions reflect a downward sloping, relatively elastic demand curve of a firm because if firm will increase the price, it will sell less and by decreasing price it will sell more. However, the demand curve is relatively elastic because there are close substitutes, so the customers will react quickly to price changes and rapidly shift over to (or from) the competitors.

► Examples of firms dealing under monopolistic competition in Pakistan:

Running a Restaurant: Although, all the restaurants deal in some of food, outlets may compete on quality and taste of food. Product differentiation is key element to charge different prices in such market. Additionally, there are relatively low barriers to entry in setting up a new restaurant.

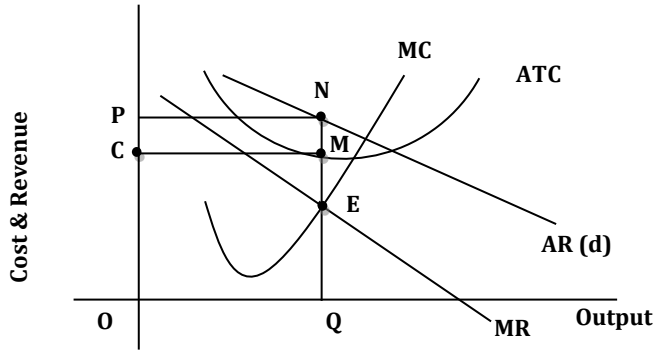
Running shoes outlet: Even though there are numerous brands of shoes in any market.; however, every brand is possessing some differentiated features to attract the customers for high prices.

Running a Hair salon: Hairs salon and beauty parlours are also example of monopolistic market. Every firm has its own customers group to get different prices over the competitors on the basis of service, environment or experience staff.

6.3.1 Profit Maximization in Short Run

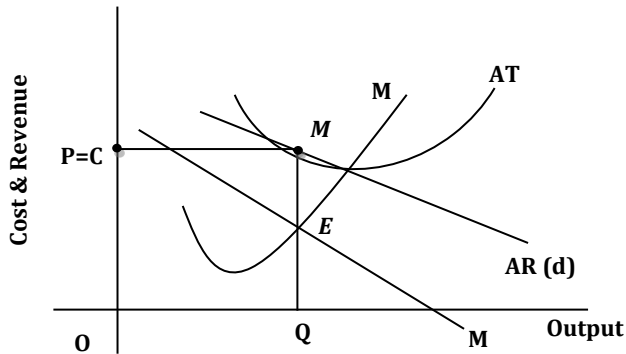
Point to note: A monopolistic firm's demand curve is relatively elastic, as there are many close substitutes available in market, and firm has relatively less control over price.

Super Normal Profit as $AR > ATC$

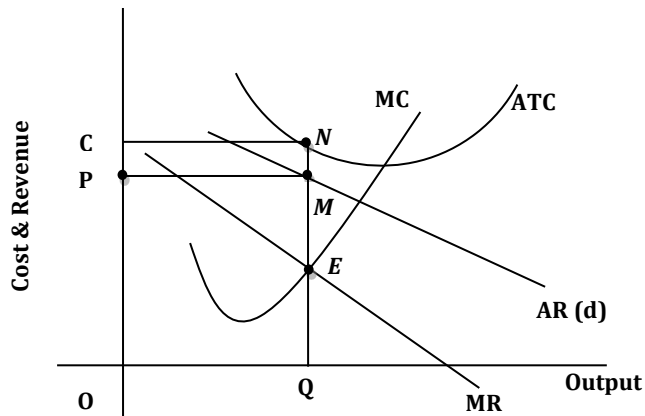


In the graph, firm is earning super profits as the $AR > ATC$. To maximize its profit, the firm has decided to OQ output followed by the key condition of $MC = MR$. The rectangular area PCMN represents the firm's profit which is derived by subtracting the area of total cost OCMQ from its total revenues OPNQ.

Normal Profit as $P = ATC$



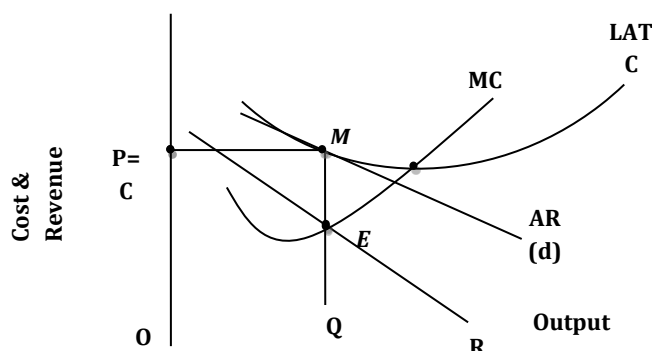
Sub-Normal profit or Normal loss as $AR < ATC$



In the graph, firm is facing sub-normal profits as the $AR < ATC$. To maximize its profit or minimize loss, the firm decides to OQ output followed by the key condition of $MC = MR$. Rectangular area shows firm's sub-normal profit as $OCNQ > OPMQ$ ($TC > TR$).

6.3.2 Profit Maximization in Long Run

In long run, all firms are able to change its productive potential by altering all the input factors. Therefore, every firm in the industry earns only normal profit as profit.



In the graph, firm is earning normal profits as $AR = LATC$. To maximize its profit or minimize loss, the firm decides OQ output followed by the key condition of $MC = MR$. Firm's normal profit is as $OCMQ = OPMQ$ ($TC = TR$).

Advantages of monopolistic competition

This style of market has a number of advantages for the economy:

- **No significant barriers to entry:** The market is relatively contestable.
- **Differentiation increases consumer choice:** This will increase the potential utility for consumers.
- **More efficient than monopoly:** There are arguably less inefficiencies than with a monopoly.
- **More informed consumers:** Due to heavy expenditures on advertisement, firms increase access to product information to its customers.

Disadvantages of monopolistic competition

On the other side of this though, issues do exist for monopolistically competitive markets:

- **Differentiation can be unnecessary:** As product differentiation is the key determinant of monopolistic competition, but most often such differentiations have no value (i.e. artificial difference).
- **Wasteful competition:** Resources spent on competitive advertising against one another could arguably be spent on other projects for society.
- **High Cost:** Under monopolistic environment, firm produces goods on relatively high cost in comparison with perfectly competitive firm.

6.4 Oligopoly

Oligopoly is a market structure in which there are only few sellers (2 to 20 sellers) selling similar or differentiated goods as, analysis of oligopolies is quite complicated therefore, in our study we will cover only two models. Later on, we will discuss the price and output determination under these two models.

Features of oligopoly

- **Few seller's markets:** It is a market model in which there are a few numbers of entities producing or trading homogenous or differentiated product i.e., few large firms with a high Concentration Ratio.
- **Interdependence of firms:** It is the unique feature of oligopolistic market that the policies of every producer directly affect others, because the products are good substitutes. A firm is not certain how its rivals will respond to an action initiated by it. Consequently, there is interdependence in decision making.
- **Maximum advertisement:** Because of interdependence and being good substitutes, oligopolistic firm spends more on advertisement.

- **Firms are different in size:** Another feature of oligopoly is the lack of uniformity in size of firms. Some firms may be very large (dominant) and other firms may be of small size. Uniformity in size of entities is rare in oligopoly.
- **Indeterminate demand curve:** Since under oligopoly the exact behaviour pattern of a producer cannot be ascertained, the demand curve cannot be drawn accurately and with definiteness.
- **Heavy Barriers for entry:** One of the most important features of oligopoly is the existence of barriers such as; patents or copyrights, requirement of large capital, control over essential inputs, etc. such barriers prevent new entrants into industry. As a result, firms can earn super profits in the long run.
- **Homogenous or differentiated goods:** An oligopoly may be homogenous oligopoly or differentiated oligopoly depending upon whether the firms in the oligopoly produce standardized or differentiated products.
- **Lack of market information:** Consumers in oligopolistic markets lack detailed market information and are susceptible to the market strategies of the suppliers.

► *For example:*

Following are some examples of firms operating under oligopoly:

- Media Industry
- Automobile Industry
- Airlines
- Cellular Phone Services
- Beverage

6.4.1 Types of Oligopoly

As discussed earlier, oligopoly is a complex market structure, however only TWO most popular models will be taken into account. These are discussed below:

a) Collusive oligopoly

As prices under oligopoly are highly dynamic and unpredictable, firms often establish a collusive agreement. Although at present such collusions or price cartels are illegal in some countries, few firms consider such agreements as need of the hour.

Organization of petroleum exporting countries (OPEC) is one of the most popular model of price cartel including prominent member countries; Saudi Arabia, United Arab Emirates, Venezuela, Republic of the Congo etc.

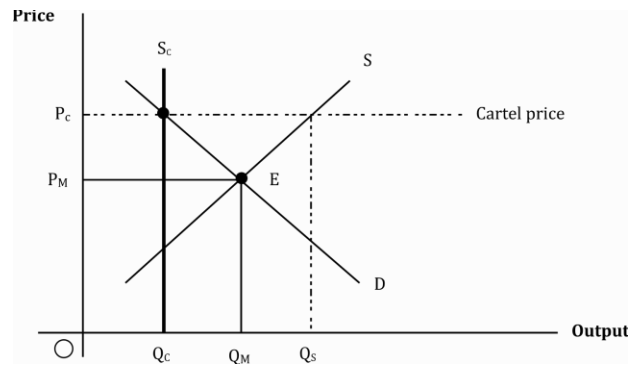
A price cartel is defined as the group of the firms getting together to determine market price and output.

Following are the pre-conditions to create a price cartel among firms:

- Only very few firms are operating which are all well known to each other.
- They are open with each other regarding costs and production methods.
- Production techniques and costs of all the firms are similar.
- They produce similar products.
- There is a dominant firm.
- There are significant barriers on entry of new firms.
- The market is stable (that is no price war and price rivalry).
- Non - intervention by the Government to hinder Collusions.

Point to note: Price cartels are rare in practice because of pre-conditions given above.

► *Graphically:*



In the above graph, free market price would be P_M and quantity supplied would be Q_M . However, the cartel decides on a price of P_C (which may be established by restricting supply to Q_C by use of a quota on its members). This creates the problem of potential oversupply because at price P_C a member of the cartel might be tempted to maximize its own profits by producing at output Q_S . This would undermine the cartel agreement and probably lead the other members to increase production.

A price cartel can be harmful to society because of following reasons:

- Higher prices:** Cartel members keep prices high deliberately through agreement. Member firms generate super profit on the cost of buyers.
- Lack of lucidity:** Members may agree to hide prices or withhold information, such as the hidden charges in credit card transactions.
- Restricted output:** In order to increase market price, members keep restricted output to create relative shortage in market.
- Poor quality goods:** As under collusive oligopoly, members have a set price for their products, so they do not bother to improve quality of products individually.

b) Non-Collusive Oligopoly

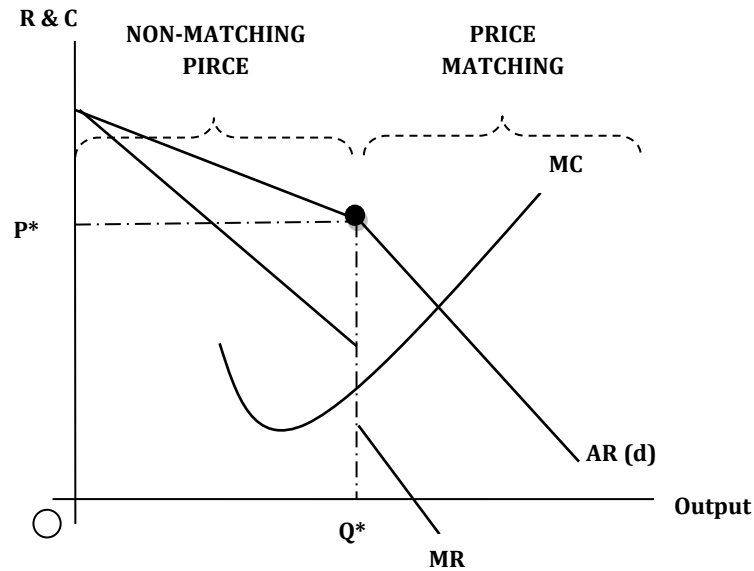
Non-collusive oligopoly is a form of market in which few firms having nearly equal market share and selling similar goods. Each firm is independent regarding the price and output policy. As all the firms have almost equal share in market, therefore they try to increase their market share through competition with each other which is termed as 'price war'.

Kinked demand curve is described as a special model of non-collusive oligopoly, where the mutual interdependence of oligopolistic firms increases the price uncertainty. Unpredictable reaction of rival firms against any price change initiated by the firm coexists in such markets. This action and unpredictable reaction of rival firms creates a unique demand curve (kinked demand curve) and marginal revenue curve, which complicate the price and output determination process.

For further explanation, we use a hypothetical model in which there are five major firms (A, B, C, D, E) within a market. It is further assumed that firms have no hidden or open cartel, because of this, every firm is independent in its economic decisions. Assuming a price P^* in the market. As all the firms are independent, if a firm (Suppose firm A) decides to change its price then there will be TWO POSSIBLE REACTIONS (strategies) from its rival firms (B, C, D, E);

- Either rival will match price P^* initiated by the firm A.
 - Or the rival will ignore any price change by the firm A
- Assume that if firm A reduces its price and rival firms will do the same, the market share will be distributed proportionately among all the firms as there is no reason to increase share of any particular firm. Resultantly the demand curve will become relatively inelastic.
 - Conversely, if firm A initiates a price increase and the rival firms ignore it, it will cause a substantial decrease in demand for firm A. Consequently, the demand curve will become more elastic.

► Graphically:



Price increase (ignorance to price change, elastic demand curve i.e. $e > 1$)

If the oligopolistic firm increases price above P^* the rivals will maintain their price in order to make the firm lose customers. Demand will move along the more elastic portion of the demand curve to the left of Q^* .

Price decrease (matching to price change, less elastic demand curve i.e. $e < 1$)

If the oligopolistic firm cuts price below P^* then rivals will cut price too and hence there will be little or no increase in demand. Demand will move along the less elastic segment of the demand curve to right of Q^* .

The slope of the demand curve of a firm initiating price change is quite different because it depends upon the reactions of the rival firms. As in graph above, output below Q^* or any price higher than P^* , the firms will ignore the price change and cause the firm's demand curve to be relatively elastic. For any output beyond the Q^* or any price lesser than P^* , the rivals will match and follow this price cut which can cause a relatively inelastic demand curve. Consequently, the demand curve for an oligopolistic firm will become a bend-shaped curve and termed as **kinked demand curve**, where the bend occurs at the existing price P^* , and the corresponding quantity, Q^* . The bend in the demand curve breaks the MR curve into two different segments.

Advantages of Oligopoly:

- Members of an oligopoly might be able to set prices (though this might be illegal).
- Oligopolistic firms are able to make large profits as there are few players in the market.
- Barriers to entry allow an oligopolistic firm to maintain profits in the long term.
- Customers are easily able to make price comparisons among the few players existing in the market and this may lead to competitive pricing.
- Stable prices in the market make planning easier for both the supplier and the customer.

Disadvantages of Oligopoly:

- Price setting in an oligopoly might prove disadvantageous to customers.
- Innovation of small players in the industry is stifled.
- An oligopolistic firm is able to make good profits on an ongoing basis so there may be no incentive for product improvement.
- Oligopolistic industries can suffer from price wars.

7 GLOBALIZATION AND FIRM'S BEHAVIOUR

World has become a 'global village'. World is connected through modern technology such as, internet, telecommunication and mass media etc. In modern world everyone has access to information of their interest. They can contact everywhere and can exchange information quickly. They can carry out business transactions all over the world, they control and manage their business activities without any hassle with use of modern technology and can enjoy all other comforts at their lounge.

Where ordinary life of man has been changed with use of modern technology especially internet and other social media channels, at same time businesses are also expanding all over the world.

7.1 Globalization

A common thought about globalization is that it is only expansion of business transactions to other countries of the world. But globalization is a comprehensive term which refers the expansion of business transaction across the domestic boundaries of the country as well, including exchange of knowledge, physical technology and goods and services etc.

7.2 Impact of Globalization on Firm's Behaviour

Although, globalization widely addresses the macroeconomic conditions of an economy, it has significant impact on firm's behaviour also. In the absence of globalization firms are operating under different degrees of competitions. Most of them are enjoying monopolies due to existence of deterrents, however, with emergence of globalization they move from lesser degree of competition to greater degree of competition.

Globalization leads to increase competition as government alleviates trade barriers for free mobility of goods and services among the nations.

Globalization impacts the businesses on different ways.

- **Division of labour:** Globalization allows the free movement of goods and services among the nations. It encourages international trade which forces firms to produce goods at large scale. It allows firms to adopt division of labour which promotes specialization and decreases the cost of production.
- **Economies of scale:** As discussed earlier, under globalization governments alleviate trade restrictions which gives big push to scale of production of the firms. Increasing scale of production allows firms to reap economies of scale.
- **Encourage competition:** Globalization allows firms to invest across the world. Firms from developed countries move their capital resources to other nations which creates competitive market environment for existing firms and help in abolishing monopolies.
- **Higher productivity:** Increasing resource mobilization enables firm to adopt modern techniques of production which help in increasing productivity.
- **Availability of capital:** Globalization allows financial institution to expand their lending across the world. It makes easier for firms to avail capital resources to overcome their hardships. It enables firms to use modern expensive technology to improve quantity and quality of their products.

These factors will cause to decrease in cost of production for firms.

7.3 Cost of globalization

- Damaging for infant industry
- Structural unemployment
- Environmental concerns
- Trade imbalances
- Inflation risk

STICKY NOTES

Production function is a schedule which shows the maximum output that can be produced from a given set of inputs.

Law of variable proportions states that by increasing the quantity of one factor (L) keeping the other factors (K) fixed, the marginal product of that factor will eventually decline.

Economies of scale are those factors which reduce the average cost of business while, those factors which cause an increase in average cost are called diseconomies of scale.

Short run is period of production in which at least one factor remains fixed, conversely when all the factors are variable is known as long run.

Firm's demand schedule is also a firm's revenue schedule. As the demand schedule represents the unit purchased by consumer at each unit price, while for a firm it is the revenue received on average against every unit purchased by the consumer.

Perfect competition is a market situation in which many sellers and buyers come together for homogeneous goods, and there are no barriers for new entry and exit of the firms.

Explicit cost is also termed as out-of-pocket cost such as; interest obligations, wages paid to the workers, utility expenses, raw material payments and building rents etc. Whereas other noncash costs (opportunity cost) are called implicit cost

Accounting profit = Total Sales Revenues – Explicit cost

Economic profit = Accounting profit – Implicit cost

Natural Monopoly is that type of monopoly that exists due to powerful economies of scale of conducting a business in a particular industry.

Price discrimination means charging different prices for a particular product from different consumers.

Oligopoly is a market with only a few sellers selling similar or differentiated products is termed as Oligopoly.

Inefficiencies occur only due to lack of competition in a market. X-inefficiency occurs when a firm is not producing at its lowest possible cost.

Monopolistic competition is a market environment characterized by many firms selling differentiated products, and there are no barriers for new entrants.

Kinked Demand Curve is an unusual demand curve having different elasticities at its different segments (elastic above than set price, while less elastic below than that price). It is a special case of non-collusive model.

Price Cartel is an arrangement of setting price higher than market price by creating some formal or informal agreements to control market supply. Cartels are often illegal as they exploit the consumer rights.

SELF-TESTS

1. Under perfect market conditions, the supply curve of a firm is the same as:
 - a) MC curve
 - b) MR curve
 - c) AR curve
 - d) AC curve
2. In a perfectly competitive market _____ is/are the price maker(s):
 - a) the individual firm
 - b) the industry
 - c) a large number of consumers
 - d) the trade association
3. Which of the following is NOT included in the explicit costs of a firm?
 - a) Wages paid to labour
 - b) Interest paid for borrowed capital
 - c) Payments for purchases of materials
 - d) Normal profit
4. Monopoly power may be based on:
 - a) economies of large-scale production
 - b) patents
 - c) control of key natural resources
 - d) all of the above
5. Which of these is NOT a component of cost function of a product?
 - a) Market price of the product
 - b) Operating technology of the plant
 - c) Operating capacity
 - d) All of the above
6. The demand for a Factor of Production is called:
 - a) quantity demand
 - b) derived demand
 - c) factor price
 - d) cost of production
7. As its output increases, a firm's short-run marginal cost will eventually increase because of:
 - a) diseconomies of scale
 - b) a lower product prices
 - c) the firm's need to break even
 - d) diminishing returns

8. A firm that breaks even after all the economic costs are paid, is earning:
 - a) economic profit
 - b) no profit
 - c) normal profit
 - d) super normal profit
9. When diminishing returns begin to operate, the total variable cost curve will start to
 - a) fall at an increasing rate
 - b) rise at a decreasing rate
 - c) fall at a decreasing rate
 - d) rise at an increasing rate
10. Marginal cost is best defined as
 - a) the difference between total fixed costs and total variable costs.
 - b) costs which are too small to influence prices.
 - c) the change in total costs when output rises by one unit.
 - d) fixed costs per unit of output.
11. The 'law of diminishing returns' can apply to a business only when
 - a) all factors of production can be varied.
 - b) at least one factor of production is fixed.
 - c) all factors of production are fixed.
 - d) capital used in production is fixed.
12. Which of the following always rise when a manufacturing business increases its output?
 - (i) fixed costs
 - (ii) marginal cost
 - (iii) average variable cost
 - (iv) total costs
 - a) (i) and (ii) only
 - b) (ii) and (iii) only
 - c) (iii) and (iv) only
 - d) (iv) only
13. The minimum price needed for a firm to remain in production in the short run is equal to
 - a) average fixed cost
 - b) average variable cost
 - c) average total cost
 - d) marginal cost

14. A business employs 11 workers at a wage of £24 per day. To attract one more worker it raises the wages to £25 per day.

The marginal cost of employing the extra worker is

- a) £1
 - b) £12
 - c) £25
 - d) £36
15. The long-run average cost curve for a business will eventually rise because of
- a) the law of diminishing returns
 - b) increasing competition in the industry
 - c) limits to the size of the market for the good
 - d) diseconomies of scale
16. Economies of scale
- a) can be gained only by monopoly firms
 - b) are possible only if there is a sufficient demand for the product
 - c) do not necessarily reduce unit costs of production
 - d) depend on the efficiency of management
17. If the total cost curve is plotted, marginal cost curve can be illustrated by:
- a) U shapes curve cutting the total cost curve from its minimum point.
 - b) a straight line cutting the curve at its lowest point.
 - c) a straight line cutting the curve at its lowest point
 - d) the slope of a tangent to the curve at any given output.
18. A firm, in the short run, would stop production if:
- a) marginal cost was equal to marginal revenue
 - b) total costs were equal to total revenue
 - c) total revenue was less than total variable cost
 - d) total revenue was less than total fixed cost
 - e) variable cost was to rise above fixed costs
19. The long-term shape of the average cost curve is due to:
- a) economies of scale
 - b) variable proportions
 - c) change in technology
 - d) imperfect competition
 - e) diseconomies of the scale
 - f) a and e
 - g) b and d
 - h) none of the above

20. In a diminishing cost industry, an increase in industry output causes the Average total cost curve of a typical firm to shift:
 - a) Upward
 - b) Downward
 - c) To the right
 - d) To the left
21. In an increasing cost industry, an increase in output causes the Average total cost curve of a typical firm to shift.
 - a) To the left
 - b) To the right
 - c) Downward
 - d) Upward
22. Marginal cost curve intersects Average total cost curve at:
 - a) the minimum point of ATC
 - b) the minimum point of MC
 - c) the minimum points of both the MC and ATC
 - d) all of the above
 - e) none of the above.
23. All members of a cartel:
 - a) produce at the same average cost
 - b) produce where their MC equals price
 - c) adopt independent price and output policy
 - d) share the market equally
 - e) None of the above
24. Oligopoly is a type of market organization in which there exists:
 - a) a single firm
 - b) two firms
 - c) a large number of firms
 - d) a few firms
25. A cartel is a collusive agreement:
 - a) among largest firms in an industry
 - b) among smallest firms in an industry
 - c) sanctioned by the government
 - d) among firms to increase profit by reducing output
26. Duopoly is a special case of which of the following:
 - a) Perfect competition
 - b) Monopoly
 - c) Monopolistic competition
 - d) Oligopoly
 - e) None of the above

27. Which of the following distinguishes oligopoly market from other forms of market organization?
- a) Interdependence of producers
 - b) Differentiated products
 - c) Many firms in a small market
 - d) Firms are price takers
 - e) Price discrimination
28. Which of the following describes the dominant firm model?
- (i) The dominant firm produces at the intersection of market demand by its MC curve.
 - (ii) The small firms are price takers.
 - (iii) The dominant firm's demand curve is derived by subtracting output supplied by small firms from total market demand.
- a) II only
 - b) III only
 - c) I only
 - d) II and III
 - e) None of the above
29. What does it mean to say that firms in an oligopoly are interdependent?
- a) The firms must charge identical prices for the products
 - b) The firm's economic profits must be equal to zero in the long run
 - c) Barriers block the entry of new firms into the industry
 - d) The output price decisions of one firm affect the output price decisions of other firms in the industry
30. Technical relationship between inputs and output of firms is known as:
- a) Investment
 - b) Production Function
 - c) Consumption Function
 - d) None of the above
31. A time period in which at least one input remains fixed while other are variable is termed as:
- a) Marked period
 - b) Short-Run
 - c) Long-Run
 - d) Very Short-Run
32. According to Law of variable proportion, marginal product & average product curves intersect each other at the point where:
- a) Marginal product is zero
 - b) Average product is zero
 - c) Average product is at its maximum
 - d) Marginal product is at its maximum

33. According to Law of variable proportion when total production is at its maximum marginal production will be:
 - a) Minimum
 - b) Negative
 - c) Maximum
 - d) Zero
34. Cost of production on extra unit of given product is known as:
 - a) Marginal cost
 - b) Average cost
 - c) Variable cost
 - d) Economic cost
35. Short-Run average cost curve is always
 - a) Upward to the right
 - b) Straight line
 - c) U – shaped
 - d) Convex to the origin
36. Cost reducing benefits of large scale
 - a) Economies of scale
 - b) Diseconomies of scale
 - c) All of the above
37. In a perfectly competitive market, firms are:
 - a) Price maker
 - b) Very large
 - c) In small number
 - d) Price taker
38. Sufficient condition for a firm to be in equilibrium is:
 - a) $A.R. = \text{Price}$
 - b) $M.R. = M.C$
 - c) $M.C. = A.R$
 - d) Marginal cost equal to marginal revenue while it is increasing
39. A firm will shut-down its business
 - a) It faces normal loss
 - b) It earns zero profit
 - c) $A.V.C. > A.R.$
 - d) $A.C. > A.R.$

40. Cost of doing business which accountant records in expenditure records only known as:

- (i) Explicit cost
- (ii) Accounting cost
- (iii) Implicit cost
- (iv) Economic cost
- a) (i) & (iii)
- b) (i) & (ii)
- c) (ii) & (iii)
- d) (ii) & (iv)

41. Under perfect competition, in the long run

If $A.R. = M.R. = M.C = \text{Price}$

Firm is earning.

- (i) Normal profit
- (ii) Sub normal profit
- (iii) Zero accounting profit
- (iv) Super normal profit
- a) (i) & (iii)
- b) (i) & (iv)
- c) (ii) & (iv)
- d) (iii) & (iv)

42. Which of the following may be barriers to entry preventing new firms from entering the monopoly market?

- (i) Scale of production
- (ii) Branding
- (iii) Perfect mobility
- (iv) Perfect knowledge
- a) (i) & (ii)
- b) (ii) & (iv)
- c) (iii) & (iv)
- d) (i) & (iv)

43. A market has a larger number of firms, a downward sloping market demand curve no barriers on entry in the long-run. The market structure could be:

- (i) Perfect competition
- (ii) Monopolistic competition
- (iii) Oligopoly
- a) Only (ii)
- b) (i) & (ii)
- c) (i) & (iii)
- d) (ii) & (iii)

44. Price discrimination is not possible for a monopolist in two distinct markets if:
- Two markets having same elasticity of demand
 - Two markets having different elasticity of demand
 - Two markets having different size
 - Two markets having same size
45. KARACHI ELECTRIC is an example of
- Oligopoly
 - Monopolistic Competition
 - Perfect Competition
 - Monopoly
46. The cooking oil industry can be an example of:
- Oligopoly
 - Monopolistic Competition
 - Perfect Competition
 - Monopoly
47. Since monopolies does not produce at the lowest point on average cost, it is produced at a level of __a__. Furthermore, monopolies wasteful of costs and spend more than they need to. The lack of competition marks monopolies complacent. This type of over spending inefficiency is called __b__.

ANSWERS TO SELF-TEST QUESTIONS

1	(a)	11	(b)	21	(d)	31	(b)	41	(a)
2	(b)	12	(d)	22	(a)	32	(c)	42	(a)
3	(d)	13	(b)	23	(a)	33	(d)	43	(a)
4	(d)	14	(d)	24	(d)	34	(a)	44	(a)
5	(d)	15	(d)	25	(a)	35	(c)	45	(d)
6	(b)	16	(b)	26	(d)	36	(a)	46	(b)
7	(d)	17	(d)	27	(a)	37	(d)	47	(a) = Technical inefficiency (b) = x – inefficiency
8	(c)	18	(c)	28	(d)	38	(d)		
9	(d)	19	(f)	29	(d)	39	(c)		
10	(c)	20	(b)	30	(b)	40	(b)		

NATIONAL INCOME AND ITS DETERMINATION

IN THIS CHAPTER

AT A GLANCE

SPOTLIGHT

1. Historical Background
2. Concepts Of National Income
3. Circular Flow Of National Income
4. Measurement of National Income
5. National Income Determination Or National Income Equilibrium
6. Aggregate Demand & Aggregate Supply Interaction

REFERENCES

STICKY NOTES

SELF-TEST

AT A GLANCE

After a detailed understanding of Microeconomics, now we are moving to the second segment of our study which is known as Macroeconomics. Macroeconomics is the study of economic environment as a whole. In this chapter, major economic issues would be discussed covering concepts such as national income and national income equilibrium, aggregate demand and supply, business cycles, rise and fall in overall price level, money and banking, international trade and balance of trade and payments etc.

Investigation of national income and related concepts such as gross national product, net national product, personal income and disposable personal income will also be explored. Furthermore, we will discuss various factors which determine the level of total output and employment in the economy. Subsequently, various approaches to measure national income along with precautions will be discussed.

Economic policy can only be effective when we understand how national income is determined, the factors that cause changes in income flow, and the processes that lead to equilibrium. While 19th-century economists did not focus on how the desired level of national income is achieved, J.M. Keynes' 1936 book "The General Theory of Employment, Interest and Money" introduced new ideas, challenging Classical Economics. Keynes emphasized "Effective Demand" as the key determinant of national income, contrasting with Classical Economics, which focused on supply. This chapter also focuses on macroeconomic theory, exploring how economic fluctuations occur and how they can be addressed, with attention to Aggregate Demand (AD) and Aggregate Supply (AS).

1 HISTORICAL BACKGROUND

Great depression of 1930s is considered a breakthrough in development of Macroeconomics. At that time, economists were struggling to understand reasons for this great depression. Eminent British economist, **John Maynard Keynes** presented his revolutionary theory that enabled economists to understand causes and corrective measures about it.

1.1 Subject Matter of Macroeconomics

Macroeconomics studies the behaviour of the economy to examine the forces that affect firms, households and other participants of an economy in aggregate. It behaves in contrast with microeconomics which comprehends concepts of prices, quantities and markets in an individual perspective. It evaluates aggregate measures of an economy such as national income and output, levels of unemployment and inflation and other macroeconomic fluctuations. In this section we will explore how Macroeconomics enables the state authorities to understand and resolve the core issues of an economy such as; what is the role of public finance? How output gaps occur and what are the possible strategic measures to overcome such gaps? Why jobs are getting hard to find day by day? Why real wages and living standards get worsen as inflation rises? What is the role of central bank to thrash out financial crisis? Why and how globalization and foreign trade affect employment and national output?

Although an ample time is needed for a comprehensive conversation about this extensive area of economics, only basic concepts of macroeconomics will be discussed in this section to figure out the functioning of real economy as a whole.

1.2 Macro-Economic Objectives

Governments attempt to manage national economy to improve the welfare of the citizens of their country. They achieve this through their macroeconomic policies.

Most governments have following macroeconomic objectives that are said to be beneficial to the population:

- **Economic growth:** This would increase the wealth of the country and hopefully the standard of living of the population.
- **Low price inflation:** Most population accept that a certain level of inflation is desirable (in fact, it is virtually unavoidable if the economy grows) but high inflation erodes wealth and reduces consumer confidence.
- **Low unemployment:** Unemployment is a waste of resource (unemployed people do not contribute within the economy) and can have a high social cost in terms of poverty that might result from it. Higher employment levels increase aggregate demand (the total demand in the economy) and promotes growth.
- **Equilibrium in the balance of payments:** This refers to achieving a balance between earnings from exports and other inward flows to the economy and payments for imports and other outward flows from the economy.

2 CONCEPTS OF NATIONAL INCOME

Samuelson has explained National Income in these words, “It is the loose name we give for the money measure of the overall annual flow of goods and services in an economy”.

In words of Samuelson, we can derive that the ‘National Income is the market value of all goods and services produced in a country during a given time period usually one year’.

Some key points to remember to proceed with National Income are:

- National income, National Output and National product are used as synonyms.
- National income is the market value of all goods and services.
- Only final goods will be considered.
- It is the only money value of goods and services as physical goods and services cannot be added or subtracted.
- Only final goods and services will be taken in to account.
- It is the measure for only **one year**.
- Goods and services, produced only through legal channels, will be considered in national income

The understanding of national income is not enough to understand the matters involved in a complex economy.

2.1 Gross Domestic Product (GDP):

GDP describes the total value of goods and services produced *within a country*. It does not include any income which it's nationals received against their property or services rendered abroad. It includes only that income which is generated by using domestic resources of a country.

► Mathematically:

$$G.D.P = C + I + G + (X - M)$$

Where:

C for Domestic Consumption,

I for Investment,

G for Government expenditures,

X for annual Exports and

M for annual Imports of a country

► Example:

To understand this concept, we suppose that some Chinese, Korean and Pakistani engineers are working on a project in Pakistan. All the payments they will receive against their services will be considered while calculating GDP of Pakistan as all of them generating their income within the geographical boundaries of Pakistan. Similarly, if some of Pakistani doctors are serving outside the country, their income will not be calculated in our GDP as they are not using our domestic resources.

Nominal and Real GDP:

Nominal GDP is the value of GDP evaluated at current prices in a specific time period, this includes the impact of inflation and is normally higher than the real GDP.

Real GDP is an inflation adjusted value of GDP. It expresses the value of goods and services produced in a country in base-year prices. Since, it is an inflation-corrected figure so it is deemed to be an accurate indicator of economic growth.

2.2 Gross National Product (GNP):

It is one of the most important concepts used in national income accountings. It is defined as “the money value of all the final goods and services produced by the Nationals of a country by using both domestic and foreign resources, during a period of one year”. GNP is relatively a broader term than GDP as it includes all the incomes generated by its nationals within or outside the country. For this purpose, we add net income received from abroad in our GDP.

$$\text{GNP} = \text{GDP} + \text{Net Income from abroad (income received and paid to abroad)}$$

GDP deflator is a price index that measure rate of inflation in a country.

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{GDP deflator}}$$

► For Example:

GNP of Pakistan for the year 2018-19 (hypothetical numbers)		
Items	Values (Rs. bln)	
GDP		500
Income received from abroad	250	
Income taken to abroad	200	
Net Income from abroad	250-200	+50
GNP		550

Important points to note about GNP:

- Only money value of goods and services will be taken as different units of goods and services cannot be added or subtracted.
- Only final goods and services would be considered in national income accounting to avoid the doubt of double counting.
- Goods and services produced in current year will be taken.

2.3 Net National Product (NNP):

Depreciation of capital consumption by using a factor to produce goods and services is the main component to describe NNP of a country. NNP is obtained by subtracting the value of depreciation from Gross National Product. It is one of the most important indicators for the total production of a country. The rationale behind deduction of depreciation is to get the more appropriate estimate of national income. Because the value of an asset declines throughout the year by using it in order to produce goods and services.

$$\text{NNP} = \text{GNP} - \text{Depreciation}$$

► For Example

We can explain this concept by using a hypothetical data of a country like Pakistan.

NNP of Pakistan for the year 2018-19 (hypothetical numbers)		
Items	Values (Rs. bn)	
GNP		550
Depreciation of Plant	20	
Building depreciated by	30	
Total depreciation for the year was		(50)
NNP		500

2.4 National Income at Market Price (MP) and Factor Cost (FC):

The basic purpose of calculating national income at two different stages is to cater the role of state in this regard. Government plays a vital role in economy through taxes and subsidies. But the main difference between subsidies and taxes is that in case of indirect taxes government takes some of the income such as sales tax, excise duty. While to encourage some specific economic activities government provide discounts or concession in different ways such as, by providing discounts on utilities or input prices etc. These two adjustments make a clear difference between national income calculated at market price and factor cost. Hence to get the more accurate number of national income we have to adjust these two components.

We can understand these concepts through these equations:

$$NNP_{fc} = NNP_{mp} - \text{Indirect Tax} + \text{Subsidies}$$

or

$$NNP_{mp} = NNP_{fc} + \text{Indirect Tax} - \text{Subsidies}$$

► *For Example:*

NNP at Factor cost and Market price of Pakistan for the year 2018-19 (hypothetical numbers)		
Items	Values (Rs. bn)	
NNP_{fc}		500
Indirect tax	50	
Subsidies	30	
Net	50-30	20
NNP_{mp}		520

2.5 Personal Income (P.I):

Personal income is the aggregate of all the individual incomes which are received directly by the individuals in their hands in one year as rewards for their productive services. Or the personal income is the total income received by the people from all source in a year.

To understand the concept, we need to know some relevant concepts:

- **Corporate Profit Taxes:** The amount of profit which is not distributed among the shareholders. It is a liability of the enterprise to pay in form of taxes to the government.
- **Undistributed Corporate Profits:** Some part of the profit generated by the organization is often not been distributed among the shareholders with the intention of ploughing back or as safeguard for some rainy days.
- **Social Security Contributions:** It is a contribution into the social security fund of the government for the benefit of its employees in case of emergencies.
- **Transfer Payments:** It is known as “unearned income” or income received without performing any economic activity. It is simply transferred from one to another on charity or donation bases.

$$I = NI - \text{Corporate Profit Tax} - \text{Undistributed Profit} - \text{Social security allowances} + \text{Transfer Payments.}$$

► For Example:

Personal Income in Pakistan for the year 2018-19 (hypothetical numbers)		
Items	Values (Rs. bn)	
National Income		500
Corporate Profit Tax	50	
Undistributed Profit	30	
Social Security contribution	25	(105)
Transfer Payments		45
Personal Income (PI)		440

2.6 Disposable Personal Income (D.P.I Or Yd):

To differentiate between personal income and disposable personal income, we have to consider personal taxes. *Personal tax is a tax levied on the annual earnings of an individual i.e income tax, wealth tax etc.* This is also known as direct tax. Disposable personal income is the total net amount left with the individuals and households when they have paid all direct taxes. To get the amount of disposable income we deduct only personal taxes from personal income. Disposable personal income is that amount which one can dispose of as he likes i.e. whether to save or consume.

$$DPI = PI - \text{Personal Taxes}$$

Or

$$Y_d = Y - T$$

► For Example:

Disposable Personal Income in Pakistan for the year 2018-19 (hypothetical numbers)		
Items	Values (Rs. bn)	
Personal Income		440
Income tax	80	
Property tax	60	
Total Personal Taxes		140
Disposable Personal Income (DPI)		300

Per-Capita Income:

This is also known as average income of people of a country. It is a measure to estimate standard of living of the nationals of a country. It is derived simply by dividing the national income by population of the country.

$$\text{Per Capita Income} = \frac{\text{National Income}}{\text{Population}}$$

► For Example

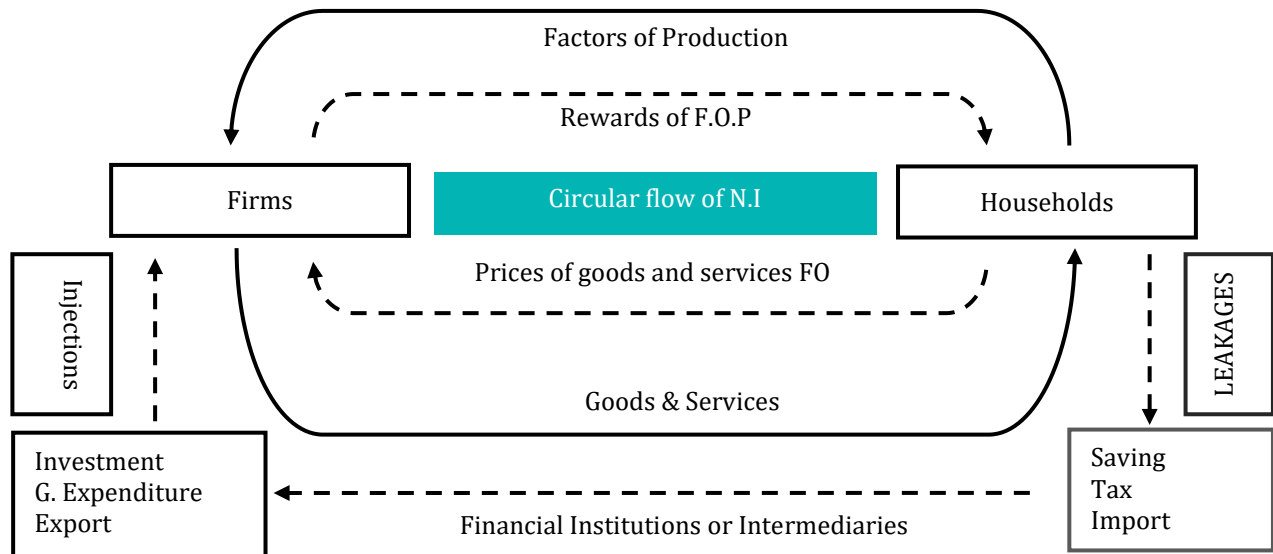
If the total national income of a country was Rs. 240 billion annually and total population was 120 million, then the per capita income will be;

$$\text{Per Capita Income} = \frac{240 \text{ Billions}}{120 \text{ millions}} = \text{Rs. } 2000$$

3 CIRCULAR FLOW OF NATIONAL INCOME

For better understanding about the different approaches to measure national income we need to comprehend the circular flow of national income. It describes that how the income produced by firms is redistributed among the factors of production which turned into their income. Being households, they again turn this income to the firms in form of prices of different goods and services. This process is expressed in following flowchart.

► *Illustration:*



The above flow chart shows that people are providing factors of production such as; land, labour, capital and entrepreneurial services to the firms. Thus, they get rewards against their factors of production in the form of rent, wages, interest and profits. Subsequently households spend their income on different goods and services that they need which ultimately goes in the pockets of firm owners. It is clear here that the money value of final goods and services is exactly equal to the aggregate amount of rewards to the factors (if all the rewards are met at full). This way the income keeps on flowing in the country throughout the year and is termed as circular flow of national income.

4 MEASUREMENT OF NATIONAL INCOME

After having a detailed discussion about the national income and its various concepts, now we will move towards one of the most important phases of our study i.e., measurement of national income.

Students are frequently asking this question that the term national income, we are quoting time and again, how it is calculated. To answer this question, the measurement of national income gets more important. Definition of national income drags our focus on goods and services produced in a country in a given set of time and their market value. But in fact, measurement of national income is not a simple matter to deal with due to three basic reasons:

- **Firstly**, there are millions of goods and services and millions of places where these products are being produced in a country.
- **Secondly**, there are millions of people who are engaged in production of such goods and services living at different areas.
- **Thirdly**, there are thousands of ways through which they are getting their rewards or payments.

Therefore, accurate calculation in such a complex model is not possible. It is a matter of common understanding that the spending of one side creates income on the other side. Every rupee spent to produce goods and services will generate income on the recipient end in form of rewards. In this context we will use various approaches to measure national income.

4.1 Product Approach

This approach is developed from the basic concept of national income which is described as “the market value of all goods and services produced in a country in a year”. According to this approach, we add-up money value of only final goods and services rather the primary and intermediate goods.

Primarily, economy is divided into TWO sectors i.e., goods and services. Furthermore, there are two categories of each sector such as; for goods we divide into agriculture goods and manufactured goods while in service sector we consider individuals and institutions. For purpose of measuring national income using product approach, we add up the money value of all products produced by these sectors in a given time period (usually one year). By including the net income from abroad we will get Gross National Product while in order to get value of Net National Product depreciation will be subtracted.

► Example:

For simplification this approach we will use hypothetical numbers about a country.

Product Approach to measure National Income			
Sectors of the Economy	Total Output units	Current Market Price (Rs.)	Total Value Rs. (millions)
Manufacturing	100	20 million	2000
Services	300 (unit according to profession)	15 million	4500
GDPmp			6500
Net Income from abroad			+500
GNPmp			7000
Depreciation			(2000)
NNPmp			5000

Precautions:

While calculating national income using product approach some precautions to be considered are given below:

- **Avoid double counting:** While calculating national income using product approach, sometimes there is a threat of double counting.

► Example:

If we calculate cotton at first stage and later stage, we add up the value of thread and then fabrics and garments at their full value. It will create a miscalculation as cotton, thread and fabrics are being calculated more than once. To avoid problem of double and multiple counting, economists have suggested the “*value added approach*” (will be discussed later).

- **Goods and services rendered free of cost:** In real world there are so many goods and services which are rendered free of cost. Such as pick and drop facility provided by father to his kids, services provided by housewife domestically and kitchen gardening etc. All these activities are to be ignored as to find out the market value of such activities is not possible.
- **Avoid sale of old or used goods:** In order to measure all current outputs, we must include market value of any addition to inventories. The goods once sold will not be considered again as their value has been calculated already.

► Example:

Suppose a car is sold to Mr. Zain for Rs.10 million during 2015 and resold for Rs.9 million to someone else in the same period. It does not mean that the total national income has increased by Rs. 9 million.

- **Value-added approach:** This method of computing national income helps us to avoid double counting of any value. It provides more precise picture of national income.

► Example:

To explain this approach, we will use a table consisting of a hypothetical data of a garment unit which is engaged in production of sports costumes.

Value-added Approach to measure National Income in given Year		
Total Output	Current Market Price (Rs. millions)	Total Value Rs. (millions)
Cotton	100	100
Yarn	200	100
Fabric	250	50
Shirt	380	130
GDP	700	380

In above table it is obvious that the national income computed by adding the total market value of each product is showing Rs. 700 million while it is actually wrong estimation. Because by adding every product at full value at each stage is adding products more than once. Hence the sum of all additional values of a product at each stage is exactly equal to the value of final product i.e., Rs. 380 million.

4.2 Income Approach

Value of goods produced in a country generates income on the other side in form of rewards of factors of production. While using this approach we will consider money value received by owners of all factors of production which they earned by producing final goods and services in a year. As it represents the annual aggregate income of all factors of production, therefore, national income measured through this method will give us national income at factor cost.

► *Example:*

To explain this approach, we will use a hypothetical data in following table:

Income Approach to measure National Income		
Factors of Production	Rewards / Income	Rs. millions
Land	Rent	100
Labour	Wages	200
Capital resources	Interest	250
Entrepreneur	Pre-tax Profits	150
National Income at f.c		700

Precautions:

While calculating national income using product approach, we need to consider some precautions as given below:

- **Transfer Payments:** While calculating national income some of payments received by households without performing any marketable activity must be avoided. For example, pensions fund, gifts, scholarships etc.
- **Income earned through illegal activities:** Any income earned or received through illegal activities such as theft, robbery, smuggling, bribery etc., not be included in national income.

4.3 Expenditure Approach

As discussed in previous approach, any income earned by someone is expenditure of someone against goods and services. Therefore, national income can be computed by adding total expenditure done by all the agents of an economy during course of one year. Precisely, we can say that the amount of expenditure by the people on consumer and capital goods produced by either private or public sector and either inside or outside the country, summed up together, would be the National Income.

Computing national income through expenditure approach we should have to calculate following expenditures:

- **Personal consumption expenditures (C):** It includes all consumer expenditure of people of a country which they made on different consumer goods such as; clothing, food, utilities or entertainments. It does not include expenditures on some fixed assets like purchase of house.
- **Gross domestic investment (I):** It includes all expenditures on capital goods such as; building new factories, installation of new plants, constructions of warehouses etc.
- **Government expenditures (G):** All the expenditures made by government either for development or non-development are included in expenditure approach. It includes expenditure on public office accessories, infrastructure (roads, dams etc.), defence, education or healthcare etc.
- **Net Exports (X – M):** Net exports are calculated as; Export of a country during one year – Import of the country in same year. As a country makes both export and import simultaneously throughout the year, but expenditures on import are not calculated in our domestic income therefore only export surplus will be added in this approach.

We can develop an equation to express this approach:

$$Y = C + I + G + X - M$$

Whereas

Y represents National Output,

C for Domestic Consumption,

I for Investment,

G for Government expenditures,

X for annual Exports and

M for annual Imports of a country.

► *Example:*

To explain this approach, we will use a table consist of hypothetical data of a country.

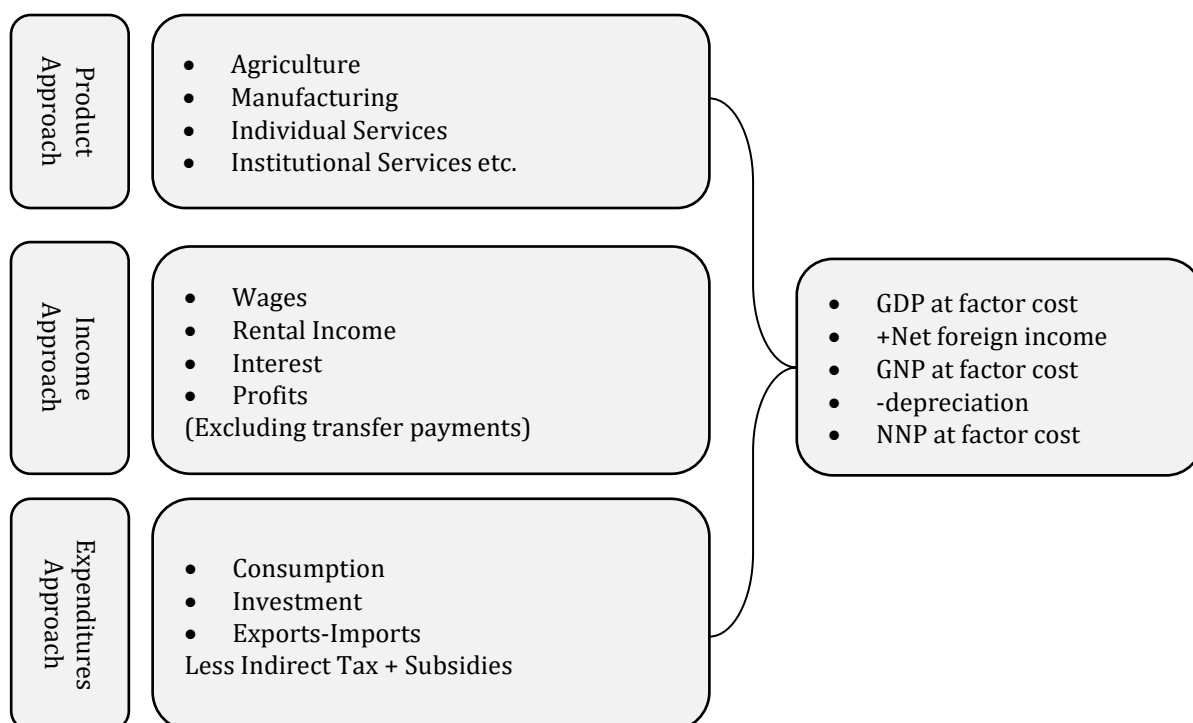
Expenditure Approach to measure National Income	
Expenditures	Value in Rs. millions
Consumption Expenditures	100
Investment Expenditures	200
Government Expenditures	250
Export Surplus	150
GNP	700

Precautions:

- **Avoid double counting** While calculating national income using expenditure approach, we should add any expenditure only once.
- **Expenditure only for newly produced goods:** Expenditure on reconditioned or used goods such as; used car, old building, second hand plant etc., is to be excluded. Because such sales either do not reflect current production or involve double counting.

In a nutshell, it is stated that if all prescribed precautions related to each method are observed, then the National Income computed by any of these approaches would be the same.

BRIEF DESCRIPTION OF VARIOUS APPROACHES



4.4 Difficulties in Measurement of National Income

There are many difficulties associated with the measurement process including.

- **Lack of trained staff:** Collection, compilation and analysis of statistical data is highly technical exercise and availability of sufficient trained staff is often difficult.
- **Illiteracy/unreliable record keeping:** Due to illiteracy many producers keep unreliable data of their production.
- **Inadequate information caused by poor collection procedures.** This could include a poorly designed process, lack of infra-structure to provide the information or lack of trained staff;

Not all information about the size of an economy is captured:

- **Illegal activities:** The process only measures what is defined as legal production. Many kinds of productive works such as services of housewives, agricultural products used by farmer for own consumption is ignored.
- **Barter Transactions:** Barter transactions are either totally ignored or included on the basis of approximation.
- **Undocumented economy:** The measurement process overlooks the hidden economy (e.g. income and trade that is not declared to the authorities) also known as the black economy or the shadow economy.
- **Price fluctuations:** Mainly as a result of unstable forces of demand and supply in a country like Pakistan prices of the commodities tend to fluctuate frequently. As a result, the accurate calculation of national income measurement becomes difficult.
- **Earning of foreign firms:** A large number of foreign firms, especially in underdeveloped countries such as Pakistan, invest their money. Their earning makes it more difficult for national income calculators of a country to determine which part of their income should be added or ignored.

4.5 Importance of National Measurement

- **Assessment of economic performance:** National income statistics help government to assess the economic performance of the country. Persistent increase in national income represents that the economy is growing.
- **Measuring living standards of people:** Data about National Income is used to estimate the per-capita income of a country ($\frac{\text{National Income}}{\text{Population}}$), which determine the standard of living of the people.
- **To estimate distribution of national income:** National income statistics also help us to examine distribution of national output among the factors of production.
- **Helping in economic planning:** State authorities need some statistics about the economy to formulate effective economic planning. Various economic policies such as commercial policy, monetary policy and fiscal policy are based upon the economic data of a country.
- **Comparing economic growth among the countries:** National income statistics also used to make a comparison among different economies of the world.

5 NATIONAL INCOME DETERMINATION OR NATIONAL INCOME EQUILIBRIUM

In recent section we have taken a detailed view about fundamentals of national income, its concepts and measurement. But it is not enough to deal with complex economic structure of a country. These numerical values about national income should be materialized in the form of national income determination to make some sound economic policies in order to address some of the fundamental macroeconomic issues such as; full employment, poverty, inflation, deficit of balance of payments etc.

5.1 National Income Equilibrium

Determination of national output and the price level resides on two main macroeconomic concepts that is Aggregate Supply (AS) and Aggregate Demand (AD). Aggregate demand consists of total spending in an economy by households, firms, governments and foreign agents.

Whereas, aggregate supply describes how much output businesses would willingly produce and sell at the given prices, costs, and market conditions.

Usual shapes of AS and AD curves are same as the common supply and demand curves analysed in microeconomics except long run aggregate supply curve.

5.2 Aggregate Demand (AD)

Aggregate demand is equally as important to the understanding of macroeconomics as aggregate supply is. Just as aggregate supply is the collective of what all firms have produced within an economy, aggregate demand is what has been consumed.

‘The total amount of goods and services demanded within an economy at a given overall price level, and in a given time period is referred to as Aggregate Demand.

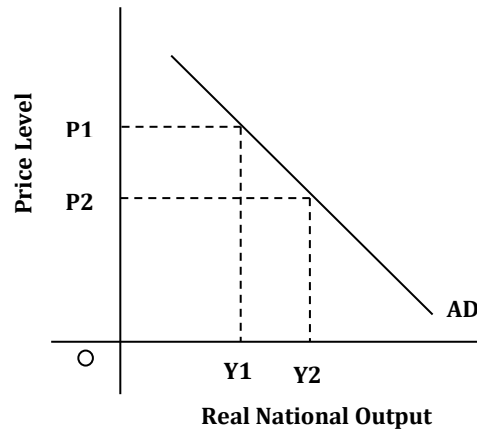
This is represented through an aggregate demand curve, which shows the relationship between the price level and quantity of output that agents are willing to spend. As with regular demand, the relationship between aggregate demand and price is often a negative one, meaning that at a higher price level households are willing to consume less.

Components of Aggregate Demand

The factors that make up AD will be recognisable from earlier sections on GDP. The reason for the similarity is that AD is a measure of all that is demanded within an economy, and so is equivalent to the amount of expenditure.

It is made up of:

- Consumer expenditure on goods and services **(C)**
- Investment spending **(I)**
- Government spending **(G)**
- Net difference between exports and imports in the economy **(X-M)**

► *Illustration:*

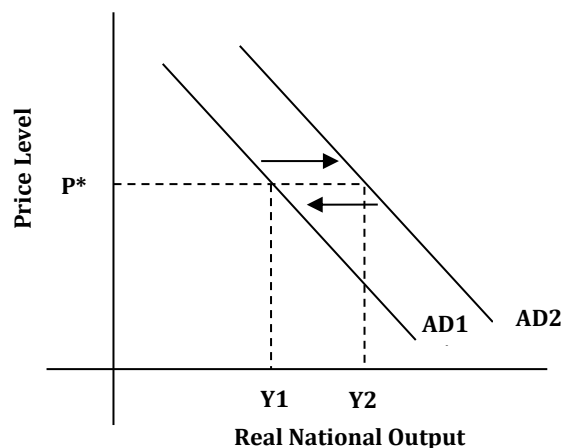
The y-axis represents the price level of all final goods and services in the economy. On the x-axis is the Real National Output. We see that the AD curve is downward sloping, meaning that as the price level decreases, the level of demand in the economy increases.

Shifts in the AD Curve

As with other graphs, a shift in the AD curve is not caused by a change in the price level. Instead, it is by some exogenous factor.

Some reasons for this shift in aggregate demand is due to a change in any of the component parts of the equation. The following would **cause a shift out of the AD** curve:

- Consumers have more income and begin spending more in the economy.
- Firms have a wave of optimism and begin investing in projects.
- Government decides to spend more on infrastructure projects.
- Exports become more attractive to foreign firms.
- Imports become less desirable for domestic firms.

► *Illustration:*

The y-axis represents the price level of all final goods and services in the economy. On the x-axis is the Real National Output. Figure is representing the aggregate demand curve of an economy. Shift from AD1 to AD2 and AD2 to AD1 without any change in prevailing price level.

Effective Demand

Though we have looked at aggregate demand as an overarching concept, there are in fact distinctions that can be made.

The first of these is effective demand, a key idea proposed by economist John Maynard Keynes.

This asserts that agents in an economy will only make expenditures with a percentage of their income, rather than an assumption that the economy is in the long run and all income could possibly be used to fuel aggregate demand.

‘Actual expenditure in an economy is based on existing/ actual income, rather than if the economy was at its productive potential (when all resources are fully utilised) is referred to as effective demand.

5.3 Aggregate Supply

Aggregate supply of output is the total national product produced and offered into market for sale in the final form in one year. It seems to be same as money value of all final goods and services produced in a country in a period of one year at constant factor cost.

‘The total supply of goods and services produced within an economy at a given overall price level, in a given time period is referred to as Aggregate Supply.’

This is represented through an aggregate supply curve, which shows the relationship between price level and quantity of output that firms are willing to supply. As with regular supply, the relationship between aggregate supply and price is often a positive one, meaning that at a higher price level firms are willing to produce more.

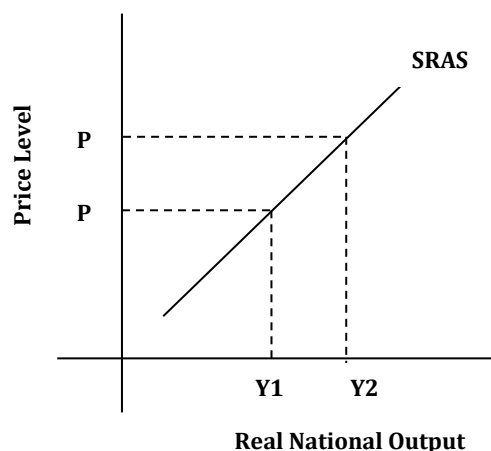
One thing to note here though is that the shape and behaviour of the aggregate supply curve is of debate amongst economists. First we shall present the theories of neo-classical economists, and second, the view of Keynesians.

Short Run Aggregate Supply (SRAS)

As with other concepts in economics, our analysis of aggregate supply differs in the short run and long run. This is because of the flexibility of factors, and the potential output that they can yield.

In the short run, the aggregate supply curve slopes upwards, as a regular supply curve does.

► Illustration:



Graph represents short run aggregate supply curve of an economy. It is showing the direct relationship between a country’s real output and general price level. Rising price levels expand the overall economic activity of the country.

Shifts in the SRAS Curve

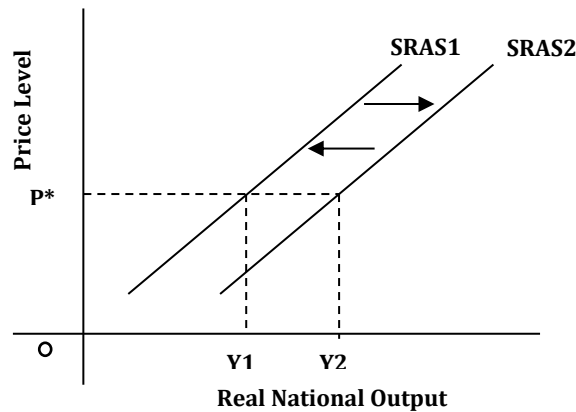
The SRAS curve will move around for a number of reasons, rather than remaining static. As we know from earlier sections of the text, there are exogenous factors that are likely to cause a shift in a curve.

Factors responsible for shift in SRAS

factors causing shift forwards or backwards in short run aggregate supply are

- Change in factor productivity of both labour and capital
- Change in size and quality of capital stock, through investment
- Change in size and quality of the labour force
- Change in unit cost of labour (i.e. wages)
- Change in producer taxes or subsidies
- Change in inflationary expectations (e.g. causing a rise in inflation, and a rise in wages, causing supply to shift inwards)

► *Illustration:*



Graph above represents shift of short run aggregate supply curve of an economy. Shift from SRAS1 to SRAS2 and SRAS2 to SRAS1 without any change in prevailing price level.

LONG RUN AGGREGATE SUPPLY (LRAS)

Shape of Long run aggregate supply curve is quite different from SRAS due to the concept of **full employment**.

Full Employment (Y_f):

'Full employment is a situation where all available resources of an economy are fully utilized. In other words, full employment reflects situation of a country when no more production is possible'.

From what we know previously about supply in the short and long run, it is unsurprising that the slopes of the curve's changes.

In the short run, supply changes to the price level, as the factors of production are adjusted to enable the most efficient use of resources.

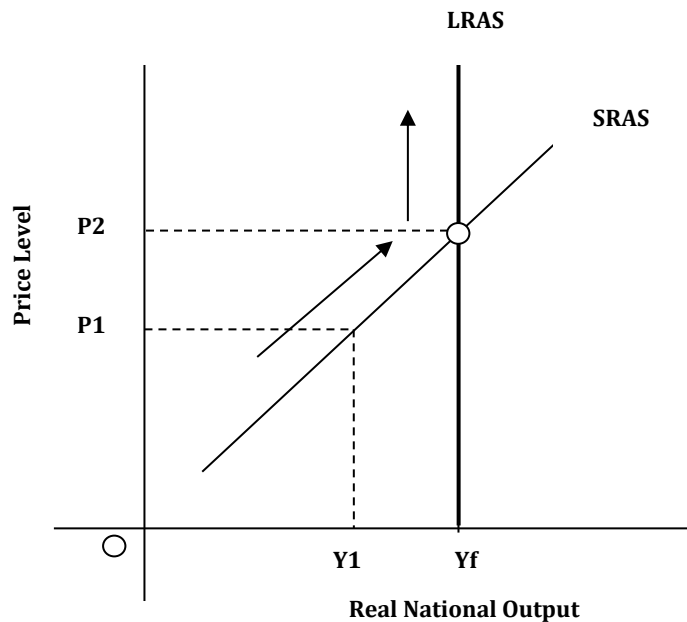
In the **long run** however, it is assumed that supply stays independent of the price level. It is determined by the overall productivity of the resources in the economy.

Another way of viewing this is that LRAS represents the productive potential of the economy. If all resources were at their most productive; that is the level of output that could be achieved.

Shifts in LRAS are therefore factors that affect the level of this potential.

Because it is independent of the price level, and signifies the upper limit of the capacity in the economy, the curve is a vertical line.

► *Illustration:*

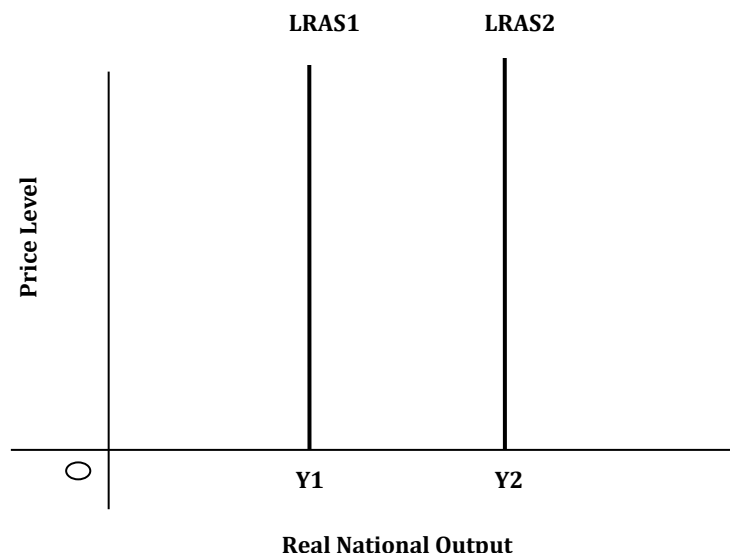


Graph represents short run aggregate supply curve moving directly along increase in price level. But LRAS becomes vertical as it is independent of price level. Point to note is that LRAS curve becomes vertical at level of full employment.

Economic Growth and Shift in LRAS Curve

By its nature, it is assumed that the LRAS curve doesn't fluctuate too greatly. Instead, if there are significant, permanent changes to the productive potential of the economy, then this will lead to a shift.

► *Illustration:*



An increase in the quantity and productivity of the factors of production, or advancement in technological capabilities in the economy would cause an increase in the productive potential which shifts LRAS from LRAS1 to LRAS2.

CAUSES OF SHIFTING IN LONG LRAS CURVES

Factor responsible for shift in LRAS include:

- Improvement in labour skills.
- Improvement technology.
- Exploring new natural resources.

Keynesian Aggregate Supply Curve

From this approach to aggregate supply, we now turn our attentions to how Keynesian economists view the aggregate supply curve.

Keynes still viewed the macro economy in terms of price level and real output, however he saw no distinction between the short run and the long run.

Keynesians still believe that when the economy reaches its productive potential, the AS curve will be vertical. However, when the economy is not at full output, they believe that the AS curve will be flatter, because any resources are not being fully utilised.

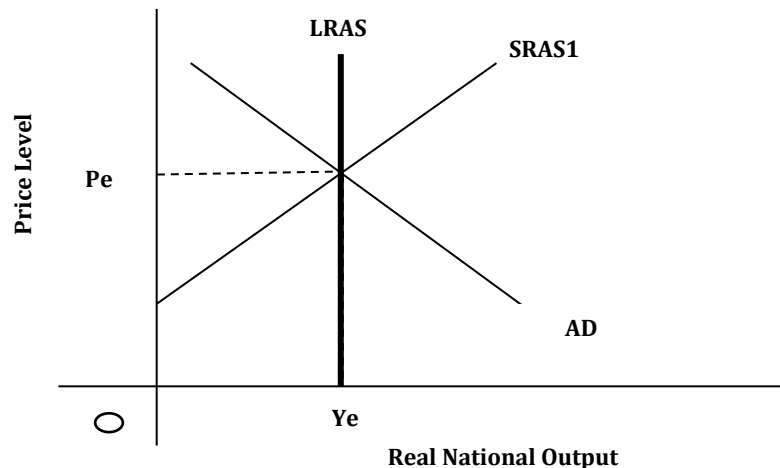
If there are underutilised resources, then as output increases, this would not put pressure on the price level. Instead economy will just use up spare capacity. It is only once the economy approaches its production potential that the firms will begin having the power to influence prices upwards.

6 AGGREGATE DEMAND & AGGREGATE SUPPLY INTERACTION

6.1 Price and Output Determination

National income equilibrium can be achieved through both aggregate demand and supply forces similar to the equilibrium discussed in microeconomics. We will explain this interaction through demand and supply curves as follows:

► *Illustration:*



The macro economy is in equilibrium at the point where SRAS (value of output produced within an economy) is equal to AD (level of demand for goods and services) and LRAS (potential output).

6.2 National Income equilibrium and output gap

Although national income occurs where $AD = AS$ but in macroeconomic study, simple equilibrium is not enough. However, it becomes more relevant when these forces become equal, before or exceeding the maximum potential of a country. What will happen if aggregate demand exceeds the maximum productive potential of a country or if it remains below its full potential? Such situations have critical impact on economic conditions of a country. Therefore it becomes more significant to elucidate them.

6.3 An Output Gap

The difference between actual output of an economy and the production potential of an economy is known as the output gap.

TWO possible conditions of output gap for an economy are:

- **Negative Gap:** Where an economy is performing below its potential or actual output $AD < \text{Potential output } Y_f$
- **Positive Gap:** Where an economy is performing beyond its productive potential or actual output $AD > \text{Potential Output } Y_f$.

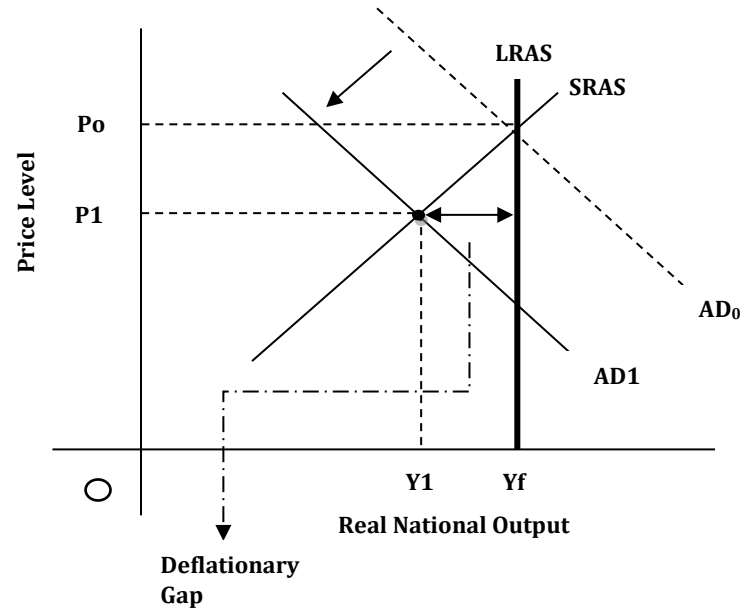
These two scenarios have great impact on overall economic performance of a country. However, we will discuss these possible situations and their impact on price and output determination in detail

NEGATIVE GAP OR DEFLATIONARY GAP:

Deflationary (or recessionary) gap exists when the equilibrium in the economy is less than the production potential. Or aggregate demand remains less than maximum potential of a country. It represents that due to recessionary conditions the economic resources are not being fully utilized. This low AD causes a fall in overall price level which is termed as **deflationary gap**.

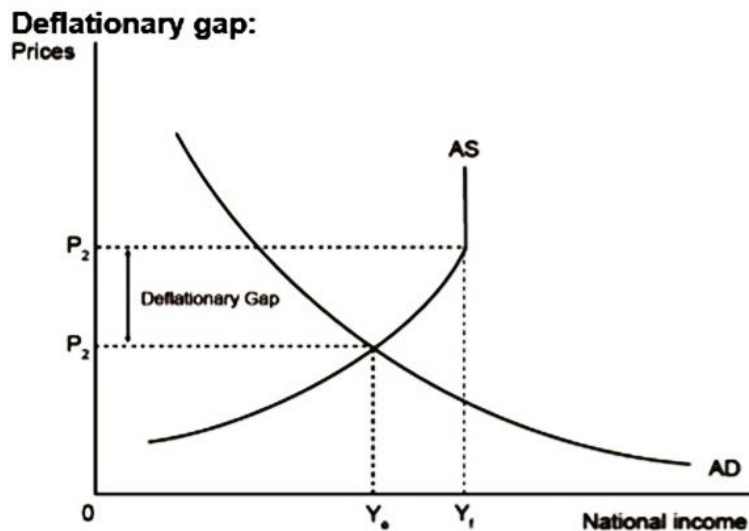
► *For Example:*

It has been observed that due to COVID-19, economic activities are getting slow all over the world. Every country is experiencing worst recession. Due to bad economic conditions consumption and investment expenditures have shrunk drastically. This recessionary phase will ultimately push a downward pressure on overall price level.

► *Illustration:*

In the graph, gap between Y_f and Y_1 represents a negative gap, which occurred due to fall in AD_1 even less than productive potential i.e. Y_f . If aggregate expenditures declined in an economy from AD_0 to AD_1 , the overall price level will also fell from P_0 to P_1 . It will create a deflationary gap in the economy.

Another approach to see deflationary gap can be illustrated below:



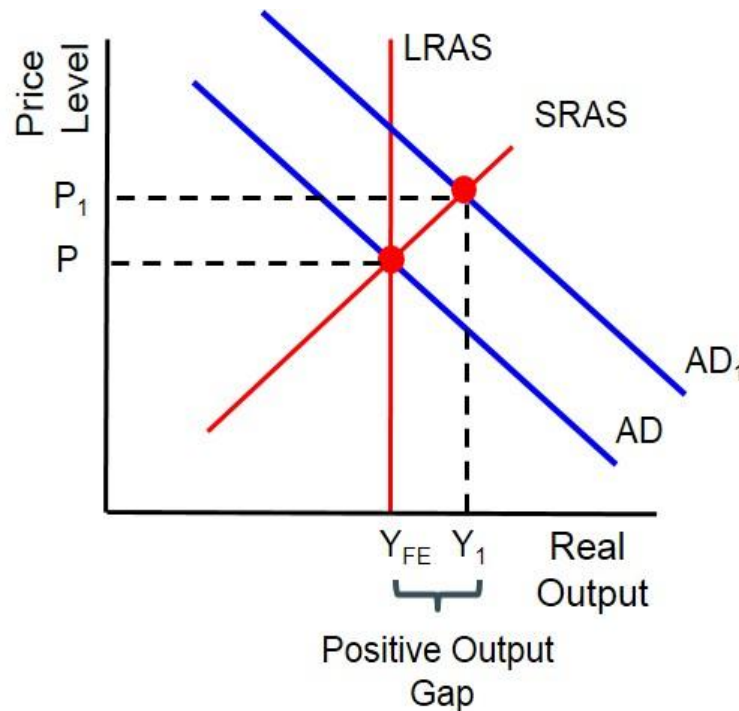
Positive Gap or Inflationary Gap:

Inflationary gap occurs when the equilibrium in the economy resides beyond than the production potential. Or aggregate demand exceeds over maximum potential of a country. It represents that the aggregate expenditures (due to expansionary conditions) is increasing rapidly. Therefore, economic resources are insufficient to meet the potential demand. This high AD causes a rise in overall price level which is termed as ***inflationary gap***.

► *For Example:*

Due to rapid increase in population and economic growth in neighbouring countries, a wave of optimism among investors can prevail in a country. This optimism can excite business sector to invest more in capital goods, which can lead to an increase in factor market and so on. These rising expenditures will yank the AD beyond the economic potential of a country. Soon available resources will become insufficient to meet this demand; therefore, overall price level will increase.

► *Illustration:*



In the graph, gap between Y_{fe} and Y_1 represents a positive output gap, which occurred due to rise in AD_1 beyond the productive potential i.e. Y_{fe} . If aggregate expenditures increase in an economy from AD to AD_1 , then the overall price level will also rise up from P to P_1 . It will create an inflationary gap in the economy.

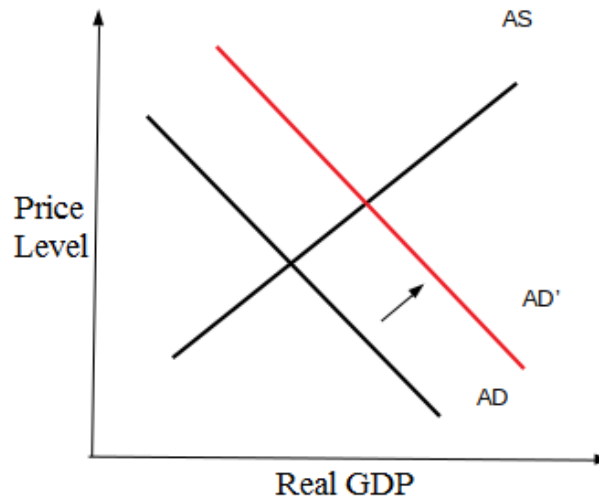
6.4 Changes in Both AD and SRAS

As we have seen in microeconomics that rise and fall in demand and supply in a market resettles the price and output in the market depending on the degree of change in both market forces.

Similarly, this concept prevails in macroeconomic canvas. There are different scenarios where both aggregate demand and short run aggregate supply are shifted. Depending upon the magnitude, this can have an interesting effect on where the equilibrium point resettles.

Changes in Aggregate Demand

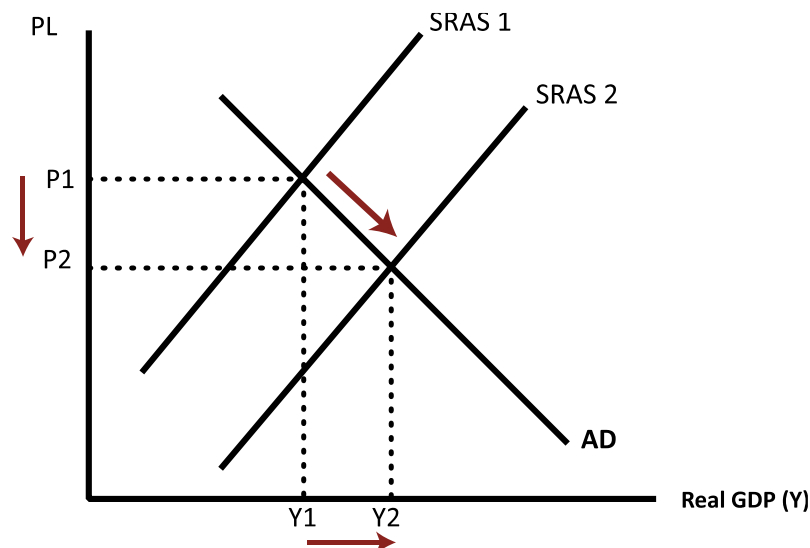
We have seen what effects a shift in AD will have when looking solely at the AD curve. Here though, we shall see how it affects the equilibrium of national income:

► *Illustration:*

We see that an increase in aggregate demand causes the shift in aggregate demand curve to right with the expansion in supply (movement along the same curve) leading to a new equilibrium at higher level of national income and price.

Changes in Aggregate Supply.

The change in conditions of aggregate supply is also something that will bring about a new equilibrium in the macro-economy.

► *Illustration:*

The rise in supply cause the shift in supply curve to the right. Which reduce the price level and quantity demanded expands (along the same demand curve)

REFERENCES

Keynes, J. M. (1936). The General Theory of Employment - Interest and Money. pp 313-314.

Samuelson, P. A. & Nordhaus W.D. (2009). Economics. McGraw-Hill. Nineteenth Edition.

Keynes, J. M. (1936). The General Theory of Employment, Interest and Money. Principle of Effective Demand. Chapter 3.

STICKY NOTES

'National Income is the market value of all goods and services produced in a country during a given time period usually one year'.

Gross Domestic Product (GDP) describes the total value of final goods and services produced within a country in given time (usually one year)

Gross National Product (GNP) is the money value of all the final goods and services produced by the Nationals of a country by using both domestic and foreign resources, during a period of one year.

Nominal GDP is the value of GDP evaluated at current prices in a specific time period, this includes the impact of inflation and is normally higher than the real GDP.

Real GDP is an inflation adjusted value of GDP. It expresses the value of goods and services produced in a country in base-year prices.

NNP is obtained by subtracting the value of depreciation from Gross National Product.
 $NNP = GNP - \text{Capital consumption}$

Per-Capita Income, also known as average income of people of a country, is a measure to estimate the life standards of the nationals of a country. It is derived simply by dividing the national income by population of the country

Personal Income is:

$$PI = NI - \text{Corporate Profit Tax} - \text{Undistributed Profit} - \text{Social security allowances} + \text{Transfer Payments}$$

While calculating national income some of payments received by households without performing any marketable activity must be avoided

Disposal Personal Income is:

$$DPI = PI - \text{Personal Taxes}$$

Aggregate demand is the total amount of goods and services demanded within an economy at a given overall price level, and in a given time period'.

Effective demand is actual expenditure in an economy. It is based on existing/ actual income, rather than the economy's productive potential (when all resources are fully utilised).'

Aggregate supply is the total supply of goods and services produced within an economy at a given overall price level, in a given time period.'

'Full employment (Y_f) is a situation where all available resources of an economy are fully utilized. In other words, full employment reflects that situation of a country when no more production is possible'.

Output Gap is the difference between the actual output of an economy and the production potential of an economy.

Negative Gap is where an economy is performing below its potential or actual output $AD < Y_f$
Positive Gap is where an economy is performing beyond its productive potential or actual output $AD > Y_f$.

SELF-TEST

1. Macroeconomics is not concerned with.
 - a) The level of output of goods and services.
 - b) The general level of prices
 - c) The growth of income
 - d) Labour productivity
2. $NNP_{fc} = \dots\dots\dots$?
 - a) $GNP_{fc} + \text{Depreciation} - \text{Indirect taxes} + \text{subsidies}$
 - b) $GNP_{mp} - \text{Depreciation} - \text{Indirect taxes} + \text{subsidies}$
 - c) $GNP_{fc} + \text{Depreciation} + \text{Indirect taxes} + \text{subsidies}$
 - d) $GNP_{fc} + \text{Depreciation} + \text{Indirect taxes} - \text{subsidies}$
3. Which statement is true for National Income?
 - a) It is the market value of goods and services.
 - b) Only final goods will be considered
 - c) It is usually taken for one year
 - d) All of the above
 - e) None of the above

4. Using values given in table, NNP is.

Items	Rs. (millions)
GDP	500
Income received from abroad	250
Income taken to abroad	200
Depreciation	20
Indirect Tax	25
Subsidies	80

- a) 530
 - b) 570
 - c) 500
 - d) 480
5. While calculating Personal Income, which item would be added in national income?
 - a) Corporate Profit Tax
 - b) Undistributed profit
 - c) Social security allowance
 - d) Transfer payments

6. Which one is not an injection for circular flow of National Income?
 - a) Postponed consumption
 - b) Public sector spending
 - c) Private investment
 - d) Exports
7. Which one can affect the national income accounting adversely?
 - a) Total value of cotton produced in a country
 - b) Domestic work done by households
 - c) By adding value of resold car during same year
 - d) All of above
8. _____ is a precaution to calculate national income by income approach.
 - a) Transfer Payments
 - b) Tax collected by federal government
 - c) Wages
 - d) None of the above
9. Gross domestic investment is the component of national accounting using _____.
 - a) Income approach
 - b) Product approach
 - c) Expenditure approach
 - d) Value added approach
10. Which one is NOT the most relevant problem regarding calculating national income?
 - a) Unreliable record keeping
 - b) Lack of trained staff
 - c) Illegal activities
 - d) Poor collection procedure
11. GNP is always
 - a) Less than NNP
 - b) More than NNP
 - c) Equal to NNP
 - d) Calculated from NNP
12. Transfer payments means
 - a) Bank loans
 - b) The payment without work
 - c) Tax payments
 - d) Payments made to all factors of production

13. Which one is the highest value?
- a) Disposable Income
 - b) NNP
 - c) Personal Income
 - d) GNP
14. Undistributed profits are considered
- a) Income earned but not received
 - b) Income received but not earned
 - c) Income earned and received
 - d) None of the above
15. GDP deflator is used to estimate
- a) Gross National Product
 - b) Personal Income
 - c) Net National Product
 - d) Real or deflating income
16. Depreciation allowance is NOT considered while calculating
- a) Gross National Income
 - b) Gross Domestic Income
 - c) Personal Income
 - d) All of the above
17. When there is rising inflation in the economy then
- a) Real GNP is greater than Nominal GNP
 - b) Nominal GNP greater than real GNP
 - c) GNP and real GNP increase at the same rate
 - d) There is no effect on such calculations
18. By deducting personal tax from personal income, we get
- a) Personal Income
 - b) GNP at factor cost
 - c) NNP at market price
 - d) Personal Disposable Income
19. Capital consumption is defined as
- a) Reduction of value of an asset over the year
 - b) Decrease in value by using an asset over than capacity
 - c) Wastage of assets by not using it over the time
 - d) None of the above

20. Which of the following is a measure of income earned by a factor of production?
 - a) Indirect taxes
 - b) Depreciation
 - c) Rent
 - d) Corporate taxes
21. Which of the following represent withdrawals from the circular flow of national income?
 - (i) Distributed profits
 - (ii) Interest paid on bank loans
 - (iii) Income tax payments
 - (iv) Imports
 - a) (i) and (ii) only
 - b) (ii) and (iii) only
 - c) (i) and (iii) only
 - d) (iii) and (iv) only
22. If GNP rose from 5 billion rupees to 10 billion rupees and in the same period price rose by 50%
 - a) real GNP fell by 100%
 - b) real GNP fell by 50%
 - c) real GNP remains unchanged
 - d) real GNP will increase by 50%
23. Macro-economics is also known as:
 - a) Price Theory
 - b) Theory of Distribution
 - c) Theory of Income & Employment
 - d) Theory of Production
24. The monetary value of the flow of goods and services produced by the economy during one year after the adjustment of indirect taxes and subsidies is known as:
 - a) Personal Income
 - b) Disposable Income
 - c) National Income
 - d) G.D.P.
25. The market value of all the products goods and services, which are produced within a country during one financial year is known as:
 - a) G.D.P.
 - b) G.N.P.
 - c) National Income
 - d) Disposable Income

26. G.D.P. estimated at base year price is known as:

- a) Nominal G.D.P.
- b) Real G.D.P.
- c) G.D.P. at purchasing power parity
- d) All of the above

27. Net National product is also known as:

- a) National Income at Factor Price
- b) National Income at Market Price
- c) GDP at Market Price
- d) Personal Income

28. Total income received by all the legal residents of an economy in one financial year.

- a) National Income at Factor Price
- b) National Income at Market Price
- c) Personal Income
- d) Disposable Income

29. The following data related to the National Income of a country:

Items	Rs. in billion
Consumer's expenditure	25,000
Gross investment	5,000
Government expenditure	5,000
Exports	4,000
Imports	(6,000)
G.S.T.	(4,000)
Subsidies	1,000
Depreciation allowance	(1,000)
Net factor income from abroad	2,000

The National Income at factor price is:

- a) 33,000
- b) 34,000
- c) 31,000
- d) 30,000

30. The following data related to the National Income of a country:

Items	Rs. in billion
Pre-tax wages of workers	10,000
Pre-tax profit of firms	12,000
Rent received by land	8,000
Taxes deducted out of rent	2,000

The National income at factor price of country is:

- a) 30,000
- b) 24,000
- c) 32,000
- d) 20,000

31. Which of the following is not a withdrawal from circular flow of income:

- a) Savings
- b) Investment
- c) Imports
- d) Taxes

32. Which of the following expenditure are not included in G.D.P.

- a) Expenditure made by the firms
- b) Consumer's Expenditure
- c) Government Expenditure
- d) Net foreign trade expenditure

33. Which of the following adjustment is called factor price adjustment?

- (i) Indirect taxes
- (ii) Subsidies
- (iii) Capital consumption allowance
- (iv) Net factor income from abroad
- a) (i) & (iii)
- b) (ii) & (iii)
- c) (iii) & (iv)
- d) (i) & (ii)

34. Net increases in the capital stocks of a country are called:

- (i) Net investment
- (ii) Net savings
- (iii) Net capital formation
- (iv) Net consumption
- a) (i) & (ii)
- b) (i) & (iii)
- c) (ii) & (iii)
- d) (iv)

35. A country's measured national income per capital falls but its inhabitants experience a rise in consumption. What could explain this?

- a) A decrease in net foreign remittances
- b) A fall in population
- c) An increase in trade deficit
- d) A rise in negative externalities

36. Income which is received without any factor services is known as __A__ whereas income which earned but not received by the factors of production is known as __B__.
37. If sale value of output of firms is Rs.45 billion and cost of goods purchased by firms from outside firms is Rs.10 billion. G.D.P. of country would be:
- a) Rs.45 billion
 - b) Rs.35 billion
 - c) Rs.55 billion
 - d) Rs.50 billion
38. If gross output of a country in current year is 5,000 units & price of output in current year is Rs.100 per unit and in base year Rs.50 per unit. Real G.D.P. of the country would be:
- a) 50,0000
 - b) 100,0000
 - c) 250,000
 - d) None of the above
39. Which one is a component of Aggregate Demand?
- a) Personal consumption
 - b) Personal Investment
 - c) Subsidies
 - d) All of above
40. Which one is NOT considered in Aggregate Demand?
- a) Demand for cotton
 - b) Demand for salt
 - c) Demand for labour
 - d) None of the above
41. If exports become more attractive for foreign firms, then the Aggregate Demand Curve
- a) Rise and shift rightward
 - b) Fall and shift rightward
 - c) Rise and shift inward
 - d) Fall and shift inward
42. Which is NOT a cause of inward shift of aggregate demand curve?
- a) Consumers begin to spend more
 - b) Firms have wave of optimism
 - c) Government spending more on power generation projects
 - d) All of the above.
43. Actual expenditure in an economy is based on existing/ actual income, rather than if the economy was at its productive potential is known as
- a) Individual demand
 - b) Effective demand
 - c) Aggregate demand
 - d) None of the above

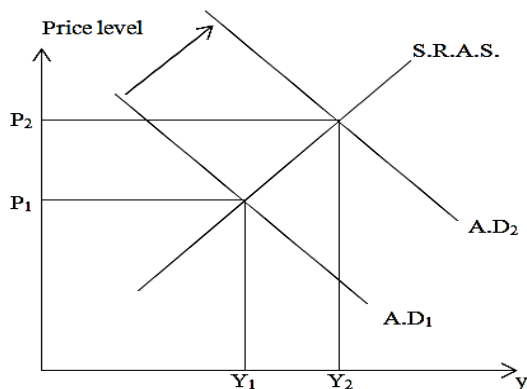
44. Which cause a shift in Aggregate Supply curve to left?
 - a) Decrease in labour productivity
 - b) Increase in overall spending
 - c) Decrease in government spending on development projects
 - d) Decrease in foreign direct investment
45. Change in inflationary expectations will cause
 - a) Vertical Aggregate Supply curve
 - b) Positively sloped aggregate supply curve
 - c) Shift in aggregate supply curve
 - d) None of above
46. Long run aggregate supply curve is vertical due to
 - a) Flexibility of existing resources
 - b) Firms have ability to switch resources to other production
 - c) Government has no control over production decisions
 - d) Full utilization of existing resources
47. A vertical aggregate supply curve shifts to right if
 - a) Permanent change in productive potential
 - b) Change in technology
 - c) Change in government spending
 - d) Change in behaviours of consumers
48. Inflationary gap represents when
 - a) Aggregate demand exceeds over production potential of the economy
 - b) Aggregate demand exceeds over the firm's expectations
 - c) Aggregate supply remains less than in aggregate supply in short run
 - d) Aggregate supply exceeds over aggregate demand in short run
49. If aggregate demand is less than productive potential of an economy, then it is known as
 - a) Negative output gap
 - b) Positive output gap
 - c) Inflationary gap
 - d) None of the above
50. An output gap is said to be an inflationary gap if
 - a) Aggregate demand exceeds over aggregate supply in short run
 - b) Aggregate demand exceeds over aggregate supply in long run
 - c) Aggregate demand remains less than aggregate supply in short run
 - d) Aggregate demand remains less than aggregate supply in long run

51. If rise in aggregate demand is greater than increase in short run aggregate supply curve then
- Price and output level will increase
 - Price and output level will decrease
 - Price will increase and output level will decrease
 - Price will decrease and output will increase
52. If rise in aggregate demand is lesser than increase in short run aggregate supply curve then
- Price and output level will increase
 - Price and output level will decrease
 - Price will increase and output level will decrease
 - Price will decrease and output will increase
53. If aggregate demand and aggregate supply increase in same proportion
- Price and output level will increase
 - Price and output level will decrease
 - No change in price level and fall in output
 - Fall in price level and increase in output
54. A positive output gap leads to
- A rise in overall price level
 - A fall in overall price level
 - No change in price level
 - It depends on magnitude of change in demand and supply
55. Which one can be responsible factor of an inflationary gap?
- Rising household consumptions
 - Rising investment
 - Rising government spending
 - All of the above
56. Which one is NOT a workable step to overcome an inflationary gap?
- Rising government spending
 - Rising direct taxes
 - Decrease in government spending
 - Increase in interest rate
57. Inflationary gap depicts economy is in
- Its peak
 - Its trough
 - Recession
 - Recovery

58. Rise in minimum wage level is a workable step to
 - a) Overcome inflationary gap
 - b) Deflationary gap
 - c) Irrelevant
 - d) All of above
59. Aggregate supply curve
 - a) Is the sum of individual supply curves in the economy?
 - b) Is a market supply curve
 - c) Embodies the same logic that lies behind an individual firm's supply curve
 - d) None of the above
60. An inflationary gap exists in an economy when
 - a) The government has a budget deficit
 - b) Aggregate demand is greater than the full employment level of income
 - c) Withdrawals exceed injections at the full employment level of income
 - d) The money supply rises faster than national income
61. Which one of the following would cause a fall in the level of aggregate demand in an economy?
 - a) A decrease in the level of imports
 - b) A fall in the propensity to save
 - c) A decrease in government expenditure
 - d) A decrease in the level of income tax
62. Which of the following cannot cause shift in short-run aggregate supply?
 - a) Productivity of labour
 - b) Indirect taxes
 - c) Direct taxes
 - d) Subsidies
63. Long-run aggregate supply represents.
 - a) The productive potential of an economy
 - b) Total labour supply
 - c) Relationship between price and taxes
 - d) Total natural resources
64. Which of the following cannot cause shift in long run aggregate supply?
 - a) New technology
 - b) Improvement in labour skills
 - c) Price level
 - d) Natural resources

65. Keynesian aggregate supply curve is always:
- Upward to the right
 - Downward to the right
 - Horizontal & vertical after full employment
 - Vertical
66. Difference between potential G.D.P and actual G.D.P. is called:
- Inflation
 - Deflation
 - Output gap
 - G.D.P. Deflator
67. G.D.P. deflator is a ratio between:
- Inflationary gap & deflationary gap
 - Inflation and disinflation
 - Nominal G.D.P. and Real G.D.P.
 - None of the above
68. If government expenditure increases what will the effect on price level and output level.
- Both increases
 - No change
 - Output increase and no change in price level
 - Price level increase and no change in output level
69. If wage rate in economy increases what will be effect on price level.
- Increase
 - Decreases
 - No change
 - Rate of inflation decrease
70. If government expenditures and wage rate increase in the same proportion what will be effect on economy.
- Output increase
 - No change in output
 - Price level increases
 - Output decrease
- (i) & (iii)
 - (ii) & (iv)
 - (iii) & (iv)
 - (ii) & (iii)

71. Deflationary gap can be reduced by:
- Increase in government expenditure
 - Increase in consumer's expenditure
 - Decrease in indirect taxes
 - Increase in subsidies
- (i) & (ii)
 - (iii) & (iv)
 - (ii) & (iii)
 - (i) & (iv)
72. If aggregate demand gone beyond the full employment, it is said to be:
- Inflationary gap
 - Deflationary gap
 - Ideal equilibrium
 - Positive output gap
- (i) & (ii)
 - (i) & iv)
 - (ii) & (iv)
 - (ii) & (iii)
73. A continuous or persistent rise in general price level is called:
- Inflation
 - Deflation
 - Disinflation
 - Stagflation
74. A fall in rate of inflation is called:
- Inflation
 - Inflationary gap
 - Disinflation
 - Deflation
75. A continuous or persistent rise in general price level is called __a__ whereas a particular situation beyond the full employment where only general price level increases with no change in level of output is called __b__.
76. Keynesians believe that when economy reaches its productive potential the A.S. curve will be __a__. However, the economy is not at full output they believe that the A.S. curve will be __b__.



77. In the above diagram A.D curve shifts towards right as a result price level & output level both increase. What is the cause of shift in A.D curve?
- a) Increase in wage rate
 - b) Increase in government spending's
 - c) Increase in indirect taxes
 - d) Improvement in technology
78. Pakistan's economy after Covid-19 currently facing a situation of:
- a) Deflationary gap or recessionary gap
 - b) Inflation gap
 - c) Ideal equilibrium
 - d) None of the above

ANSWERS TO SELF-TEST QUESTIONS					
1	2	3	4	5	6
(d)	(b)	(d)	(a)	(d)	(a)
7	8	9	10	11	12
(c)	(a)	(c)	(c)	(b)	(b)
13	14	15	16	17	18
(d)	(a)	(d)	(c)	(b)	(d)
19	20	21	22	23	24
(a)	(c)	(d)	(d)	(c)	(c)
25	26	27	28	29	30
(a)	(b)	(b)	(c)	(c)	(c)
31	32	33	34	35	36
(b)	(a)	(d)	(b)	(c)	(a) = Transfer payment (b) = Retained earnings
37	38	39	40	41	42
(b)	(c)	(d)	(c)	(a)	(d)
43	44	45	46	47	48
(b)	(a)	(c)	(d)	(a)	(a)
49	50	51	52	53	54
(a)	(b)	(a)	(d)	(a)	(a)
55	56	57	58	59	60
(d)	(a)	(a)	(b)	(d)	(b)
61	62	63	64	65	66
(c)	(c)	(a)	(c)	(c)	(c)
67	68	69	70	71	72
(c)	(a)	(a)	(d)	(a)	(b)
73	74	75	76	77	78
(a)	(c)	Inflation, Inflationary Gap	Vertical Horizontal	(b)	(a)

AT A GLANCE

SPOTLIGHT

STICKY NOTES

CONSUMPTION, SAVING AND INVESTMENT

IN THIS CHAPTER:

AT A GLANCE

SPOTLIGHT

1. Consumption And Consumption Function
2. Saving And Saving Function
3. Investment And Investment Function

STICKY NOTES

SELF-TEST

AT A GLANCE

In this chapter we will discuss major components of aggregate demand and Aggregate Supply. Keynes theory of income and employment is largely based on consumption, saving and investment. According to Keynes view point national income equilibrium rests where $C+I = C+S$. There is no doubt that people want basic needs like food, cloth, healthcare, housing and utilities, to survive. This is the ultimate responsibility of the state authorities to transform available inputs factors (factors of production) into consumable products to serve the nation.

At the same time saving and investment are also a great reality in economic models. These saving and investment determine the growth and development of a country. Rational agents of an economy do not want to consume all of their income, rather, they want to postpone a fraction of their income to meet some future plans. Being student of economics, one should understand the reality of savings and investment in overall economic performance of a country. Saving and Investment then interact and determine the national level of output in the country.

1 CONSUMPTION AND CONSUMPTION FUNCTION

As discussed earlier, households have different needs regarding what they have to spend their disposable income. This fraction of their disposable income which is spent on durable and non-durable consumer goods is known as consumption or consumption expenditures.

‘Fraction of disposable income, that household spend on consumer goods is called consumption.’

1.1 Consumption Pattern

Spending patterns of different income groups or different segments of the society are not similar with one another. Rather, people allocate their expenditures among different consumer goods with different proportions of their income. Even more so, poor families have to spend large fraction of their income to survive as compared to high income families.

1.2 Consumption Function

A common factor needs to be enlightened that consumption expenditures of a society increase as income of households increases. However, study shows that level of consumption gets slower along with increase in household's disposable income.

$$C = f(Y)$$

We can say the consumption expenditures and disposable income are directly proportion to each other.

$$C = f(Y)$$

$$\text{and } C = C_0 + cY$$

whereas,

C stands for Consumption

C₀ represents autonomous consumption (exogenous factor which does not depend on consumer's income)

cY represents the induced consumption (endogenous factor, which directly depends on consumer's income)

c represents the slope of consumption function or marginal propensity to consume (**MPC**)

1.3 Autonomous and Induced Consumptions

‘Autonomous consumption is the minimum level of consumption that one must dispose-off regardless of his income’

► Example:

Spending on all basic needs such as food, clothing, healthcare etc., are the examples of autonomous consumption. If one's income is zero, then the basic needs are financed by old savings or borrowed funds.

‘Induced consumption is that portion of consumption which directly depends upon one's income’

► For Example:

As income of households increases, their spending also increases gradually. Accordingly, they start spending more on comforts and luxuries.

1.4 Marginal and Average Propensity to Consume

Marginal propensity to consume is ratio of change in consumption to change in household's income whereas; **average propensity to consume** is the ratio of total consumption to their total income.

$$MPC = \frac{\text{change in consumption}}{\text{change in income}} = \frac{\Delta C}{\Delta Y}$$

$$APC = \frac{\text{Total Consumption}}{\text{Total Income}} = \frac{C}{Y}$$

Keynes has explained this relationship through his well-known law of consumption known as “**psychological law of consumption**.”

“People increase their consumption as their income increases, but not by as much as their income increases.”

Three propositions can be derived from this law:

- Aggregate consumption increases along with an increase in aggregate income, but the increase in aggregate consumption will remain less than the increase in income. (This is because as basic necessities are fulfilled, people begin to save additional income, hence savings increase.)
- What is not spent on consumption, is saved.
- The increase in income will lead to increased consumption and savings.

For further explanation of Keynes analysis, we need to use a conventional consumption function.

$$C = f(Y)$$

$$\text{and } C = C_0 + cY$$

Here ‘c’ represents marginal propensity to consume. According to Keynes law of consumption the expression would be like this;

$$0 < MPC < 1$$

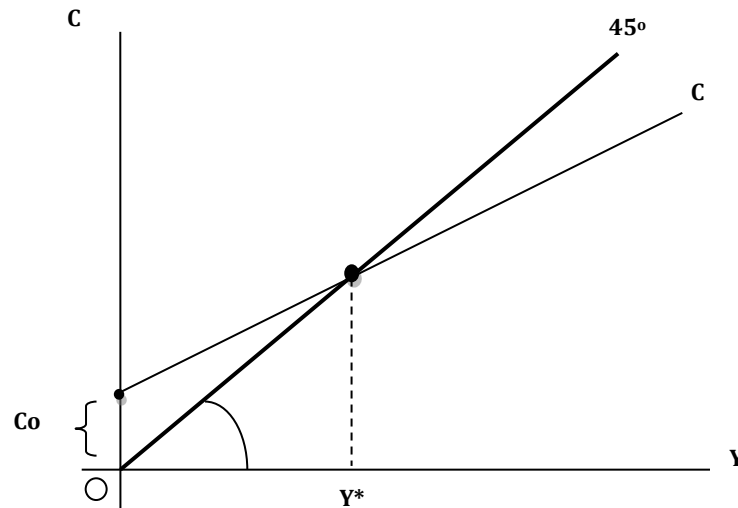
This is because an increase in income of the households, consumption also increases, which keeps the $MPC > 0$, while rate of change in consumption remains lesser than the rate of the change in income, therefore, $MPC < 1$ ($MPC = \frac{\Delta C}{\Delta Y}$).

► *For Example:*

Let autonomous consumption be Rs. 50

Marginal propensity to consume is 0.5 (means people spend 50% of their income)

Autonomous and Induced Consumption				
Income (Y) Rs. Millions	Autonomous Consumption (Rs.)	Consumption $C = C_0 + cY$	MPC	APC
0	50	50	-	0
100	50	100	0.5	1
200	50	150	0.5	0.75
300	50	200	0.5	0.67
400	50	250	0.5	0.62
500	50	300	0.5	0.60



The graph explains that consumption is increasing along with increase in income. But the rate of change in consumption is smaller than change in income. 45° line is also known as helping line. Income lesser than Y^* shows that initially consumption is greater than income, but beyond Y^* consumption become less than the income.

Factors responsible for shift in consumption function or Determinants of the consumption function

The consumption function refers to a list of variables that influence consumption. The main determinants in the consumption function are as follows:

- **Real income:** As we will see in the next section, this plays an important role in how much one is able to consume.
- **Distribution of wealth:** If it is unequal, more of the income is in the hands of rich people with a lower propensity to consume. A more equal distribution increases consumption.
- **Expectations of price changes:** If prices are expected to rise, then the population will move to spend their income quicker in the present, hence increasing consumption.
- **Changes in Fiscal Policy:** If low-income households are taxed more, then overall consumption decreases.
- **Changes in Interest Rates:** As interest rates increase, it usually decreases the amount of disposable income (by increasing mortgage repayments etc.) and thus reduces consumption.

Shifts in Consumption Curve

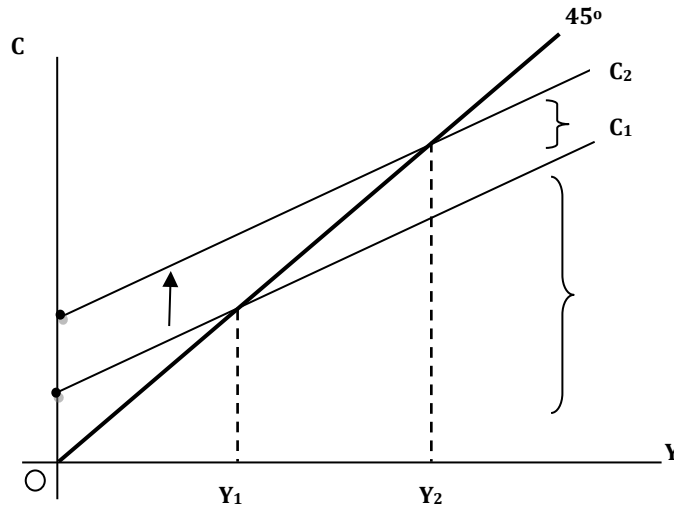
Changes in some variables (other than real disposable income) can shift the curve.

For example, a change in interest rates, consumer confidence might lead to a change in consumption spending at each level of income.

In the following graph, the consumption function has shifted to the upward (C_1 to C_2). This means that the consumers are spending a larger percentage of their income.

This could be due to positive forecasts about economic prospects increasing consumer's confidence.

► *Illustration:*



This graph explains the Keynes law of consumption that as income increases from Y_1 to Y_2 , consumption also increases. But rate of change of consumption is less than change in income. But due to other factors, such as rate of interest, tax rates etc., consumption increases which cause a shift upward in consumption curve from C_1 to C_2 .

2 SAVING AND SAVING FUNCTION

2.1 Saving:

‘Saving is that part of income which is not consumed yet’ Or ‘postponed consumption of households or businesses is termed as saving’.

According to Keynes law of consumption, it is clear that with every increase in income of the households their consumption expenditures also increase but with lesser proportion. Remaining income is to be saved with the intention of some future use. It reveals a fact that along every increase in income, household’s consumption and saving both increases simultaneously.

$$\text{Saving function: } S = f(Y)$$

$$\text{and } S = -S_0 + sY$$

Note: saving and income are directly proportion. As income increases, consumption also increases but with lesser proportion, resultantly saving increases.

► *Mathematically,*

$$Y = C + S$$

$$\text{Or } S = Y - C$$

2.2 Marginal and Average Propensity to Save

Earlier, we discussed that saving of households is directly proportional to their income. To proceed with our discussion, we need to learn TWO central concepts i.e., marginal propensity to save and average propensity to save. Marginal propensity to save is ratio of change in savings to change in household’s income whereas; average propensity to save is the ratio of total saving to their total income.

$$MPS = \frac{\text{change in saving}}{\text{change in income}} = \frac{\Delta S}{\Delta Y}$$

$$APS = \frac{\text{Total Saving}}{\text{Total Income}} = \frac{S}{Y}$$

Here we should not a simple but important derivation about propensities to consume and save will strengthen our understanding.

$$Y = C + S$$

and

$$\Delta Y = \Delta C + \Delta S$$

then

$$\frac{\Delta Y}{\Delta Y} = \frac{\Delta C}{\Delta Y} + \frac{\Delta S}{\Delta Y}$$

Hence,

$$MPC + MPS = 1$$

as,

$$0 < MPC < 1$$

Therefore,

$$0 < MPS < 1$$

► **Example:**

Income increases by Rs. 10,000 and Rs. 7,000 is spent on consuming goods, and Rs. 3,000 is saved. Then the MPC and MPS are:

$$MPC = \frac{7,000}{10,000} = 0.7$$

$$MPS = \frac{3,000}{10,000} = 0.3$$

$$\text{Together: } 0.7 + 0.3 = 1$$

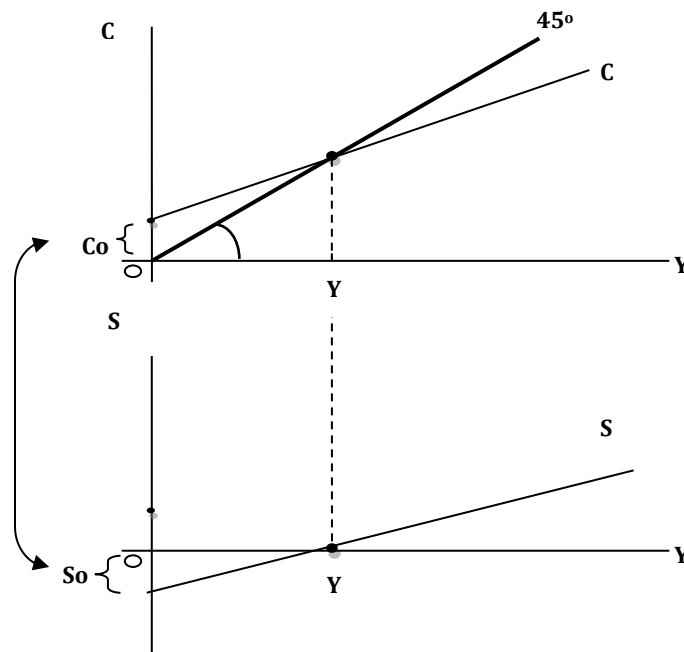
► **For Example:**

We will use data already used in consumption section, in support of understanding about saving function.

Saving Schedule				
Income (Y) Rs. Millions	Consumption	Saving	MPS	APS
0	50	-50	-	-
100	100	0	0.5	0
200	150	50	0.5	0.25
300	200	100	0.5	0.33
400	250	150	0.5	0.38
500	300	200	0.5	0.4

Table explains the relationship among income, consumption and saving. When income was Zero, due to autonomous consumption people have to meet their basic needs for that they have taken financial assistance i.e., -ve Savings. Later on, with an increase in income, consumption increases with lesser proportion that cause to an increase in saving from 50, 100 and so on.

► Graphically,



The above graph explains that consumption increasing along with increase in income. But rate of change in consumption is lesser than change in income which leads to an increase in saving which is shown in lower panel of the figure. Beyond in Y^* the saving curve become positive.

2.3 Determinants of Saving

- **Level of income:** Saving is determined by the level of income. There is a direct relation between the two i.e., savings increase as the level of income increases.
- **Net wealth:** A household's net wealth is the value of all assets owned by a household, less any liabilities or debt owed. A decrease in net wealth would make consumers less inclined towards spending and more inclined towards saving at each income level.
- **Interest rate:** Interest is the reward for increasing savings by reducing consumption and the amount paid by borrowers for current spending power. An increase in interest rate, other things held constant, will lead to less spending on things that are purchased on credit and thus higher savings.
- **Objective and institutional factors:** Factors such as political stability and security of property encourage people to save more. Similarly, an established system of banks and other financial institutions promotes savings by way of interest earning motives. Whereas, high and widespread indirect taxes are likely to force consumer to spend more on maintaining standard of living which will cause a reduction in personal savings.
- **Subjective motivations for savings:** According to Keynes, there are multiple factors that motivate individuals and enterprises to save such as to provide for future needs, to build up a reserve against unforeseen contingencies, to undertake business projects, to expand business investments and to have financial prudence in discharging debts.

3 INVESTMENT AND INVESTMENT FUNCTION

After detailed discussion about two major components i.e., consumption and saving, now we will move to another significant component i.e., investment. Investment also plays an important role in Keynesian theory of income and employment.

3.1 Meaning of Investment

'Expenditure done by households or firms on capital goods is called investment.'

It includes spending on construction of new commercial buildings, roads and communication, plant and machinery etc. Although, throughout the year, we spent money on old capital assets like, old building and old transports, but these are not included in real investment of a country. For real investment, quantitative addition in capital goods is a pre-condition. By making investment on an old shopping mall, it is simply considered as an exchange of ownership rather an addition to the existing stock of capital of a country. As spending on the buyer side has to off-set the existing investment by withdrawing investment from the seller side.

► Example:

Mr. Zain has purchased an old workshop and paid Rs. 10 million to Mr. Ijaz as the owner of workshop. By doing so apparently Mr. Zain has invested Rs. 10 million, but actually it is a simple exchange between both of them. It is obvious now that spending of Mr. Zain has taken out the investment of Mr. Ijaz with same value. Hence, in real terms there is no addition to the stock of capital of the country.

3.2 Investment Function

Investment also increases along an increase in national income except a fraction of investment. Investment function represents a relationship between amounts of investment that is made up on different level of national income.

$$I = f(Y)$$

Or

$$I = I_o + mY$$

Whereas,

I represents volume of investment,

I_o is **autonomous investment** and

Y is national output or income.

Whereas

m is the marginal propensity to invest.

In this context we will discuss here TWO categories of investment.

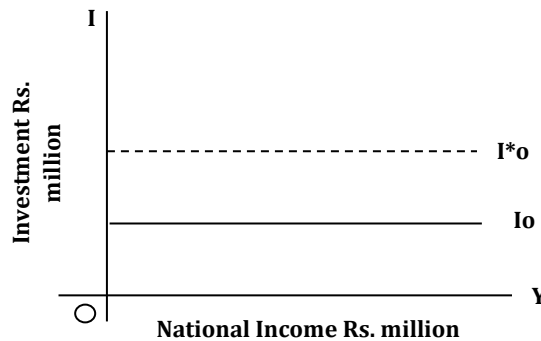
AUTONOMOUS INVESTMENT:

Autonomous investment is that part of investment expenditures which remains unaffected with an increase or decrease in national income of a country. This is generally done without intentions of earning more income or profit. By and large this investment is initiated by government for welfare maximization such as; infrastructure, school and hospitals etc. In a nutshell autonomous investment is independent of income.

► Illustration:

Autonomous Invest Schedule	
Income (Y) Rs. Millions	Autonomous Investment Rs. Million
100	100
200	100
300	100
400	100
500	100

Figure:



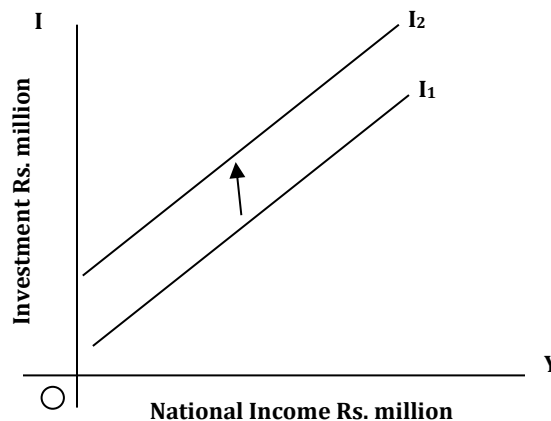
In above table we can see that investment remain unchanged at Rs. 100 million regardless of an increase in national income. Whereas, in the graph, horizontal investment curve exposing investment independent to the income. A shift in autonomous investment from I_0 to I^*_0 can be observed due to various exogenous factors like substantial changes in public development programs etc.

Induced Investment:

This investment directly depends upon a country's national income. In other words, such investment varies with variation in income.

► Illustration:

We can explain the induced investment using following table:



In above table, we can see that investment increases from Rs. 10 million to Rs. 50 million as income increases from Rs. 100 million to Rs. 500 million. Positively sloped investment curve represents investment directly dependent on income. However, a shift in induced investment from I_1 to I_2 can be observed due to various exogenous factors like interest rates or social factors.

3.3 Determinants of Investment

According to Keynes, there are **TWO** core determinants of investment function.

- Marginal Efficiency of Capital (MEC)
- Market rate of interest

Keynes's analysis about these determinants have provided sound basis for macro-economic analysis. According to Keynes, while making new investment people focus on two factors i.e., market rate of interest and MEC (expected rate of return). They will be ready to make investment only when their MEC remain greater than the market rate of interest.

► *For Example:*

Zain has decided to invest Rs. 100,000 in a venture and expecting 6% return (prevailing rate of interest at that time was 4%). Suppose that Zain has borrowed this amount from bank, it means he is expecting a profit of 2% or Rs.2000 ($\frac{2}{100} \times 100,000$). Now suppose, if interest rate rises to 8% then he has to face a loss of Rs. 2000 ($8\% - 6\% \times 100,000$). This situation will discourage people to borrow which leads to fall in level of investment.

Supposing some other situation, if Zain has decided to invest his own capital with expected return of 6% while the market rate of interest is 4% inducing him a profit of Rs. 2,000. But if market rate of interest increases from 4% to 8%, then he has to face a loss or Rs. 2,000. In such situation, like every rational entrepreneur he will keep his deposit with bank to get attractive return.

Marginal Efficiency of Capital (MEC)

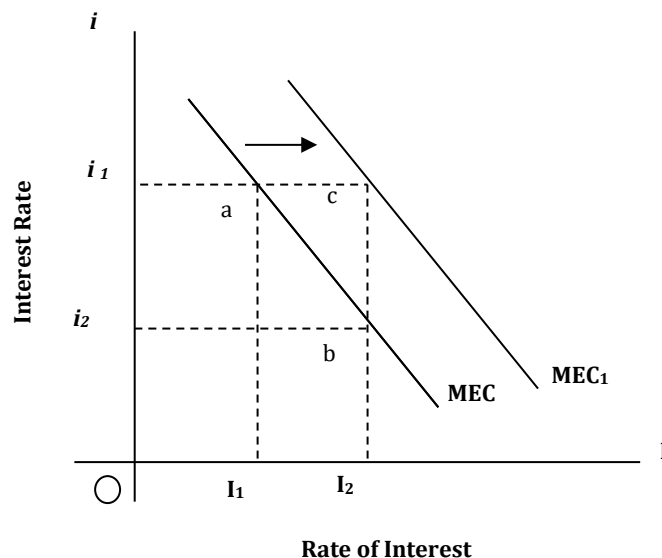
According to Keynes analysis, market rate of interest remains constant in short run. Therefore, it is the MEC which determine the level of investment in an economy. Marginal efficiency of capital i.e Expected rate of return on investment

Market Rate of Interest

Market rate of interest is the rate at which a firm or household must pay for funds in the present, which will be paid back in the future. This rate is expressed as a percentage of the principal.

MEC Schedule:

The MEC schedule is a curve represents expected return on various combinations of interest rates and investment.

► *Illustration*

The MEC schedule shows the total level of investment which will take place in the economy at each level of the interest rate. In the graph, a downward slope of MEC shows the inverse relationship between MEC and level of investment in a country in a given time. A movement along MEC curve from point a to b represents that people increase the level of investment as market rate of interest decreases (attractive expected returns).

There are TWO reasons for negative slope of MEC curve:

- Due to increase in level of investment, demand for capital goods increases and then cost of capital of goods too (supply price of capital).
- Supply increases in product market along with an increase in investment which causes a fall in price of products.

SHIFT IN MEC SCHEDULE

Shift in MEC results in change in level of investment due to change in factors other than market interest rate. If business gets more attractive in future people will invest more even at high interest rates as they are expecting returns better than prevailing interest rates. In above graph, shift of MEC to MEC₁ expresses greater investment on prevailing interest i.e., i_1 .

There are a number of reasons that could cause this:

- **Change in expectation and sentiment:** If businessmen are optimistic over the future economic climate, it may be that MEC is overestimated, and will therefore be higher.
- **Change in wage rates:** Rising wage rates give upward push to cost of production. All else remain equal, rising cost of production will make investment less attractive, hence MEC falls and MEC curve will shift to left and vice versa.
- **Change in income:** If entrepreneurs receive a sizeable increase in income, perhaps through a tax concession or similar, then there will be more opportunity to invest.
- **Population growth:** If rate of population growth is increasing dramatically, then this will serve to boost future demand for goods, and thus encourage investment.
- **Quantity of capital goods already in existence:** If many substitute goods exist already, then it is less advantageous to invest, as the MEC will be less in that industry.
- **Tax rates:** Anything that serves to reduce the profitability of venture, will reduce the MEC. Taxes on inputs or other parts of the process will do just this.

3.4 Government Means of Influencing Investment

The government can influence the level of private investment in several ways:

- **Control interest rates:** By keeping interest rates low, for example, government might encourage a higher volume of investments. Whereas by allowing interest rates to rise, government would probably cause the volume of investment to fall. Government can influence interest rates.
- **Provide direct encouragement to investing firms:** By offering investment grants, perhaps directed at particular regions, by lowering the cost of investment i.e., cost of doing business, by improving the rule of law, by providing tax incentives etc.
- **Seek to stimulate business confidence:** By developing and announcing an economic policy for continued growth which should be consistent with the stated goals. Frequent and sudden changes in economic policy results in loss of business confidence.
- **Encourage technological developments:** By financing research schemes of its own as well as those of private firms. In the long run, investment in education might be significant for the strength of innovative research and development by the country's industries.
- **Influencing the volume of consumption:** Sometimes the government indirectly influence the level of investment. For instance, a policy to control the growth in the money supply, would help in credit control and would in turn affect consumer spending, especially in consumer durable goods. Changes in consumption affects investment levels, with the influence of the accelerator.
- **Government spending:** Higher government spending in infrastructure creates demand which stimulates investment by the private sector.

STICKY NOTES

'Fraction of disposable income, that household spend on consumer goods is called consumption.'

'Autonomous consumption is the minimum level of consumption that one must dispose of regardless of his income'

Induced consumption is that portion of consumption which directly depends upon one's income'

Psychological law of consumption states that people increase their consumption as their income increases, but not by as much as their income increases."

Marginal propensity to save is ratio of change in saving to change in household's income whereas; average propensity to save is the ratio of total saving to their total income

'Saving is that part of income which is not consumed yet'

Marginal propensity to consume is ratio of change in consumption to change in household's income whereas; average propensity to consume is the ratio of total consumption to their total income.

Expenditure done by households or firms on capital goods is called investment.'

Marginal Efficiency of Capital is the rate of discount which makes the present value of the prospective yield from the capital asset equal to its supply price.

SELF-TEST

1. Which one is an investment spending?
 - a) Buying a car for domestic purpose
 - b) Building a house for family use
 - c) Spending on plant and machinery
 - d) All of the above
2. According to Keynes consumption increases along increase in income but with:
 - a) Lesser proportion
 - b) Greater proportion
 - c) Same proportion
 - d) None of above
3. If $C=80+0.5Y$ then:
 - a) $MPC > MPS$
 - b) $MPS = MPC$
 - c) $MPC < MPS$
 - d) It depends on the variation in income
4. If $S = -60 + 0.3Y$, then
 - a) $MPC > MPS$
 - b) $MPC < MPS$
 - c) $MPC = MPS$
 - d) $MPS = APC$
5. According to given table find the missing values:

Autonomous and Induced Consumption				
(Y)	C_0	$C = C_0 + cY$	MPC	APC
0	50	50	-	0
100	G	100	0.5	1
200	50	H	0.5	0.75
300	50	200	0.5	Q
400	50	250	R	0.62
500	50	300	0.5	0.60

- a) $G=50, H=100, R=0.5, Q= 0.57$
- b) $G=50, H=170, R=0.5, Q= 0.67$
- c) $G=50, H=150, R=0.5, Q= 0.67$
- d) $G=50, H=1750, R=0.25, Q= 0.57$

6. $MPC + MPS = ?$
- Equal to 1
 - Greater than 1
 - Lesser than 1
 - It depends
7. High and widespread indirect taxes are likely to force:
- Saving curve to shift left
 - Consumption curve to shift left
 - Saving curve to shift right
 - None of the above
8. Changes in the distribution of disposable income
- Cause upward shifts in the consumption function
 - Cause downward shift in the consumption function
 - Have no effect upon the consumption function
 - Both a & b are possible
9. Which one describes marginal efficiency of capital?
- The rate at which a firm or household must pay for funds in the present, which will be paid back in the future.
 - The rate at which a firm or household keep funds in the present, which will be paid back in the future.
 - The rate at which a firm or household must deposit funds in present, which will be paid back in the future.
 - The rate at which a firm or household must hold physical assets in the present, which will be paid back in the future.
10. Which one is NOT a responsible factor for shift in MEC?
- Change in sentiments
 - Change in wage rate
 - Population growth
 - None of the above
11. An inflationary gap exists in an economy when
- The government has a budget deficit
 - Aggregate demand is greater than the full employment level of income
 - Withdrawals exceed injections at the full employment level of income
 - The money supply rises faster than national income
12. Which one of the following would cause a fall in the level of aggregate demand in an economy?
- A decrease in the level of imports
 - A fall in the propensity to save
 - A decrease in government expenditure
 - A decrease in the level of income tax

13. The aggregate supply curve:
 - a) Is the sum of the individual supply curves in the economy
 - b) Is a market supply curve
 - c) Embodies the same logic that lies behind an individual firm's supply curve
 - d) None of the above
14. The aggregate demand curve would shift to the right if:
 - a) Government taxes increase
 - b) Net exports increase
 - c) Government spending decreases
 - d) The nominal money supply decreases
15. Which of the following would decrease aggregate demand?
 - a) Increased investment
 - b) Increase in export revenue
 - c) Increased taxation
 - d) Increased consumption
16. When will savings increase in a country?
 - a) When interest rate rises
 - b) When inflation increases
 - c) When more credit cards are issued by the banks
 - d) When production of consumer goods decreases
17. Which of the following is likely to shift the marginal efficiency of capital (MEC) schedule to the right?
 - (1) An increase in the supply of funds available
 - (2) Introduction of cost reducing technology
 - (3) A reduction of government subsidies on investment
 - a) 1 only
 - b) 2 only
 - c) 3 only
 - d) 1 and 2 only
18. Which of the following describes the effect of improved technology on the marginal efficiency of capital curve?
 - a) It will shift it to the left
 - b) It will shift to the right
 - c) The curve will be unaffected
 - d) The curve will become more inelastic
19. Level of consumption which depends upon level of income is called:
 - a) Autonomous consumption
 - b) Induced consumption
 - c) Total consumption
 - d) None of the above

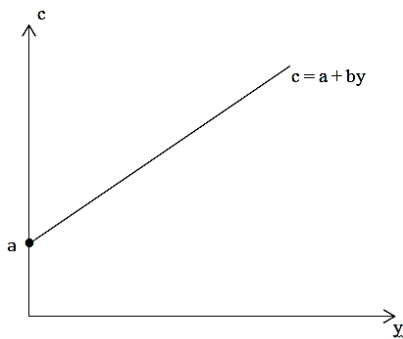
20. According to Keynesian psychological law of consumption value of M.P.C. would be:

- a) $0 \leq \text{M.P.C.} \leq 1$
- b) $0 < \text{M.P.C.} < 1$
- c) $\text{M.P.C.} < 1$
- d) $\text{M.P.C.} > 1$

21. In a two sectoral economy

- a) $\text{M.P.C.} + \text{M.P.S.} = 1$
- b) $\text{M.P.C.} + \text{M.P.S.} < 1$
- c) $\text{M.P.C.} + \text{M.P.S.} > 1$
- d) $\text{M.P.S.} > 1$

22. y - intercept of consumption (a) function in following diagram represents:



- a) Autonomous consumption
- b) Induced consumption
- c) Total consumption
- d) All of the above

23. Most important determinant of consumption function is:

- a) Rate of interest
- b) Distribution of wealth
- c) Real income
- d) Further expectation

24. Part of income which not consumed but kept by consumers at their home is called:

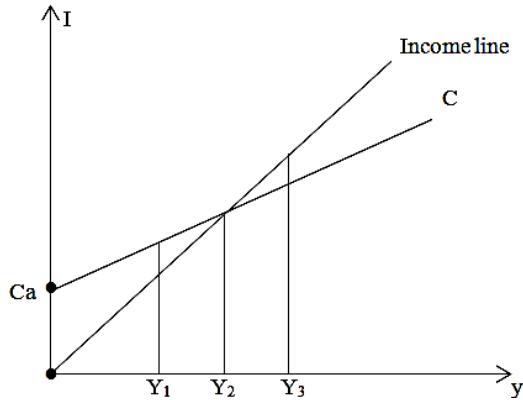
- a) Savings
- b) Investment
- c) Consumption
- d) Hoardings / Leakage

25. Net increase in the physical capital stocks of an economy is called:

- a) Savings
- b) Consumption
- c) Hoarding
- d) Investment

26. Level of investment which depends upon level of income or investment that is motivated by the margin of profit is called:
 - a) Net investment
 - b) Autonomous investment
 - c) Induced investment
 - d) Foreign direct investment
27. The rate of discount which makes the present value of the prospective yield from the capital asset equal the supply price is called.
 - a) Market rate of interest
 - b) Bank rate
 - c) Marginal efficiency of capital
 - d) K.I.B.O.R.
28. Change in savings with respect to change in level of income is called:
 - a) A.P.S.
 - b) M.P.S.
 - c) A.P.C.
 - d) A.P.S.
29. Value of M.P.S. in a two sectoral economy is:
 - a) $0 < \text{M.P.S.} < 1$
 - b) $0 \leq \text{M.P.S.} \leq 1$
 - c) $\text{M.P.S.} > 0$
 - d) $\text{M.P.S.} < 1$
30. If consumption function is:
 $C = 500 + 0.75 y$ value of MPS would be:
 - a) 0.75
 - b) 0.25
 - c) 500
 - d) 0.5
31. If M.P.C. is greater for the poor than the rich, then a redistribution of income in favour of the rich will:
 - a) Increase the value of multiplier
 - b) Decrease the M.P.S.
 - c) Increase the volume of imports
 - d) Raise the level of savings
32. If consumption function is $C = 500 + 0.5y$ and injection are 1000 then the change in national income will be:
 - a) 2,000
 - b) 5,000
 - c) 2,500
 - d) 1,000

33. According to Keynes M.E.C. curve is downward sloping to the right shows that level of investment will be higher at lower __A__. A Change in interest rates likely to induce a movement along the __B__ and prompt a change in levels of investment.
34. The diagram shows the relationship between consumption and income in an economy which of the following statement is incorrect.

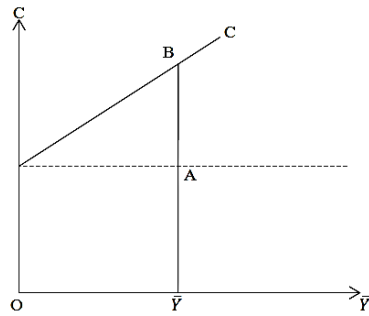


- a) At zero level of income consumption is zero
- b) At y_2 saving is zero
- c) At y_1 consumption is greater than income
- d) At y_3 income is more than consumption
35. The diagram shows the consumption function of a country. What would cause the consumption function to shift from C_1 to C_2 .



- (i) The expectation of increase in G.S.T.
- (ii) The expectation of reduction in subsidies
- (iii) An increase in interest rates
- (iv) An increase in direct taxes
- a) (i) & (ii)
- b) (ii) & (iii)
- c) (i) & (iii)
- d) (i) & (iv)

36. The diagram shows the consumption function given that the level of income is $O\bar{Y}$ what does the distance $\overline{AB}$ represents,



- a) Autonomous consumption
- b) Induced consumption
- c) A.P.C.
- d) Dissaving

ANSWERS TO SELF-TEST QUESTIONS

1	(c)	11	(b)	21	(a)	31	(d)
2	(a)	12	(c)	22	(a)	32	(a)
3	(b)	13	(d)	23	(c)	33	Rate of Interest MEC
4	(a)	14	(b)	24	(d)	34	(a)
5	(c)	15	(c)	25	(d)	35	(a)
6	(a)	16	(a)	26	(c)	36	(b)
7	(a)	17	(b)	27	(c)		
8	(d)	18	(b)	28	(b)		
9	(a)	19	(b)	29	(a)		
10	(d)	20	(b)	30	(b)		

MULTIPLIER AND ACCELERATOR

IN THIS CHAPTER:

AT A GLANCE

SPOTLIGHT

1. Multiplier
2. Accelerator Principle
3. Multiplier, Accelerator Interaction And National Income Fluctuations
4. Business Cycles

STICKY NOTES

REFERENCES

SELF-TEST

AT A GLANCE

In recent chapter we have discussed few important components of national income equilibrium i.e., consumption, saving and investment. In our discussion we have explained how these components interact with one and other to determine equilibrium level of national income.

Keynesian, proposed the reason behind this relationship between change in investment and change in total national income. He called it "Multiplier". In this section, we will try to understand, why and how change in total national output is significantly greater than a small change in investment expenditure. In subsequent sections, we will highlight 'accelerator principle' which depicts that a small change in national output stimulates overall level of investment over a period of time. In the closing section, we will discuss multiplier and accelerator interaction which eventually cause long term fluctuations in businesses known as "business cycle".

1 MULTIPLIER

Concept of multiplier moves around the basic phenomenon. That is “Spending of one is income to the other”.

It is obvious that any increase in investment, either private or public, will raise the level of output and employment. But the thing which is missing, is that ‘to what extent’? Model of multiplier will help us to understand this degree of responsiveness. Keynes has floated this idea that a change in autonomous investment will cause a greater change in national income, which gave rise to the renowned concept of “Multiplier”.

In a simple closed economic model (having only two components of aggregate demand i.e. C & I), *multiplier is the ratio of the change in total output to change in investment* ($\frac{\Delta Y}{\Delta I}$). In other words, it is the number by which a change in investment must be multiplied to result in the final change of total output. Therefore, it is also called “investment multiplier” and symbolically written as ‘ k_I ’.

Keynes model of multiplier can be expressed as follow:

$$k_I = \frac{\Delta Y}{\Delta I} \quad \text{or} \quad \Delta Y = k(\Delta I)$$

Note that in this model we will consider change in exogenous investment only (investment which lies outside the model).

Thus, the investment multiplier (k_I) articulates a relationship between an initial increment of investment and the resulting increase in aggregate income. In fact, numerical coefficient in the function which indicates the increase in income in response to an increase in investment.

To understand the effect of multiplier we suppose that, if national output increases by Rs. 1000 billion as a result of an increase in private or public investment of Rs. 500 billion, the multiplier will be 2. If for example investment increases by Rs. 2000 billion as result of change in investment by Rs. 500 billion, then the multiplier will be 4.

► *For Example:*

Suppose a government has allocated rupees 100 billion for an expansion of motorway project. For the purpose, the amount was distributed as wages to the labourers engaged, purchase of construction materials, rent to plant and machinery and on other miscellaneous heads. This will increase income of the households (rewards against factors of production). According to the Keynes law of consumption, households will spend a certain part of this income on consumer goods. This spending will transform into income of those who have supplied these goods, who will again spend some part of their income and so on.

According to Keynes law of consumption every individual will spend a certain portion of their income, therefore, every additional increase in income will be progressively less. In this way this chain of consumption expenditures will continue.

► *Illustration:*

The increase in national income taking place during this process, can be estimated and explained mathematically. Suppose:

Initial investment is Rs. 1000 millions. Marginal Propensity to Consume is 50% or 0.5. All else equal, total change in national output can be calculated as follows:

$$\Delta Y = 1000 + 1000(0.5) + 1000 (0.5)^2 + 1000 (0.5)^3 + \dots$$

$$\Delta Y = 1000 \{1 + (0.5) + (0.5)^2 + (0.5)^3 + \dots\}$$

$$\Delta Y = 1000 \left(\frac{a}{1-r} \right)$$

$$\Delta Y = 1000 \left(\frac{1}{1-0.5} \right) \quad \left\{ \text{as } \Delta Y = \Delta I (k) \text{ therefore, } k = \frac{1}{1-MPC} \right\}$$

$$\Delta Y = 1000 (2)$$

$$\Delta Y = 2000$$

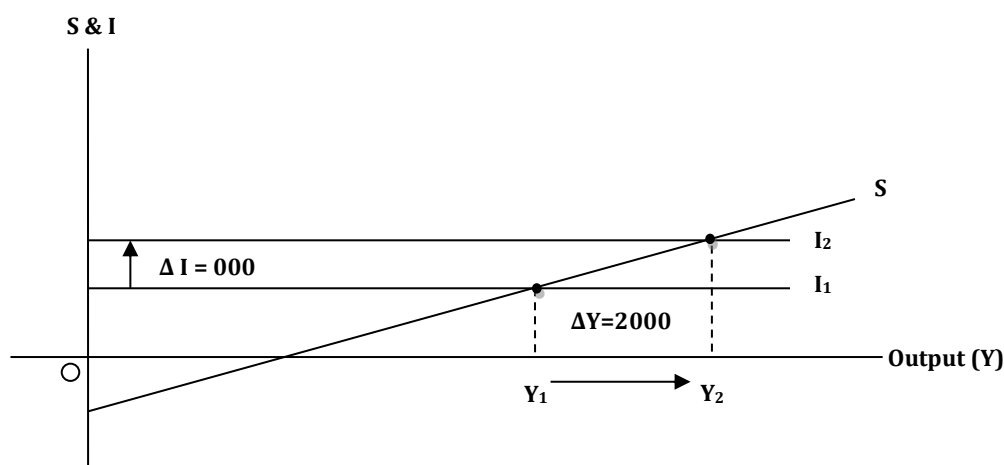
In our example we have seen that MPC plays a pivotal role in this model. By supposing a greater value of $MPC = 0.8$, we would have a greater value of multiplier i.e., $k = 5$ and total change in national output will be 5000. Hence it can be stated that value of multiplier and MPC are directly proportion.

Keeping in view overall discussion about multiplier we can derive an algebraic expression of investment multiplier as follow:

$$k = \frac{1}{1 - MPC}$$

as, $MPC + MPS = 1$ and $MPS = 1 - MPC$,

Hence, $k = \frac{1}{MPS}$



1.1 Positive Multiplier and Negative Multiplier

Multiplier works in both directions.

- **Positive Multiplier** refers to a greater increase in final output due to a small increase in investment.
- Whereas **Negative Multiplier** refers to greater fall in final output from a tiny decrease in investment.

Assumptions of Multiplier

There are some prevailing assumptions for smooth operation of the multiplier.

- **Constant marginal propensity to consume:** In multiplier model, it is assumed that there is no change in marginal propensity to consume. Any change in MPC, can affect total change in the final output.
- **Continuous spending:** For the creation of the state of multiplier, the investment has to be continuous.
- **No change in price level:** Despite the change in income, there should be no change in prices of goods. Any change in good's prices can change consumption pattern.
- **Full employment has not achieved:** If there is no spare capacity in the economy or economy is operating at full employment, an increase in the government investment may lead to inflation, which would lessen the 'real' effects of the investment.
- **No change in Tax rate:** Any change in tax rate causes to change in disposable income which further affects the consumption pattern. Hence for smooth process of multiplier, a stable fiscal policy is needed.

Limitations of Multiplier

Some of the limitations are discussed below:

- **Full employment:** State of multiplier works until the economy is operating less than the full employment. Once full employment is achieved, process of multiplier becomes ineffective.
- **Availability of consumer goods:** Operation of multiplier works only if consumer goods are available in surplus. If sufficient amount of consumer goods is not available, consumers will not be able to spend their income along any increase in their income.
- **Time lags:** Time lag states a delay between an economic action and consequence. The second limitation with the effectiveness of the multiplier effect is that a time lag exists between when the initial investment will be made, and when the full effects of the multiplier will be felt.

1.2 Multiplier Extension:

In the recent section, we have discussed multiplier in only a closed economy with absence of government. Now we will have a look about some other multipliers.

Tax Multiplier (K_t) (Multiplier in closed economic model in presence of government)

The idea of the multiplier works by a portion of income being passed on from agent to agent, each of whom then spends it in the wider economy.

The 'leakage' from is savings: households choosing a portion of their income to forgo current consumption for the future. Furthermore, money will not be passed on from agent to agent is through taxes.

If the government taxes the income that someone receives, he is not able to use this portion of his income to spend on other service.

For this purpose, we will consider the marginal propensity to tax (MPT) which state; **the percentage of income that is paid to the government in the form of tax.**

Mathematically,

$$k_t = \frac{1}{MPS + MPT}$$

► For Example:

Suppose the people are saving 30% of their income voluntarily and paying 20% as tax to the government then the tax multiplier will be:

$$K_t = \frac{1}{0.3 + 0.2}$$

$$K_t = 2$$

Import Multiplier K_m (Multiplier in an Open Economic Model)

Building up our model further, let's consider, element of trade. In an open economy, the flow of money will not just be circulating between the hands of society, there will also be exchange with those outside.

Marginal Propensity to Import (MPM)

MPM is the percentage of income that is used to buy goods and services outside of the domestic economy.

Mathematically,

$$K_m = \frac{1}{MPS + MPT + MPM}$$

► *For Example:*

Suppose people are saving 30% of their income voluntarily and paying 20% as tax to the government. In addition, people are also spending 10% of their income on imports, then the value of multiplier will be:

$$K_m = \frac{1}{0.3 + 0.2 + 0.1}$$

$$K_m = \frac{1}{0.6} = 1.67$$

2 ACCELERATOR PRINCIPLE (B)

J.M. Clark introduced the term 'accelerator' or accelerator principle. Later, it became an influential tool to make various economic analyses.

The main idea behind the acceleration principle is that the demand for capital goods is a derived demand. Actually demand for capital goods increases as result of increase in demand for consumer goods, which ultimately induces firms to make more investment.

Accelerator principle draws a link between change in pattern consumption and capital investment. The acceleration principle explains the impact of change in demand for consumer durables and investment in capital equipment. This principle states that if need for consumer goods increases then demand for capital stock would also increase. To meet demand for consumer durables consumption expenditure will increase. In the economy, ultimately, there will be a corresponding but magnified change in investment.

Numerical value of the relation between an increase in income and the resulting increase in investment is termed as accelerator and usually denoted by β .

Mathematically,

$$I = f(Y),$$

whereas

$$\Delta I = \beta (\Delta Y) \text{ or } \beta = \frac{\Delta I}{\Delta Y}$$

Assumptions

- **Constant Capital-Output ratio (C.O.R):** This is basic assumption of accelerator principle, which states that the ratio of output of consumer goods and capital requirement to produce those goods is constant.
- **Existing plants are operating at full capacity:** It is further assumed that plants are being operated at their full capacity. Installation of new plants would be necessary in order to meet any change in demand for consumer goods. As for available reserve capacity, production at plants can be increased without making new investments.
- **Availability of resources:** It is also assumed in this model that there is surplus availability of resources to provide more plants and equipment needed to produce consumer goods. If it is not so, then the demand for new plants to produce consumer goods will not be viable.
- **Flexibility in production:** For smooth functioning of this model firms should be capable of providing quick response to any change in demand for consumer goods. Existence of high degree of flexibility in production process is a precondition.
- **Credit money is considered to be elastic:** Credit is considered to be elastic, such that funds for induced investment are readily available. Conversely, if the economy is facing shortage of funds, the rate of interest would be high and induced investment would be restricted.

► For Example:

We use example of a furniture industry to explain such a complex model. Suppose that to produce a dining set of worth Rs. 100, 000, we require 5 plants, of worth Rs. 300,000 (assuming C.O.R is 1:3) which depicts the value of accelerator is 3. If demand for furniture remains Rs. 100,000 then an investment of Rs. 300,000 would be required. If next year there is no change in demand for dining set, means no need to add new stock of capital as existing capacity is enough to produce existing demand for consumer durables. Suppose that one plant becomes useless every year as a result of depreciation, therefore at the end of every year replacement investment of Rs. 60000 (5 plants of worth Rs. 300,000 then cost of each plant will be Rs60,000) must take place to replace old plant in order to maintain the existing production capacity.

Let's now, suppose that demand for dining set increased to Rs. 120,000. To meet this demand, firms need stock of capital of Rs. 360,000 (i.e. 120000 x 3) and new investment of Rs. 60,000 will take place. With net investment of Rs.60,000 we need replacement expenditures of Rs. 60,000, firm's gross investment will raised to Rs.120,000. We can see that a 20 percent increase in demand for consumer goods led to a change in gross investment by 100 percent. This significant change in gross investment is the upshot of accelerator principle.

Working of Acceleration Principle					
Years	Demand (Y) (000)	Required Stock of Capital (000)	Depreciation or Replacement cost (000)	Net or New Investment (000)	Gross Investment (000)
T	100	300	-	-	-
t+1	100	300	60	-	60
t+2	130	390	60	90	150
t+3	150	450	60	60	120
t+4	160	480	60	30	90
t+5	160	480	60	0	60
t+6	150	450	60	-30	30
t+7	120	360	60	-90	-30

In this example:

- C.O.R is 3:1
- Every year one plant has to be replaced.
- Straight Line method of depreciation is used. Rate of depreciation is 20% per year.
- Net Investment is 3 x change in output per year

Gross Investment = New Investment + Depreciation (or replacement cost)

This shows how when output is increasing, the level of gross investment jumps up dramatically.

On the flipside, if output begins to drop, then we see a sharp decrease in the level of investment.

This is why it is called the accelerator effect: a change in output accelerates the change in the investment.

Limitations of Accelerator Principle

Despite the example presented above making intuitive sense, there are some limitation for the applicability of the model.

- **Adjustment/ time lag costs:** The time and resources to adjust levels of capital stock are not considered. These costs may be business costs due to installation of new machinery. In searching for the optimum level of capital stock, firms may reach this point smoothly, rather than jump in between.
- **Spare capacity:** There may be spare capacity within the firm which means it does not need to increase net investment by such a large amount – its existing resources could manage.
- **Full Employment is not yet reached:** Accelerator principle works only if full employment level in an economy has not yet reached. If once full employment has reached, then resources like labour and capital will no longer available to produce consumer goods. Therefore, accelerator principle will become ineffective.
- **Constant Capital-Output ratio is impracticable:** Accelerator principle is workable only if there is a constant C.O.R., which is not possible practically.
- **Sustainable increase in demand for consumer goods:** Accelerator principle works only if there is a long term increase in demand for consumer goods. If entrepreneurs are expecting that the rise in demand for consumer durables is temporary, they will not make new investment immediately rather they will try to meet it by using existing plant at its threshold capacity.

3 MULTIPLIER, ACCELERATOR INTERACTION AND NATIONAL INCOME FLUCTUATIONS

After detailed discussion about Keynes investment multiplier and acceleration principle, we are now moving towards multiplier, interaction model which leads to cyclical fluctuations in the economy.

According to Samuelson, cyclical fluctuation in economic activity over the time is due to interaction between the multiplier and accelerator.

Suppose that output is growing This induces investment via the accelerator principle.

The new investment gives further rise to output through the multiplier effect. This means that the rate of growth of output will be self-sustaining. However, the rate of growth will eventually meet a point where GNP can no longer keep up. If this is the case, the level of (desired) output will soon exceed the production capability of the economy.

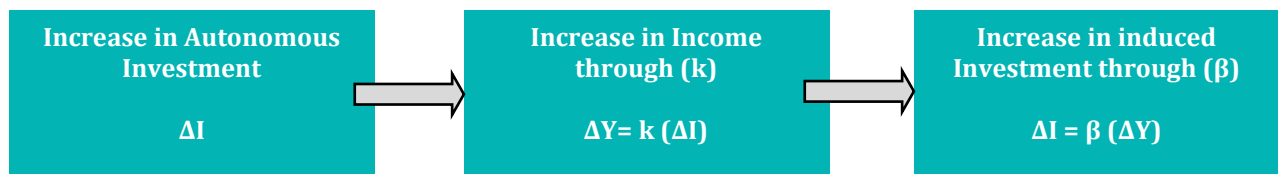
Consequently, the rate of investment in the economy will have to decrease, as firms would no longer want to commit resources, when there will not be demand to meet it.

When output slows, there is a sharp scaling back of investment that is undertaken. With a scaling back of investment, we are likely to also see a sharp fall in output, due to the reverse effect of the multiplier.

This effect will then be accelerated again, causing output in the economy to drop significantly.

A simple flow chart can be used to express this model:

► *Illustration:*



4 BUSINESS CYCLES

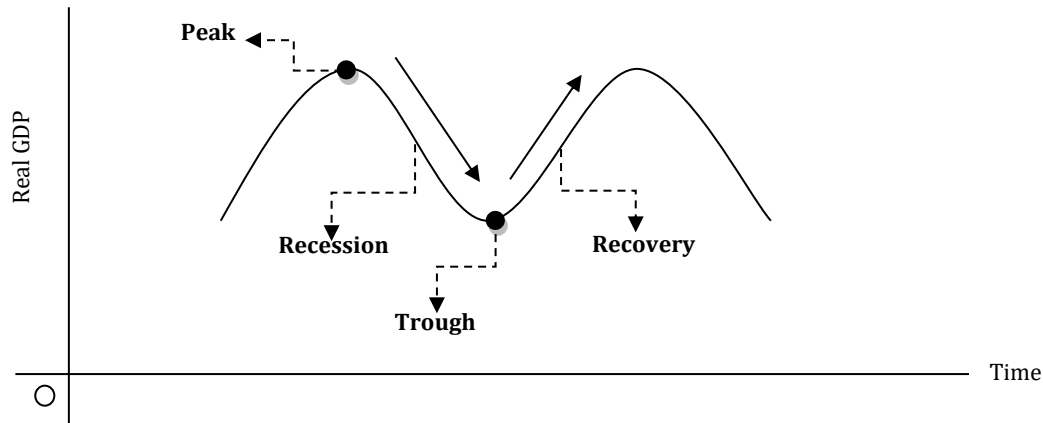
The basic chain of events above describes the theory behind business cycles.

Business cycle describes the recurring fluctuations of output that an economy experiences over a long period of time.

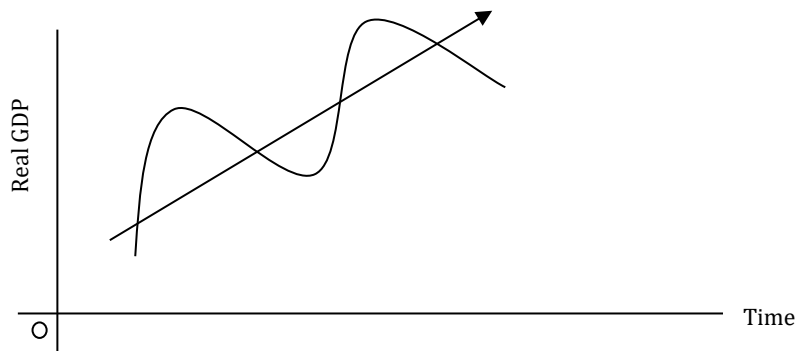
The patterns of output fluctuations are known as business cycles.

Though no cycle will be identical, there are distinct phases in each which one can analyse, recognise, and therefore use an indicator for future events.

Graphically,



In the graph above, it can be observed that throughout economic history, there is often an upwards trend in the level of economic growth. Peaks and troughs form, but after each cycle, the level of Real GDP is greater than before.



Business cycles are economic fluctuations of an economy in long run. Such fluctuations experienced through four distinct phases: peak, contraction, trough and revival or recovery.

Each phase has its unique characteristics. A brief discussion about these characteristics is given below.

4.1 Characteristics of Peak (Boom Period/crest/peak)

- The economy is expanding, this means that output, income, employment, prices and profits should all increase.
- At this stage, banks issue credit more freely which facilitates firms to invest in increasing output to meet the demands of consumers with higher income. Output grows, as does overall business optimism.
- A growing economy also means that there may be inflationary pressures, caused by high demand, and insufficient levels of output. To temper these pressures, central banks are likely to increase interest rates.

As output increases, there comes a point where it cannot expand further, which is when the cycle reaches its **peak**.

4.2 Characteristics of Downturn (Recession/downward)

- At this stage, economic activity begins to slow down.
- When demand begins to decrease, firms begin to scale back their production and investment plan that shows a steady decline in output.
- During downturn or recession, we generally do not expect increase in prices because deflation is a recessionary indicator. Banks reduce the credit they issue, firms cancel orders that they place, and people begin to lose their jobs, which further decreases the level of aggregate demand.

This eventually takes the economy into a state of **recession**.

4.3 Characteristics of Trough (Depression/trough)

- In this phase unemployment levels are high, incomes low, consumer demand low and investment low.
- The economy slips into a state where output remains very low.
- There is an under-utilisation of resources as machinery lies dormant.
- Business confidence is extremely low, as profits and prices go lower and lower.

Economic activity is at its lowest, meaning the business cycle is at its **trough**.

4.4 Characteristics of Recovery (Revival/expansion/recovery)

The depression does not last forever. Economy gradually converts itself into revival.

- Consumers, who had postponed their expenditures in the hope of further cut in the prices, raise their expenditures.
- There would be an increase in levels of economic activity as demand begins to increase slightly.
- With an increase in demand, production increases, causing an increase in investment.
- This causes a steady rise in output, incomes and business confidence.
- This leads to an increase in investment, somewhat helped by banks increasing credit.
- Assets in the economy begin to be utilised again, and levels of GNP increase once more.

During this process economy then enters a phase of **recovery or revival**, and the cycle continues.

REFERENCES

Fiorito, L. (2001). John Maurice Clark's Contribution to the Genesis of the Multiplier Analysis. University of Siena Dept. of Econ. Working Paper No. 322.

Keynes, J. M. (1936). The General Theory of Employment, Interest and Money. pp 313-314.

Mitchell W. C. (1957). Business Cycle: The Problem and its Settings. New York. NBER. p 468.

STICKY NOTES

Investment Multiplier is the ratio of the change in total output to change in investment ($\Delta Y/\Delta I$). In other words, it is the number by which a change in investment must be multiplied to result in the final change of total output.

Positive Multiplier refers to a greater increase in final output due to a small increase in investment. Whereas Negative Multiplier refers to greater fall in final output to a tiny decrease in investment.

Time lag states a delay between an economic action and consequence.

A Tax Multiplier represents a measure of the change in a country's total output in response to change in government tax.

Numerical value of the relation between an increase in income and the resulting increase in investment is termed as accelerator and usually denoted by β .

Business cycle describes the recurring fluctuations of output that an economy experiences over a long period of time.

Capital Output Ratio (C.O.R) is the amount of capital required to produce one unit of output.

SELF-TEST

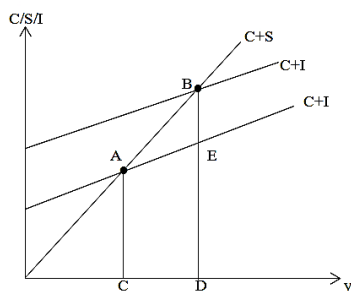
1. All else equal, greater the value of MPC _____ the value of Multiplier
 - a) lesser
 - b) greater
 - c) remains unchanged
 - d) there is no relationship between both of them
2. If marginal propensity to consume is 0.5, an increase in level of investment by Rs. 1000 will cause an increase in overall output by?
 - a) 2000
 - b) 20000
 - c) 1500
 - d) 15000
3. If $MPC = 0.4$ and $MPT = 0.2$ then the tax multiplier will be:
 - a) 1.25
 - b) 2.25
 - c) 1.5
 - d) 2.5
4. Capital to output ratio stands for:
 - a) Amount of goods can be produced with given amount of capital
 - b) Capital required to produce goods of worth Rs. 1
 - c) Ratio of capital goods to consumer goods
 - d) Consumer goods to capital goods
5. Near to full employment level the multiplier effect will be?
 - a) lesser
 - b) greater
 - c) zero
 - d) there is no relation between multiplier and full employment level
6. Which situation reflects a recovery?
 - a) firms begin to scale back their production greater
 - b) steady rise in output, incomes and business confidence
 - c) issue credit more freely
 - d) Banks reduce the credit
7. If government has decided to increase its spending, it will:
 - a) Reduce multiplier
 - b) Increase the effect of multiplier
 - c) Not affect the multiplier
 - d) It will work with other economic forces

8. With increase in direct taxes, the value of output multiplier will:
- Increase
 - Decrease
 - Unchanged
 - Other factors are missing to reply exact.
9. With perfectly inelastic Aggregate supply curve, any change in MPC the change in output level will be:
- Increase
 - Decrease
 - Zero
 - Relatively greater change
10. _____ is NOT a financial asset.
- Bond
 - Building
 - Stock
 - Not of the above
11. Multiplier effect will be lesser if:
- Less business confidence prevailing in the economy
 - Business is uncertain
 - People prefer to save rather spending
 - All of the above
12. During Covid-19 the multiplier effect was be:
- Smaller
 - Greater
 - Same as before Covid-19
 - Have no effect
13. The basic factor behind economic fluctuations in long run:
- An effective monetary policy
 - An effective fiscal policy
 - An effective commercial policy
 - Multiplier, Accelerator interaction
14. Which of the following factor is not used in the multiplier formula for the open economy?
- Marginal propensity to save
 - Marginal propensity to import
 - Marginal propensity to tax
 - Marginal propensity to export

15. The concept of the Multiplier discusses:
 - a) Savings and investments
 - b) Income and investments
 - c) Income and expenditure
 - d) Income and savings
16. In an economy where, out of every extra £100 of national income, £25 is paid in tax, £10 is spent on imports and £15 is saved, the value of the multiplier will be
 - a) 2
 - b) 2.5
 - c) 5
 - d) 10
17. Which of the following is the basic concept which underlies the accelerator theory of investment?
 - a) Investment depends on the level of savings
 - b) Investment is inversely related to the rate of interest
 - c) Investment is determined by the volume of commercial bank lending
 - d) Investment rises when there is an increase in the rate of growth of demand in the economy
18. In a given economy, of each additional £1 of income, 30% is taken in taxes, 10% is spent on imports and 40% is spent on domestically produced goods.
The multiplier is:
 - a) 2.5
 - b) 1.67
 - c) 1.25
 - d) 0.6
19. The four main phases of a business cycle do not include:
 - a) Depression
 - b) Inflation
 - c) Boom
 - d) recession
20. Which one is not a lagging indicator of growth?
 - a) Consumer Price Index
 - b) Rate of Unemployment
 - c) New permits for housing
 - d) None of the above
21. If $MPS=0.1$, $MPM=0.2$, $MPT=0.2$, then value of import multiplier will be
 - a) 2.5
 - b) 5.2
 - c) 2
 - d) 2.5

22. Greater the value of MPS, _____ the value of investment multiplier.
- More
 - Lesser
 - Constant
 - No change
23. Value of Accelerator Principle depends mainly depends on:
- C.O.R
 - Value of Depreciation
 - Net Investment
 - All of the above
24. Coefficient which represents change in level of national income with respect to change in investment is known as:
- Multiplier
 - Accelerator
 - Aggregate demand
 - Effective demand
25. If consumption function is: $C = 500 + 0.75y$
Value of multiplier would be:
- 0.75
 - 500
 - 5
 - 4
26. Value of multiplier (k) lies between:
- $1 < K < \alpha$
 - $0 < K < 1$
 - $0 < K < \alpha$
 - $-\alpha < K < +\alpha$
27. If M.P.T. = 0.2 and M.P.C. = 0.7 value of multiplier would be:
- 5
 - 4
 - 2
 - 1
28. Greater the slope of saving function _____ will be size of multiplier.
- Smaller
 - Greater
 - 1
 - α

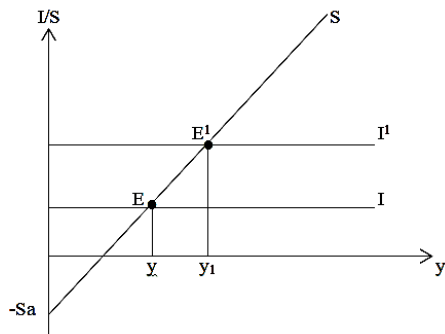
29. Greater the slope of consumption function _____ will be the size the multiplier.
- Smaller
 - Greater
 - 1
 - $\propto$
30. Gross investment = Net investment + _____.
- Depreciation
 - Investment for replacement
 - Capital consumption
 - All of the above
31. Working direction of multiplier and accelerator is always:
- Different
 - Same
 - Neutral
 - None of the above
32. If saving function is $S = -500 + 0.5y$ value of multiplier would be:
- 4
 - 5
 - 0.5
 - 2
33. In the concept of multiplier _____ is assume to be zero.
- Leakage / hoarding
 - Saving
 - Consumption
 - Investment
34. In the diagram below, the lines $C + I$ and $(C + I)''$ represents levels of aggregate demands corresponding to a change in level of investment. The value of multiplier is equal to:



The upper $C+I$ will be marked as $(C+I)''$ to distinguish it from $C+I$.

- EB / CD
- CD / EB
- AE / CD
- CD / AE

35. What is wrong in following diagram?



- a) $\Delta I > \Delta y$
 - b) Saving is too steep
 - c) M.P.C. > 1 (looks to be)
 - d) All of the above
36. A trade cycle consists of _____ phases:
- a) Two
 - b) Three
 - c) Four
 - d) Five
37. Deflation is _____ indicator.
- a) Good
 - b) Recessionary
 - c) Leading
 - d) Lagging
38. Annual raise in G.D.P. is called.
- a) New capital formation
 - b) Economic growth
 - c) Boom
 - d) Recovery
39. A growing economy also means that there may be _____ pressures.
- a) Inflationary
 - b) Deflationary
 - c) Inconstancy
 - d) None of the above
40. The nature of __a__ indicators is that they are used to forecast at stage the economy will be in near future. These in particular gives an indication for whether __b__ will be reached in next few months.

ANSWERS TO SELF-TEST QUESTIONS							
1	(b)	11	(d)	21	(c)	31	(b)
2	(a)	12	(a)	22	(b)	32	(d)
3	(a)	13	(d)	23		33	(a)
4	(b)	14	(d)	24	(a)	34	(b)
5	(a)	15	(b)	25	(d)	35	(d)
6	(b)	16	(a)	26	(a)	36	(c)
7	(b)	17	(d)	27	(c)	37	(b)
8	(b)	18	(b)	28	(a)	38	(b)
9	(c)	19	(b)	29	(b)	39	(a)
10	(b)	20	(c)	30	(d)	40	(a): Leading (b): Peak / Trough

AT A GLANCE

SPOTLIGHT

STICKY NOTES

PUBLIC FINANCE

IN THIS CHAPTER:

AT A GLANCE

SPOTLIGHT

1. Introduction
2. Fiscal Policy
3. Taxation
4. Cannons and Types of Taxes
5. Economic Growth

STICKY NOTES

REFERENCES

SELF-TEST

AT A GLANCE

This chapter emphasizes on apparatus of public finance and its significance in determining economic growth. The concept of public finance has existed right from the day state was formed and human society came into being, and now this role has become more important (especially for developing nations).

Since, public finance deals with income and expenditure of public authorities, in beginning we will cover taxes and expenditures. Later, to understand the fiscal policy and its role in economic stability, a deep study about tax culture, kinds and principles of taxation will be taken into account. In the later section, a brief debate about public and private finance will take place. Remaining section of this chapter is devoted to elucidate economic growth, its indicators and some merits and demerits.

1 INTRODUCTION

Public finance is that branch of economics which describes the mechanism to collect taxes for state and their spending to perform its various functions. Public finance is divided into public income and public expenditure, which go side by side but are not necessarily equal. Simply public finance is the study of how public resources are generated and where they are allocated to maximize social welfare.

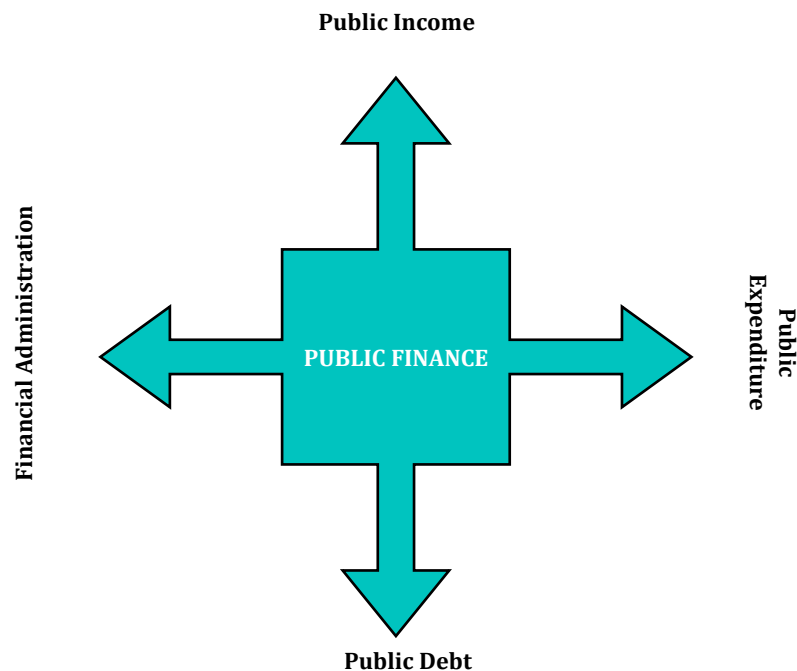
‘Public finance studies the income and expenditure of the public authorities and deals with the adjustment therein. It addresses the question as to how does the government raise the finances for its ever increasing expenditure’.

Here, we can say that public finance deals with income and expenditure of the government. However, in modern economy it has a wider role than before. Furthermore, public finance enlightens the impact of government policies on larger economic context.

1.1 Scope of Public Finance

Scope of public finance, it is categorized into FOUR main segments.

- **Public Expenditures:** By title it is obvious that it studies about spending of the government bodies. It describes objectives and kinds of public expenditures, which helps to evaluate the overall economic performance of a country.
- **Public Revenue(Income):** It is also termed as public income. It covers main sources of government revenue i.e., tax and non-tax. This describes cannons of taxation, their functions and types along with allied pros and cons. Furthermore, it tells how changes in public revenue collection affect economic performance of a country.
- **Public Debt:** Public debt arises when government expenditures exceed over it revenues, it forces government to depend on public borrowing. This section of public finance explains the need, sources and impact of public debt. Furthermore, it suggests various measures to manage public debt.
- **Financial Administration:** This section deals with administration of public finance. It includes the economic policy making and its implementation to achieve various stated economic objective.



1.2 Comparison Between Public and Private Finance

A comparative study of Public Finance and Private Finance can be helpful to understand more about it.

Comparison Between Public and Private Finance	
Public Finance	Private Finance
Adjustment Of Income and Expenditures	
It Moves From Expenditures To Income	It Moves From Income To Expenditures.
Budgeting	
Annual Budgeting Is Obligatory	Annual Budgeting Is Optional
Borrowing	
Internal And External Borrowing Is Possible	Only External Borrowing Is Available
Objectives	
Primary Objective Is Social Welfare	Primary Objective Is Profit
Secrecy Of Financial Matters	
Government Is Bound To Public	Secrecy Is A Personal Matter

2 FISCAL POLICY

Fiscal policy is the integral part of public finance, as it is an art of using public finance as a tool of achieving social and economic objectives. It is concerned with revenues and expenditures of the government. More precisely we can say it comprises of deliberate government actions to manipulate the flow of resources and expenditures to achieve certain socio-economic level and to some extent political objectives.

'Fiscal policy is the measure initiated by government to stabilize the economy, especially by manipulating taxes and government expenditures'.

There is a very important distinction which must be made with regard to the policies that a government undertakes. In some instances, it will be to stimulate the economy, whereas in other cases it will be to rein it in, if it is growing too quickly.

2.1 Tools of Fiscal Policy

Fiscal policy can be exercised through two main instruments:

Changes in Government Revenue:

Government revenue is a key instrument of fiscal policy. Government revenue is the amount of money received by the state. Government collects revenues through two sources, i.e. **tax revenues** and **non-tax revenues**.

- **Tax Revenue:** Tax is one of the most important sources of government revenue such as, income tax, property tax, wealth tax, gain tax etc.
- **Non-Tax Revenue:** Income received by state authorities other than its tax is known as Non-tax revenues.

► For Example:

Non-tax revenues include interest and dividends received by the government, fee and penalties, rent income against government property, royalties, trading profits of government entities, income from post offices, receipts from civil administration, fees received for providing different public services etc.

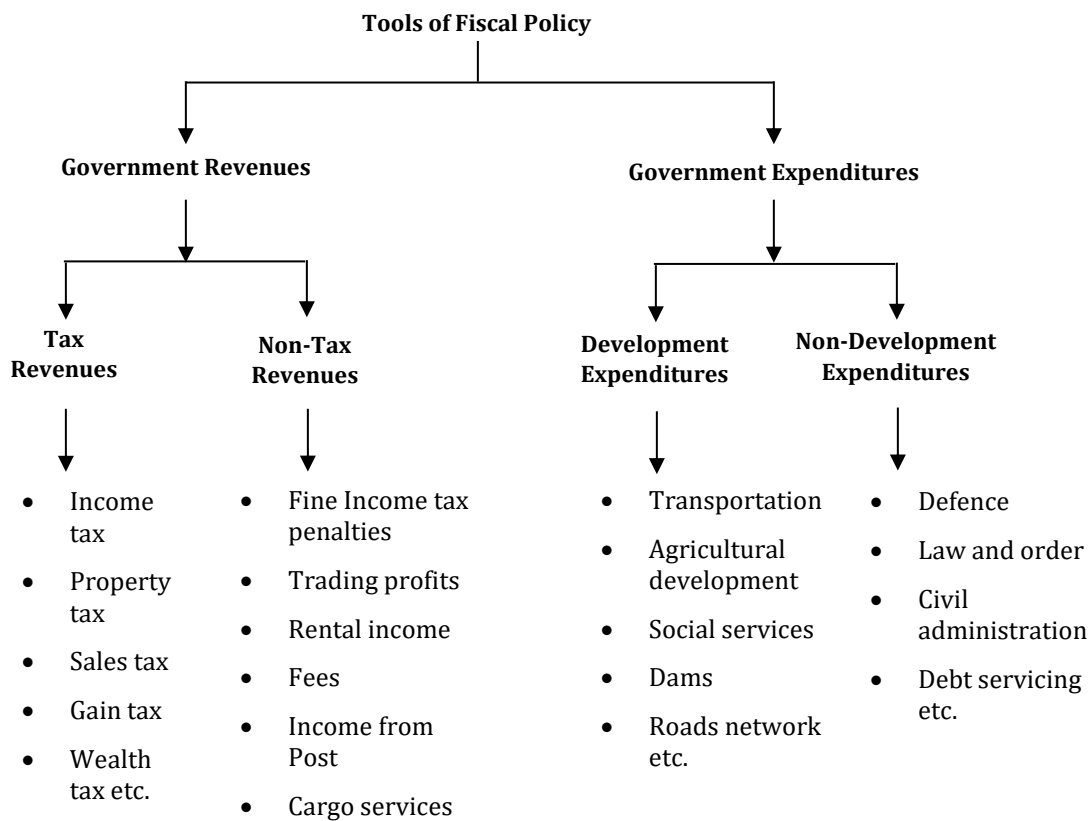
CHANGES IN GOVERNMENT EXPENDITURE:

Spending made by the government to achieve the fiscal objectives and increase the general welfare of the people is known as government expenditures. Public expenditure is another important tool for fiscal policy. To achieve state goals, government can make some necessary changes in its expenditures.

There are two types of government expenditures:

- **Development expenditures:** This kind of expenditure is made exclusively for development purposes. Development projects such as, roads network, communication system, agricultural development, railways, utility services and irrigation etc.
- **Non-Development expenditures:** Beside, development expenditures, government has to allocate a fraction of budget for non-development purposes. It includes expenditure incurred on defence, social services, to maintain law and order situation, general administration, debt servicing and subsidies.

2.2 Types of Fiscal Policy



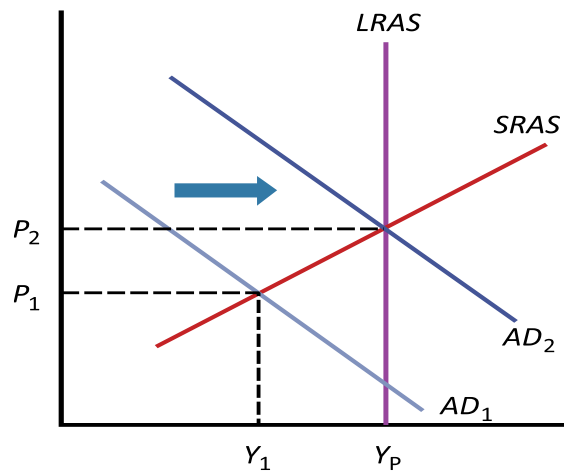
We therefore have these two types of policies

Expansionary Fiscal Policy or Anti-Deflationary Policy

Expansionary fiscal policy looks towards rise in the pace of growth in an economy. An expansionary policy can be applicable not just to fiscal policy, but also for monetary policy. Nevertheless, in this case there are a number of policies that a government can undertake to boost the rate of economic growth such as:

- Reducing Taxes
- Increasing government spending

► Graphically:



The intersection of aggregate demand (AD_1) and aggregate supply (SRAS) is occurring below the level of potential GDP. At the equilibrium, a recession occurs and unemployment rises. In this case, government use expansionary fiscal policy by reducing tax or increases in government spending which shifts the aggregate demand to AD_2 , the price level would rise to the level P_2 associated with potential GDP (Y_p).

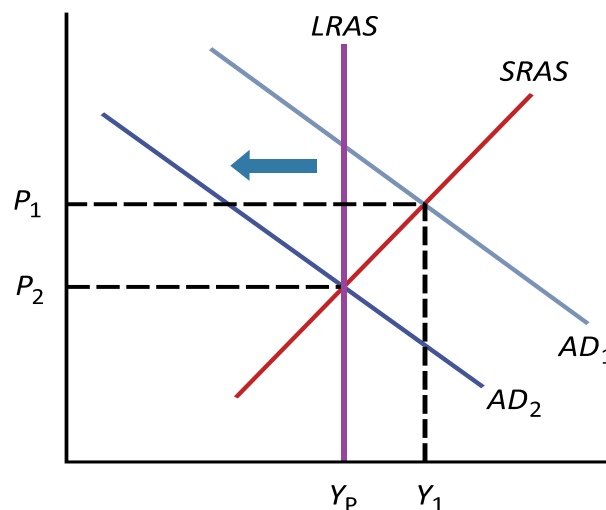
Contractionary Fiscal Policy or Anti-Inflationary Policy

By contrast, contractionary policies look to slow down growth in an economy.

Again, this does not have to take the form of fiscal policy. If an economy is suffering from high inflation, it may be that the country's financial department is looking to halt the high level of growth that occurs. This can be done through some of the following policies:

- Increasing taxes
- Reducing government expenditures

► Graphically:



The intersection of aggregate demand (AD_1) and aggregate supply (SRAS) is occurring beyond the level of potential GDP Y_p where inflation is too high at price level (P_1). In this case, government use contractionary fiscal policy by increasing tax or decreasing government spending to decrease inflation, which shifts the aggregate demand to AD_2 , reducing price level at P_2 with potential GDP (Y_p).

2.3 Objectives of Fiscal Policy

As with any action that a government would undertake, there are certain objectives that are set to ensure the proper management of the economy that can guide for particular policy decisions.

These objectives are given below:

- **Keep inflation low:** Governments ensure that the price level remains stable and avoid persistent problems throughout the economy.
- **Keep employment high:** Governments have a social objective to ensure high levels of employment.
- **Steady economic growth:** Most economists agree that consistent, gradual economic growth is favourable.
- **Equilibrium in Balance of Payments:** This ensures that the value of a country's imports and exports are equal.
- **Run a balanced budget:** Means whatever government spends, it can pay for. It means that government expenditure, revenue and national debt must be balanced enough to meet the requirement of economic growth without requiring mini budgets during FY.

2.4 Limitations of Fiscal Policy

- **Forecasting:** The fiscal policy is devised around predictions of various economic activities. For the fiscal policy to work as desired, these predictions need to be accurate. However, economic instability cannot be predicted accurately. Unless the amount of revenue, expenditure and budget balance could be analysed, policy cannot be suitably planned.
- **Time lag:** In general, there exists a time lag between an action is required and the time when the fiscal measure has its impact felt. The interval in between determines the extent of the effectiveness of the measure undertaken.
- **Crowding out:** Increased government spending for stimulating aggregate demand might result in crowding out; that refers to decreasing the size of private sector due to increased government spending.

► For Example:

Government has planned to spend Rs.100 billion in the economy. It is clear that it can be financed through borrowing or by imposing more taxes. In case of heavy borrowing the market rate of interest will increase, increasing the cost of projects. Private investors will not make new investment as cost of borrowing has increased. Reduction of private investment will offset the effect of rise in government spending in economy.

- **Negative impact of Tax:** Raising taxes in order to reduce aggregate demand may cause demotivation to work. Consequently, a fall in productivity might be observed and aggregate supply may fall.
- **Lack of Coordination with Monetary Policy:** Successful fiscal policy largely depends upon the coordination with Monetary Policy. Any lack in this regard will leads to failure of fiscal policy.

3 TAXATION

In modern world importance of taxes has increased significantly. Taxation has not only been a source of government revenue but it also helps government to achieve some other objectives. Macroeconomic stability of a country mainly depends the fact how government manages its taxation policy.

3.1 Functions of taxation

Taxation serves in economy in several ways.

- **Fiscal:** Tax is the main component of fiscal matters of the state. Development and non-development expenditures are not possible without ample collection of government revenue.
- **Allocation:** Fair distribution of income among various segments of society depends on effective system of taxation. For instance, a progressive tax helps state authorities to minimize income disparities among various income groups.
- **Regulatory:** Tax helps governments in demand management to achieve its predetermined goals. Government controls spending patterns of different agents of economy by changing tax base and tax rates.
- **Incentive:** Special tax arrangements can be stipulated for certain members of society as a result of past achievement or tax cut policies can provide incentives to private investors.

3.2 Canons or Principles of Taxation

The canons of taxation refer to the qualities that a good taxation system must possess. These are in fact associated to the administrative aspect of the tax system.

Adam Smith contributed greatly on the matter. He described the following canons of taxation:

Canon of Equality:

“The subjects of every state ought to contribute towards the support of the government, as nearly as possible, in proportion to their respective abilities, that is, in proportion to the revenue which they respectively enjoy under the protection of the state.”

Equality or justice is the most imperative canon of taxation. It means that the tax paid should be in proportion to the ability of the tax payer i.e. the amount of revenue. Furthermore, burden of tax should be equal for every taxpayer.

► For Example:

In case of income tax, high rate of tax is imposed on high income groups, whereas low rates for lower income groups.

Canon of Certainty

“The tax which each individual is bound to pay ought to be certain, and not arbitrary. The time of payment, the manner of payment, the quantity to be paid ought all to be clear and plain to the contributor and to every other person.”

All the tax payers should be informed as to why and when they have to pay a particular sum of tax.

Government should also be certain about the amount of the tax so that it can include correct estimates of income in the budget.

Canon of Convenience

“Every tax ought to be levied at the time or in the manner in which it is most likely to be convenient for the contributor to pay it.”

The time and manner of payment should be convenient. Complex system of taxation can discourage tax payers.

► *For Example:*

Tax on land is to be paid along with the rent due. Similarly, consumer taxes are paid when consumers purchase a good or service as the tax is included in the price of the commodity.

Canon of Economy

“Every tax ought to be so contributed as both to take out and to keep out of pockets of the people as little as possible, over and above what it brings into the public treasury of the state.”

Tax is economical when the cost of collecting it is small and when the amount of tax collected is equal to the treasury which means no amount gets lost in the middle of the tax collection process.

Other Canons

- **Canon of Fiscal Adequacy:** Taxes should be such that the government is able to meet the expenses with the taxes collected by the citizens. A small tax which brings large revenue is better than a heavy tax which contributes less in total tax revenue.
- **Canon of Flexibility:** The tax system should not be rigid which means it should be able to adjust to changing conditions. An auto adjusted tax system works more efficiently for economic stability of a country.
- **Canon of Simplicity:** Moreover, simplicity is another rule which states that the system of taxation should be simple enough for everyone to understand without which corruption or oppression might prevail because it would be too complicated for the common man and the power will go to the tax gatherers.
- **Canon of Diversity:** Furthermore, there should be diversity in taxes which means there should be a large variety of direct and indirect taxes so that every citizen who is able to pay can do so. Different taxes should be imposed on different sectors of economy like, industry, agriculture, services sector and trade etc.

3.3 Types/ Kinds or Classification of Taxes

Taxes can be classified on basis of, rate of tax and ability to shift the burden of tax.

- Direct Tax and Indirect Tax (on the basis of ability to shift burden of tax)
- Progressive and Proportional Tax (on the basis of rate of tax)

Direct Tax

A tax is said to be ‘direct tax’ if the burden of tax cannot be shifted to anyone else”. This kind of tax is collected directly from the identity to which it was imposed. Simply we can say that, direct tax is that in which impact (initial burden) of tax and incidence (ultimate burden) of tax remains on the same identity. ‘Income Tax’ is the most popular example of direct tax. In case of an income tax, initial and ultimate burden remains on the people who have earned that income.

► *For Example:*

Suppose Mr. Zain has earned an income of Rs. 10,00,000 during the year while income tax rate was 2%. Mr. Zain cannot shift this tax to anyone else, rather he has to deposit Rs. 20,000 as income tax to treasury.

Advantages of Direct Tax

- **Equitable:** Direct Tax is more equitable as people with higher income pay more into society than those with less income. As in case of income tax, rate of tax is directly proportion to increase in income.
- **Economical:** Direct Taxes are economical in nature. Cost of collection of such taxes is less compared to revenue collection. In direct taxation, less government machinery is involved as government collects this tax directly from tax payer.
- **Relative certainty:** The government can estimate how much it will receive allowing better planning of projects.

- **Elastic:** A direct tax is elastic in nature. Its rate goes up along an increase in tax base. Such as, income tax and wealth tax in which tax rates increases automatically as income or wealth goes up.
- **Anti-Inflationary:** Direct taxes reduces the disposable income and causes a leftward shift in aggregate demand that is why it helps in controlling demand pull inflation.

Disadvantages of Direct Tax

- **Possible to evade:** Direct taxes are easy to evade. It is possible to falsify a tax claim. Correct amount may not be always paid, as tax payers do not declare their exact or actual income and wealth.
- **Unpopular:** It is also an unpopular in nature. People do not feel good when they are asked to pay a fraction of their income, which they have earned with a lot of effort. Therefore, they try to avoid this tax in any way.
- **Discourage savings/ investment:** If taxes are too high, then it would leave consumers and firms less money to put to other causes that could reap reward.
- **Less incentive to work hard:** Direct Tax usually affects that segment of society which struggle more to earn more income.

Indirect Taxation

If the burden of tax is possible to shift to someone else is called 'Indirect Tax'.

Simply we can say that an indirect tax is that in which impact (initial burden) of tax and incidence (ultimate burden) of tax dose not remain on the same identity.

This kind of tax is collected usually by adding in to product prices.

► *For Example:*

General Sale Tax (GST) is most popular form of indirect tax. Suppose government imposes 16% as general sale tax on medicines. But companies shift this tax to end user including amount of tax into price of product.

Advantages of Indirect Tax

- **Can correct externalities:** If a product causes direct external costs (e.g. health costs associated with alcohol or cigarettes), the tax can be used to mitigate these. Health tax on cigarette is a recent of example in this context.
- **Evasion is difficult:** Indirect Tax is difficult to avoid because it is included in price of the product. Someone has to pay it at the time of buying the product.
- **Allows people greater choice:** Consumers make choices and then tax is paid, rather than having income taken away immediately.
- **Wide-ranging:** Indirect Tax is wide-ranging as it covers a vast majority which is exempted from direct tax. According to basic principle of taxation, every individual must contribute to the state however little. Low income group or poor people are always exempted from paying direct tax.
- **Helpful in controlling demerit goods:** Heavy Indirect taxes on demerit goods like Alcohol discourages the use of these types of goods.

Disadvantages of Indirect Tax

- **Regressive:** Regardless of income, people are still faced with the same tax on a good, therefore poor feel more burden than rich. For example, in GST everyone has to same rate of tax, regardless the income or ability to pay tax.
- **Cause cost-push inflation:** Indirect tax is collected by adding it in price of the product, which cause to an increase in price level.

- **Establish a “black market”:** If taxes make prices too high, it can incentivise people to source the goods from alternate (sometimes illegal) markets.
- **Uncertain:** If in a recession, people are buying less goods, then this means that the revenue received will decrease much more.
- **Distorts the market:** Indirect taxes can lead to disequilibrium in the market for products that have been taxed.

Progressive Tax

A tax is said to be progressive if its rate increases along with increase in tax base (taxable amount of asset or income). If tax rate and tax base are directly proportion, this is known as progressive taxation.

► For Example:

Income tax and property tax are popular examples of progressive tax. High rates of tax are associated with high income group while; low income groups are liable to pay tax with low rates.

Although progressive tax is popular all over the world, yet it has some merits and demerits.

Advantages of progressive tax

- **Built-in stabilizer:** Progressive tax works as built-in stabilizer as its rate is auto adjusted. Progressive tax is helpful for aggregate demand management.
- **Equitable:** It is argued that a progressive tax is relatively equitable as high amount of tax is collected from rich class and less from poor.
- **Relative certainty:** Tax slabs for progressive tax are well defined for tax payers. Therefore, this tax is relatively certain as tax payer are well aware that when and how much tax they have to pay.
- **Anti-inflationary:** Supporters of progressive tax argue that it helps to curb the inflationary pressures in the economy as high rate of taxes on high income groups restraint their spending.

Disadvantages of progressive tax

- **Discourages economic activity:** Progressive tax discourages macroeconomic activity, because tax rate increases along an increase in income of the citizens. High rate of tax trims down the saving ability and then reduces the pace of capital formation.
- **Persuasion of tax evasion:** Progressive tax is discouraging for high income groups; therefore, they may evade tax at the very least.
- **Invasion of individual rights:** Opponents of progressive tax argue that it is a sort of invasion of individual rights as they feel it as punishment of their efforts.
- **Loss of government revenue:** Progressive tax is usually treated as direct tax and therefore, is easy to evade. With high degree of tax evasion government has to face a loss in its revenue collection.

Proportional Tax

A proportional tax is that wherein the rate of tax remains unchanged irrespective of change in tax base. Sometimes it is also known as ‘flat’ tax. Unlike progressive tax, under proportional tax rich and poor have to pay a fix percentage of their income.

► For Example:

Income tax in a particular slab OR Zakat where rate remains unchanged are the examples of proportional taxes

There are some advantages and disadvantages associated with proportional tax.

Advantages of proportional tax

- **Unambiguous:** One the prominent argument in favour of proportional tax is that, there is no ambiguity for tax payers. As tax rate is flat for everyone during a certain time period. Therefore, people are well aware about it.
- **Relatively justified:** In proportional tax, rate of tax remains fixed for all rich and poor irrespective of tax base. Hence, it seems to be more justified as it does not create any discrimination among various income groups of a society.
- **Does not impede incentive to work:** Proportional tax does not pose any threat to working hard or household's savings, as everyone pays a uniform and flat rate of tax.

Advantages of proportional tax

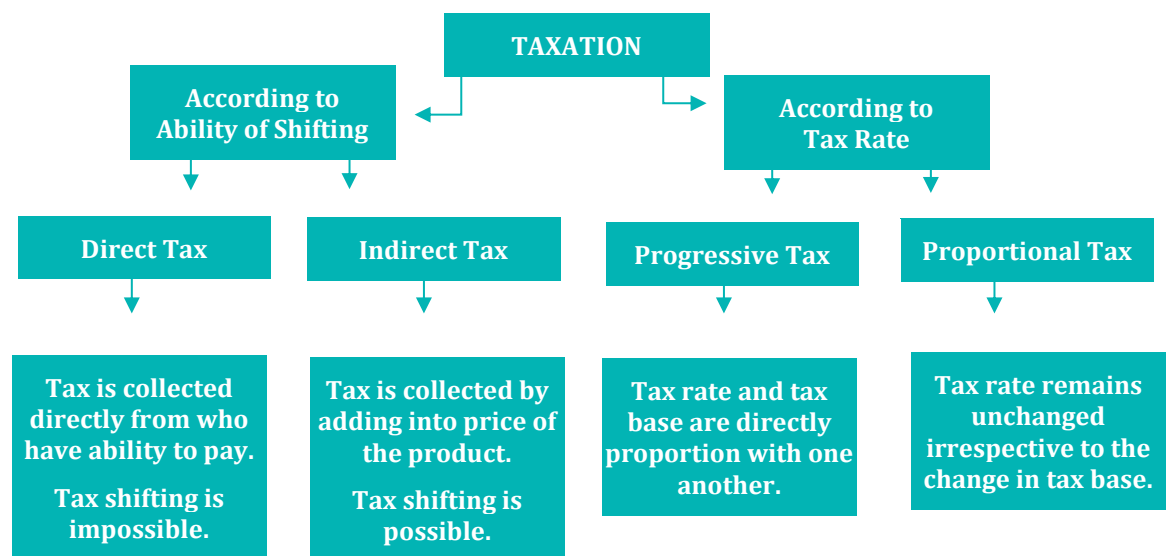
- **Does not satisfy cannon of equality:** Opponents have a strong argument against proportional tax. According to them it does not satisfy the cannon of equality. As tax rate remains fixed for all income groups, hence poor feel more burden because. Suppose 17% GST is imposed on food; it means even you buy 1 unit or 100 units everyone will have to contribute 17% to the tax exchequer. But it is implied that poor buy less units while rich buy more, hence poor feel more burden as compared to rich.
- **Relatively inelastic:** Proportional tax contributes less to total tax collection of a country. Amount collected through this tax system is relatively smaller than other form of taxes.
- **Widens income inequalities:** As said earlier that tax rate remains fixed for all rich and poor groups of the society. Hence, it seems to be relatively unjustified. It widens income inequalities in the society.

Regressive Tax

This is a tax system in which poor shares more burden of tax as compare to rich one. Term “Regressive” states of moving from high to low, hence the burden of tax increases from high income to low income group. In this tax system burden of tax and tax payer's ability is inversely proportion to one another.

► *For Example:*

GST or VAT are the examples of regressive tax.



4 ECONOMIC GROWTH

Real GDP of a country fluctuates over the time. Some years it increases faster than average which drives economy to peak, while for some years its pace get slower which leads to economic recession. These fluctuations are called business cycle. In preceding chapter, we have covered business cycle along with its phases in depth. But, in this section, we will explore a related subject i.e., economic growth. Term economic growth used in macroeconomic as a concept which depicts a long term increase in economic activity.

According to Friedman, *economic growth is an expansion of system in one or more dimensions without a change in its structure.*

Economic growth helps to gauge economic health of a country. An outward shift in a country's 'production possibility curve' reflects growth of the economy.

4.1 Rostow's Stages of Economic Growth

According to W.W. Rostow developed countries tended to pass five stages to achieve their current status of development. Those stages are briefly described as below:

In a traditional agricultural economy with subsistence farming, limited size of capital is available.

- **Traditional society:** it is the primitive, agricultural based society with no technology and scientific knowledge.
- **Pre-Takeoff stage:** A stage where economy is switching from traditional farming to modern farming with limited use of mechanization.
- **Takeoff stage:** This stage reflects the age of industrial revolution. Although a majority of people remain dependent on agriculture, yet agriculture assumes relatively less importance.
- **Drive to maturity:** As technology becomes more relevant in the economy, industry gets more diversified.
- **Age of mass consumption:** In this stage leading sectors produce consumer durables. As per-capita income increase, people enjoy high living standards.

4.2 Indicators of Growth and Recession

Investors and state authorities keep a close eye on macroeconomic fluctuations in a country. Every change in macroeconomic conditions can grant an opportunity for these actors to get maximum benefit by responding accordingly. There are some signals which depict the forthcoming economic situation of a country.

These signal or indicators are classified: **leading, lagging and coincident indicators.**

4.2.1 Leading, Coincident, and Lagging Economic Indicators

- i. **Leading Economic Indicator:** The nature of these indicators is that they are used to forecast at what stage the economy will be in, at some time in the future. These in particular give an indication for whether a peak or trough will be reached in the following 3-12 months.
- ii. **Coincident Economic Indicators** These indicators are events and measures that occur at the same time as peak or trough occurs. They are used by governments to assess at what stage the economy is.
 - predetermine targets whereas in a weak economic setup it is not possible.
- iii. **Lagging Economic Indicators** assess the economic conditions 3-12 months after they have occurred, providing insights into past economic trends.

It is never an exact science to classify at what stage (in the business cycle) an economy is in. This is the reason that variety of indicators presented above are used in giving the best estimate of how the economy has or will perform.

4.3 Cost and Benefits of Economic Growth

COST AND BENEFITS OF ECONOMIC GROWTH	
Advantages	Disadvantages
Higher living standards: As real income of the individuals increases; they enjoy more comforts of life. Increase in Employment: With economic growth, the capacity in an economy increases and there is more opportunity for employment within the society. Fiscal benefits: With higher GDP growth, firms and individuals will increase the amount of taxes that they pay. This gives government better opportunity to meet their objectives. Reduction in poverty: With economic growth, level of poverty decreases. People have more income to meet their basic needs of life.	Environmental concerns: Fast growth may be at the expense of the natural environment. Rapid growth can create negative externalities for e.g., air pollution, noise pollution, water pollution etc. Income inequality: Growth merely exacerbates inequality that is present in an economy as a large fraction of economic gain goes to only few hands. Inflation risk: Average income increases during rapid economic growth which enhances aggregate demand in the economy and can lead to demand-pull inflation in the economy. Social cost: Fast economic growth leads to inflation and progressive taxes decrease the ability to meet their basic requirements. To maintain living standards, people have to work more which compromises their health and leisure. Negative Externalities: Economics or industrial growth creates pollution which is a type of negative externality. Current Account Deficit: For economic growth in short run, a country is to rely upon imports of machinery chemical etc. due to which country may likely face current account deficit.

REFERENCES

Friedman, B. M. (2006). The Moral Consequences of Economic Growth. Society. January/February. As Retrieved On October 31, 2021:

https://Scholar.Harvard.Edu/Files/Bfriedman/Files/The_Moral_Consequences_Of_Economic_Growth.Pdf

Smith, A. (1776). An Inquiry into the Nature and Causes of the Wealth of Nations, Volume 1. London.

STICKY NOTES

Public finance studies the income and expenditure of the public authorities and deals with the adjustment therein. It addresses the question as to how does the government raise the finances for its ever increasing expenditure.

Fiscal policy is the measure initiated by government to stabilize the economy, especially by manipulating taxes and government expenditures.

An expansionary fiscal policy is that when government increases money supply through budgetary tools i.e. either by increasing its spending or cutting taxes, to get rid of deflationary situation.

A contractionary fiscal policy is that when government contracts money supply through budgetary tools i.e. either by cutting its spending or raising taxes, to hinder inflationary pressures.

A Regressive Tax is that in which poor shares more burden of tax as compare to rich one. For example, General Sales Tax (GST).

Crowding out is policy effect that refers to decrease in the size of private sector due to increased government spending.

A tax is said to be 'direct tax' if the burden of tax cannot be shifted to anyone else". Examples of a direct tax are: Wealth Tax, Income Tax

A tax is said be 'indirect tax' if the burden of tax can be shifted to anyone else". Examples for an indirect tax are; General Sales Tax, Excise Duty

A tax is said to be progressive if its rate increases along an increase in tax base (taxable amount of asset or income).

A proportional tax is that wherein the rate of tax remains unchanged irrespective of change in tax base. Sometimes it is also known as 'flat' tax. For example, Withholding Tax

Economic growth is an expansion of economic system in one or more dimensions without a change in its structure.

SELF-TEST

1. Fiscal deficit can be controlled by reducing:
 - a) Taxes
 - b) Imports
 - c) Unemployment
 - d) Public expenditure
2. Which of the following is a direct tax?
 - a) Sales tax
 - b) Capital gains tax
 - c) Federal excise duty
 - d) Value added tax
3. Which of the following is an example of indirect tax?
 - a) Income tax
 - b) Sales tax
 - c) Capital gains tax
 - d) Property tax
4. The four main phases of a business cycle do NOT include:
 - a) Depression
 - b) Inflation
 - c) Boom
 - d) Recession
5. Which one of the following is NOT a feature of a good tax system?
 - a) It should be equitable
 - b) It should be economical
 - c) The rate should be same for everybody
 - d) It should be certain
6. Economic growth in an industrial society results from:
 - a) Technological change
 - b) Innovation
 - c) Capital production
 - d) All of the above
7. Out of the following, which is the most important source of revenue to the state?
 - a) Import tariff
 - b) Service tax
 - c) Wealth tax
 - d) Sales tax

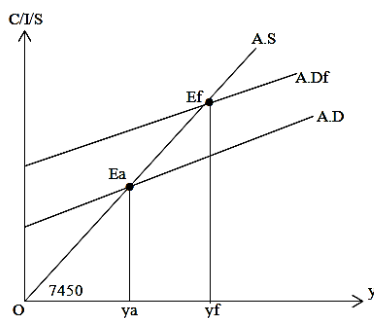
8. The difference between total expenditure and total amount of receipts is referred to as
- Primary deficit
 - Revenue deficit
 - Budget deficit
 - Fiscal deficit
9. Government budget is said to be balanced when:
- Government expenditure exceeds tax receipts
 - Government tax receipts exceed expenditure
 - Government spending decreases and revenues increase
 - Government expenditure equals tax revenue
10. Which of the following should NOT be the aim of a government?
- Inequality of incomes
 - Price stability
 - Economic growth
 - Full employment
11. Which of the following would cause income inequalities?
- Increased unemployment allowance
 - Progressive taxation
 - Regressive taxation
 - Full employment
12. A benefit of tariff is:
- More competition
 - Increased choice
 - More trade
 - Increased government revenue
13. The “ability to pay principle” can best be demonstrated by:
- Sales tax
 - Excise tax
 - Highway toll tax
 - Personal income tax
14. Which one is not a component of ‘Public Finance’?
- Public Expenditures
 - Government Revenue
 - Public Debt
 - Private Spending

15. Which one is NOT a pre-requisite of private finance?
 - a) Secrecy
 - b) Annual Budgeting
 - c) Adjustment of Income to Expenditures
 - d) None of the above
16. Which one is NOT an instrument of 'Fiscal Policy'?
 - a) Change in government expenditure
 - b) Change in Bank Rate
 - c) Change in government revenues
 - d) None of the above
17. Expansionary Fiscal Policy involves:
 - a) Increases government spending
 - b) Increase in taxes
 - c) Increase in minimum wage
 - d) None of the above
18. Contractionary Fiscal Policy involves:
 - a) Increase taxes
 - b) Reduce government expenditures
 - c) Wage freezes
 - d) All of above
19. Basic intention of government is to achieve:
 - a) Keep employment high
 - b) Stable exchange rate
 - c) Equilibrium in Balance of Payments
 - d) a & c
20. Decreasing the size of private sector due to increased government spending is termed as:
 - a) Contractionary Fiscal Policy
 - b) Crowding out
 - c) Economic recession
 - d) Liquidity Trap
21. "Every tax ought to be levied at the time or in the manner in which it is most likely to be convenient for the contributor to pay it."
 - a) Canon of convenience
 - b) Canon of economy
 - c) Canon of certainty
 - d) Canon of equality

22. Degree of shifting of tax burden is high in:
- a) Direct Taxation
 - b) Indirect Taxation
 - c) Progressive Taxation
 - d) Proportional Taxation
23. Major drawback of Direct Taxation is:
- a) Unpopular
 - b) Discourage savings
 - c) Tax evasion
 - d) All of the above
24. Which one is an advantage of Indirect Taxation?
- a) Regressive
 - b) Decreases cost-push inflation
 - c) Evasion is difficult
 - d) None of the above
25. Which one is NOT a drawback of progressive taxation?
- a) Persuasion of tax evasion
 - b) Invasion of individual rights
 - c) Less loss of government revenue
 - d) Relative certainty
26. That branch of economics which describes the mechanism to collect taxes for state and their spending to perform various functions is known as:
- a) Monetary policy
 - b) Trade policy
 - c) Public finance
 - d) Anti-inflationary policy
27. _____ arises when government expenditure exceeds over its revenue:
- a) Public revenue
 - b) Public debt
 - c) Direct taxes
 - d) Subsidies
28. In case of budget deficit, a government can borrow from:
- a) External sources
 - b) Internal sources
 - c) I.M.F.
 - d) Both internal and external sources

29. Main tools of fiscal policy are:
 - a) Changes in government revenue
 - b) Changes in government expenditure
 - c) Public sector borrowing
 - d) All of the above
30. Fiscal policy that seeks to increase the rate of economic growth is known as:
 - a) Expansionary Fiscal Policy
 - b) Contractionary Fiscal Policy
 - c) Stable Policy
 - d) None of the above
31. Due to _____ aggregate demand curve shifts towards left.
 - a) Expansionary Fiscal Policy
 - b) Contractionary Fiscal Policy
 - c) Stable economic Policy
 - d) Increase in rate of interest
32. The main function of taxation is:
 - a) Fiscal function
 - b) Allocation of resources
 - c) Regulatory
 - d) All of the above
33. Income tax follows:
 - a) Canon of equality
 - b) Canon of certainty
 - c) Canon of economy
 - d) All of the above
34. If burden of tax cannot be shifted to anyone. It is said to be:
 - a) Direct tax
 - b) Indirect tax
 - c) G.S.T.
 - d) V.A.T.
35. If burden of tax can be shifted to anyone else, it is said to be:
 - a) Direct tax
 - b) Indirect tax
 - c) Income tax
 - d) Personal tax

36. _____ taxes are also known as taxes on expenditure.
- Direct taxes
 - Indirect taxes
 - Personal taxes
 - Income taxes
37. Tax which causes leftward shifting in aggregate supply curve is known as:
- Indirect tax
 - G.S.T.
 - V.A.T.
 - All of the above
38. The amount of debt owed by the central government of a country to its various creditors is known as:
- Public debt
 - Business debt
 - Consumers debt
 - National debt
39. Which are of the following is the largest item of expenditure of Government of Pakistan.
- Interest payment
 - Education
 - Defence
 - Grants of subsidies
40. Which of the following is / are components of public debt?
- Public borrowing
 - Treasury bills
 - Securities issued by central bank
- 1 only
 - 1 and 2
 - 2 only
 - 1, 2 and 3



In the above diagram actual equilibrium output of economy is y_a and government wants to achieve full employment that is y_f .

41. Which of the following would be most likely to achieve this?

- a) Increase taxation
- b) Increase interest rates
- c) Increase in government expenditure
- d) Reduce the budget deficit

42. Which of following is not a progressive tax.

- a) G.S.T.
- b) Income tax
- c) Wealth tax
- d) Property tax

43. In a particular slab income tax is a:

- a) Progressive tax
- b) Regressive tax
- c) Proportional tax
- d) Indirect tax

ANSWERS TO SELF-TEST QUESTIONS

1	(d)	11	(c)	21	(a)	31	(b)	41	(c)
2	(b)	12	(d)	22	(b)	32	(d)	42	(a)
3	(b)	13	(d)	23	(d)	33	(d)	43	(c)
4	(b)	14	(d)	24	(c)	34	(a)		
5	(c)	15	(d)	25	(d)	35	(b)		
6	(d)	16	(b)	26	(c)	36	(b)		
7	(d)	17	(a)	27	(b)	37	(d)		
8	(c)	18	(d)	28	(d)	38	(d)		
9	(d)	19	(d)	29	(d)	39	(a)		
10	(a)	20	(b)	30	(a)	40	(d)		

IN THIS CHAPTER

AT A GLANCE

SPOTLIGHT

1. Introduction
2. Money
3. Demand For Money (MD)
4. Keynesian Liquidity Preference Model
5. Supply Of Money (MS)

REFERENCES

STICKY NOTES

SELF-TEST

AT A GLANCE

In this chapter we will cover the concept of money along with its forms, function and role in modern world. In recent decades we have seen the role of money has increased dramatically. It is a common reality that households, businesses and government, all need money to run their matters. Although money performs various functions in our life, but as a 'medium of exchange' it has a vital role in economic development of a country. Historically money has taken different form in different eras; goods from wheat, tobacco, salt, bone, stones, beads, gold, silver and most recent forms, coins, paper currency, bank money and electronic money has been used. To understand more about money and its relevance in modern world we will consider what world would be without money. For this purpose, we take a brief over view of 'barter system', that shows that in absence of money how people exchange their goods and services to deal day to matters.

In subsequent section, we will discuss what problems were faced by barter system and how money has resolved those problems. In this regard, money has performed its distinguished functions; act as medium of exchange, act as store of value, unit of account and standard of deferred payments. Kinds of money such as; metallic money, paper money, plastic money shall be covered in order to understand its role in modern world. As demand for and supply of liquid money helps to determine interest rates, Keynes Liquidity Preference Theory will be discussed.

1 INTRODUCTION

Money has always been captivating for everyone. Individuals have different needs and to meet those needs, we require some goods and service. However, we cannot produce all goods and services needed by ourselves. To overcome this constraint, exchange of goods and services with one and others directly, can take place which was known as “barter system”. However, with passage of time and increase in needed transactions, barter system became inconvenient. A medium of exchange or alternate system, acceptable for all members in the economy, was required. For this purpose, various goods from wheat, tobacco, salt, bone, stones, beads, gold, silver and leather etc., has been used.

1.1 Barter System (Era of Absence of Money)

‘Barter is the exchange of one economic good or service for another’. There was a time when life was simple and people have limited wants. But with the passage of time, man’s needs begin to increase and a shift in life from self-sufficiency to dependency upon others begin. Meeting the increased demand, instigated direct exchange of goods and services with others. Although, this system is still working in typical rural areas of underdeveloped countries, however, there are a number of serious disadvantages that resulted in pursuit of alternate system for exchange of goods and services. These disadvantages are discussed below:

- **Coincidence of wants:** Fundamental condition for barter system to take place is the existence of ‘coincidence of wants’. It refers to a situation where both parties (buyers and sellers) are able to offer something which is acceptable for each of them simultaneously.

► For Example:

Suppose one is carrying rice and looking for some amount of cotton. Transaction will not take place until he will not come to a person with cotton and looking for some amount of rice. Finding appropriate exchange partners can involve a tiring and time consuming activity which causes to slow down the economic activities.

- **Rate of exchange:** An agreed ‘rate of exchange’ must prevail among parties to exchange their products. It is not an easy task to find a rate of exchange which is acceptable for everyone at the same time.

► For Example:

How you can convince someone to give up a face mask in exchange of bread and then exchange of apple and so on? How we can measure of the value of one dozen eggs in terms of apples and then in term of rice and then in terms of smart phone etc.? Determination of an appropriate price of a face mask in terms of different goods is merely impossible.

- **Indivisibility of goods:** Most of the goods are indivisible and by dividing they become useless. Like chair, table, pen, door etc. This is another obstacle in working of barter system.

► For Example:

Suppose you have a chair and wish to get few eggs. Your exchange partner can easily share his eggs but you cannot share some part of the chair.

- **Store of value:** In barter system storing of wealth in form of perishable goods was impossible.

► For Example:

Suppose a farmer grows sugarcane to exchange different goods and services of his need. He grows surplus sugarcane with intentions of storing for his old age which is not possible. This product is perishable.

- **Transfer of wealth:** In absence of money the transfer of wealth was another serious issue. Most of the goods are immovable like house and agriculture land etc.

► *For Example:*

If you have one-acre agriculture land in Faisalabad and you are planning to shift to Karachi. In absence of money you cannot shift your piece of land.

- **Difficulties in Tax collection:** Government collects taxes and spent it on different development and non-development projects. In absence of money, if tax is collected in form of goods, it is not possible to spend it on development projects.

► *For Example:*

Suppose wheat is being used as a medium of goods. Certainly government will receive taxes in form of wheat, which in turn cannot be used to construct a road or build a hospital or university.

Keeping in view the above mentioned inconveniences of barter system, people started looking for some alternative system, which can overcome these issues.

2 MONEY

Anything that can be used to pay for goods and service or accepted as reward against factors of production is referred to as money. Historically, the modern money has evolved through various stages and forms. In older time during transactions people have used various things such as, animal bones, stones, metals, tobacco etc. With the passage of time problems begin to rise regarding different goods which were being used as a medium of exchange.

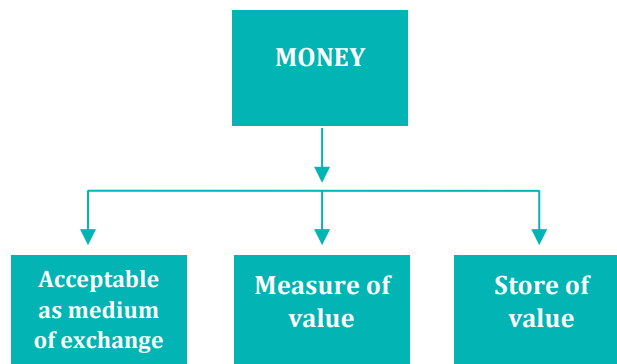
According to Prof. Crowther; *“Money may be defined as anything that is generally acceptable as a means of exchange and at the same time acts as a measure and a store of value”*.

2.1 Functions of money

The problems that come with bartering have led to the evolution of money in its current form.

There are **four functions** that money undertakes in modern society

- **To act as a medium of exchange:** Allowing economic agents to exchange goods without the need to barter.
- **To act as a unit of account:** Allowing people to compare relative price of goods and services through a common denomination.
- **To act as a store of value:** Allowing people to forgo immediate consumption, if they have a surplus of resources, and to retrieve it at a later date in order to consume.
- **To act as a standard of deferred payments:** Allowing people to consume goods and services in a current time period, whilst continuing to pay in future periods.



2.2 Difference of Opinion

Money plays such an important role in the economy that it is inevitable, as with other areas of the subject, that there is debate around its characteristics and how it should be used to meet policy goals.

Below are some differing views of what role money plays in the macroeconomy.

- **Classical economists:** Classical economists are characterised by their faith in markets to balance out the forces of supply and demand. For them, money acts as a lubricant to allow a smoother interaction between buyers and sellers in a marketplace. According to classical economists, money plays a passive role in economy.
- **Keynesian economists:** For Keynesians, in addition to providing smooth trade of goods in an economy, money also has another role: it acts as a store of value. In other words, money can be used to facilitate transactions, money can be used to purchase goods and services in the future. This goes against the classical view of the neutrality of money.
- **Monetarists:** Monetarists are a branch of new classical economists. They believe that aggregate expenditures in the economy are influenced by the market rate of interest, and therefore, money can affect the level of output in the short run economy.

However, they further believe that money influences the long run unemployment in the economy. If monetary policies are used to increase aggregate demand, it is thought that this use of additional money may cause a short term boost in output, but will ultimately lead to inflation in the economy.

Conclusion

These are the three core views on the role of money within an economy. The Keynesian and Monetarist theories will be discussed at greater length in subsequent sections of this chapter.

Where possible, it is important to consider the different outlooks on money as we progress through the reading.

2.3 Evolutionary Stages of Money

Evolution of money is one the biggest contribution in human history. Historically, we see that money is not an overnight invention, but it evolved with the passage of time. People kept on using different tools in exchange of different goods and services according to need of the time. Changing requirements of the economy kept on dragging people to search for the most convenient medium of exchange.

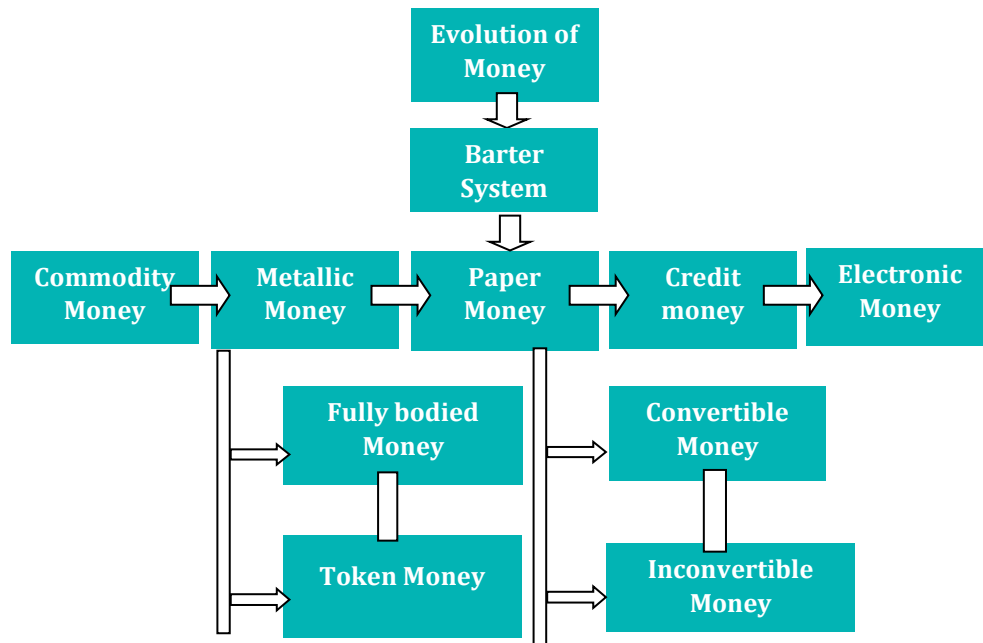
Evolution of money generally passed through following stages:

- **Commodity Money:** Money was introduced to remove inconveniences of barter system. 'Coincidence of wants' dragged people to some standard commodities which can be used during frequent transitions. In the beginning of civilization, different goods such as animals, stones, bones, tobacco, arrows etc., were used as medium of exchange. However, due to inconveniences like, store of value, measure of value and limited or immobility of wealth, trade remained restricted and led to search for alternate ways.
- **Metallic Money:** Any metal which is used as medium of exchange during economic transactions is termed as metallic money. In the beginning of civilization, precious metals such as gold and silver, were used as money as these metals were widely acceptable. Though these metals solved problems being faced in the barter system to some extent, but it did not facilitate in reducing the competition involved completely. Later, according to the requirement, these precious metals were converted into standardized coins, which have a specific weight and shape (minting of coins).
- There were TWO types of metallic money:
 - **Full bodied money:** It refers to that form of money in which the intrinsic value (value of the metal used in that coin) is equal to the face value (value printed on coin).
 - **Token money:** It refers to that form of money in which the intrinsic value is less than its face value.
- **Paper Money:** Although metallic money served well as medium of exchange, but there were several problems attached to its use. These issues included for example mining of precious metals, transferring of heavy metallic coins and so on. Keeping in view these difficulties associated with metallic money, paper money was introduced. Paper age begins with a simple system in which people started accepting receipts issued by gold smith (rich and reliable men with repute in the town) during their economic transactions. However, gradually people started facing difficulties with this informal system, and central bank removed these difficulties by taking over the power of issuance of paper money. Now all over the world countries are using this system.

There are TWO main kinds of paper money:

- **Convertible:** The government promises to change this currency into gold if demanded.
- **Inconvertible:** Against such money the government has no promise to give gold if demanded.
- **Fiat Money** Fiat money has no intrinsic value. Fiat money is a government-issued currency that is not backed by a commodity. For Example, currency issued by government as legal tender paper money.
- **Credit Money:** Any monetary claim against physical or legal person is that it can be used for the purchase of goods and services. This can include a simple verbal, or written agreement, and any other financial instruments that are not immediately payable such as bonds. There are many cases where people wish to spend money before they have it. Credit money facilitates these transactions, based on a trust between these parties that the money will be repaid.

- **Electronic or Digital Money:** Use of internet and on-line transactions for buying or selling of goods and transfer of funds through debit or credit cards is called electronic money. Banks can store monetary value on technical device that may be widely used for making payments with holding or carrying cash. It further helps in long distance payment within moments.



2.6 Characteristic of Good Money

The form which money has taken over time, has distinct functions, but there are also a number of shared characteristics. These characteristics have persisted over time and are continued in its current forms of money well.

- **General Acceptability:** People will prefer money only if it is accepted in exchange of their goods and services and if they are certain that it would be acceptable when they need to pay it somewhere else.
- **Stability:** One of the most important characteristics that a good money should possess stability. If the value of money will be unstable, then it cannot perform its function as a measure of value and especially as a standard of deferred payments. This is because people cannot trust while lending or accepting their payment in the future as its value would be ambiguous.
- **Durability:** It retains the same shape and substance over an extended period of time. It will not deteriorate nor degrade over time. It is not confined to just physical durability. If issued by the government, it must be assumed that the government too will be durable, for the paper that they issued to have value.
- **Divisibility:** Money can be divided into small increments to facilitate exchange of a variety of goods. Historically, precious metals have been used as money as they can be easily divided.
- **Transportability:** In its current paper form, money can be easily transported between locations; however, if money took the form of concrete blocks, then moving it to a market would be problematic. Precious metals have historically been fairly transportable; however, it could still not be as mobile as paper.
- **Non-counterfeit ability:** Money is not easily duplicated. It will fail as a medium of exchange if people can create their own easily. Preventing the duplication of money is a task that the government must oversee to ensure that the functions of money remain intact. To ward off counterfeiting, a government will employ a number of measures (such as watermarking) to make the process of duplication more difficult.

3 DEMAND FOR MONEY (MD)

Although apparent structure of demand for money is similar to conventional demand we have discussed in microeconomics, but there are some differentiated features. We will discuss, in this section, how people choose whether to hold wealth either in form of money or in form of other assets. Such decisions depend upon the relative cost and benefit of holding cash or an asset. In this section, we will discuss demand for money and its role in determining rate of interest.

‘All else equal, demand for money is the amount of money which people wish to hold at a given time at different rates of interest’.

In other words, demand for money is the desired amount of holding financial assets in form of cash or bank deposit (rather than making investment).

In Nutshell, demand for money is the desire to holding cash or liquid assets.

3.1 Determinants of Demand for Money

There are several factors that determine demand for money in an economy. These are given here in brief.

- **The level of interest rates:** Interest is the opportunity cost of holding liquid assets. Rather holding cash one can earn handsome amount of interest by lending it to someone else. Higher interest rate decreases the demand for money and vice versa.

► For Example:

Suppose Mr. Zain has Rs. 1,000,000. If rate of interest increases from 10% to 20%, he will prefer to lend it to get more return as opportunity cost of holding cash has increased.

- **Price Level:** Depending upon their income level people plan to hold a fixed amount of money to maintain their living standards. Change in price level (inflation rate) will force people to rethink about holding cash.

► For Example:

Assuming 10% increase in price level in a given time meant 10% fall in purchasing power of the people. Suppose you were spending Rs. 100 on bread slice and butter, now you need to hold Rs. 110 for same meal.

- **The level of real national output (GDP):** Demand for money also depends upon the level of real GDP. People with higher income have high level of spending as compared to those with low income.

► For Example:

If you have annual income of Rs. 600,000 and you might go for a leisure trip once a month. As your income goes up you must incline for leisure trip may be on weekly basis. Hence your demand for money will increase.

- **The pace of financial innovation:** Financial innovation such as, online funds transfer facilities, automatic teller machines (ATMs), credit cards etc., also influence level of money needed. People with these modern financial facilities will be less inclined to hold money.

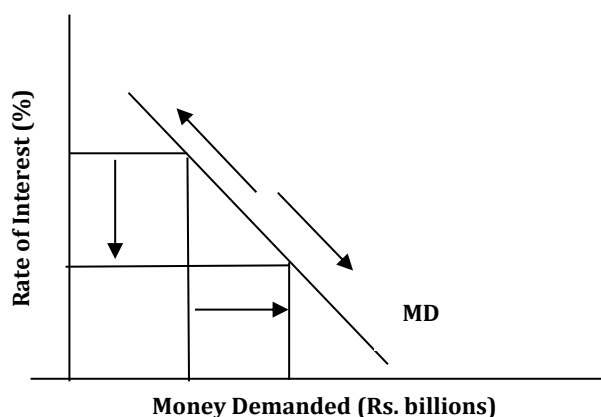
► For Example:

In the absence of such modern means of funds handling, people prefer to hold money as to meet any immediate need. Suppose during bank holidays you need to make some urgent payments, by using modern financial system you can make it possible any time. Hence you do not need to hold money next.

3.2 Demand Schedule and Demand Curve

From above discussion we have learnt that with all else equal the demand for money is inversely proportion to rate of interest. Following table and diagram will help us to understand this relationship more clearly.

Demand for Money Schedule	
Rate of Interest (%)	Demand for Money (Rs. Billions)
10	100
8	200
6	300
4	400
2	500

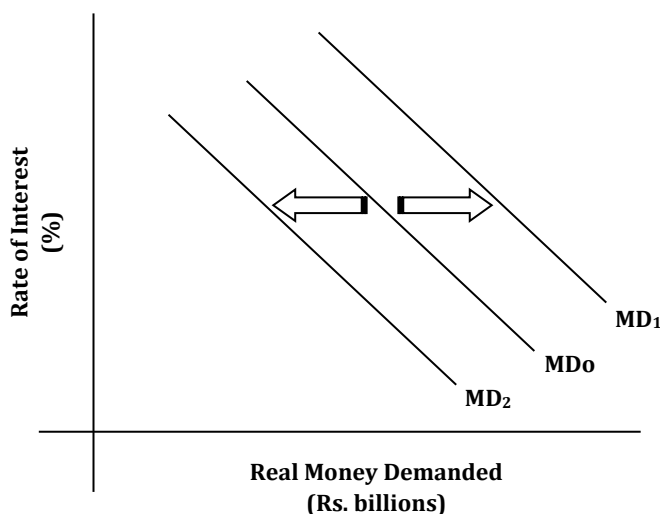


Above table represents the impact of a fall in interest rate on demand for money. Demand for money increases, as people feel less attracted towards lending or depositing it. In figure negatively sloped demand curve represents an inverse relationship between demand for money and market rate of interest.

3.3 Shift in Demand Curve (Factors Affecting Other Than Rate of Interest)

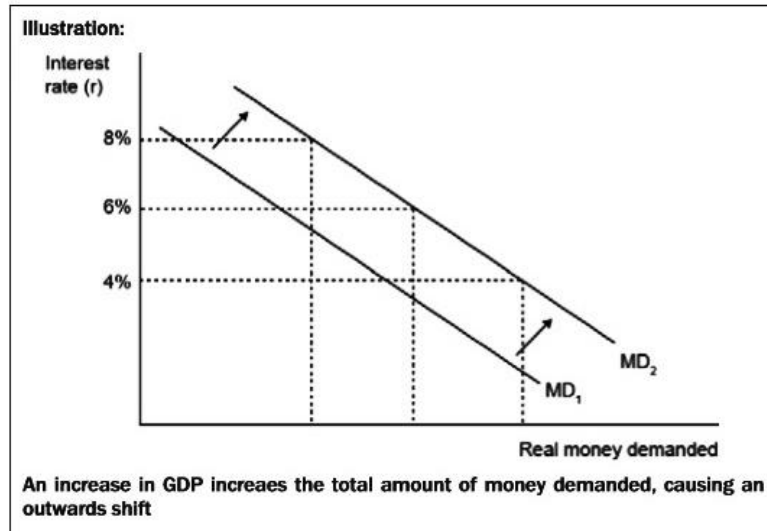
Demand curve will shift if any of the factors other than rate of interest will change. Factors such as financial innovations, change in income, change in price level etc., will cause a shift in demand curve.

► *Graphically:*

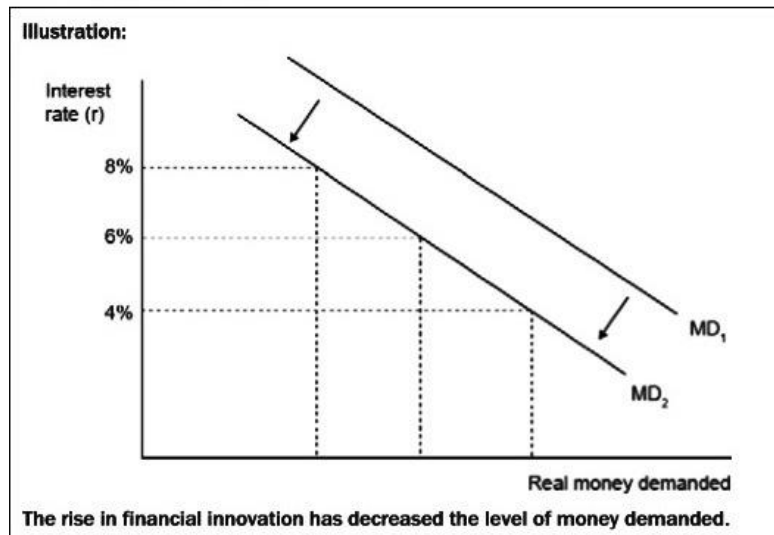


In the graph above, original demand was MD_0 . Due to any change i.e., rise in income level or fall in price level, demand for money increases causing a shift in demand curve to right MD_1 . Conversely, demand curve can shift inward to MD_2 .

Money demanded and an increase in GDP: Suppose that economic growth increases in the economy. Consequently, real incomes increase as well as the number of people employed in the economy. This will cause an increase in the demand for money at each level of interest rate. Consequently, there is an outward shift in the demand for money.



Money demanded and an increase in financial innovation: Financial innovation is a loose term that, on the whole, incorporates a new means of spending money. In recent years, a major innovation has been the rise of financial products, such as credit cards and debit cards, which reduce the need for people to withdraw cash in order to purchase goods and services. Consequently, financial innovation has reduced the demand for cash balances at each level of interest rate.



4 KEYNESIAN LIQUIDITY PREFERENCE MODEL

Elaborating on earlier points about money, Keynesians believe that demand for money depends upon someone's liquidity preference.

The idea that, all else equal, people prefer to hold cash (liquidity) rather than assets that are illiquid. They will, however, be paid a premium to hold more illiquid assets.

This makes intuitive sense. If a friend asked you for Rs. 1,000 and said that he would pay it back tomorrow then, if you trusted them, you may be happy to lend it to them. If they said that they would pay you back in one year, then this increases the risk that they will not be able to do so. Therefore, to compensate you against the risk of it not being paid back, you might ask for a "premium" (i.e. more than your Rs. 1,000) when they pay it back.

It is the Keynesian view that there are three motives (reasons) for demand for money:

- **Transactional Motives:** People need money to make regular payment for their day to day transactions. This is the amount which people hold for their prescribed expenditures. This demand for money is directly proportion to nominal national income.

Note: Transactional demand for money remains unaffected to any change in rate of interest.

- **Precautionary Motives:** The money people hold for emergency purchases. It shares a nominal part in total demand for money which people hold for some unexpected events such as, accident or disease etc.

Note: Precautionary demand for money is inversely related to market rate of interest but relatively inelastic.

- **Speculative Motives:** Another important aspect of demand for money is that people want to make more money with their existing money stock. At low interest rate opportunity cost of holding money decreases. Hence, people hold more money with intensions of investing them into some business purpose such as, stocks etc.

Note: Speculative demand for money is also inversely related to the interest rate but relatively elastic.

Keynes assumed that wealth could be stored either in cash or bonds, and that the price of a bond is inversely related to the interest rate.

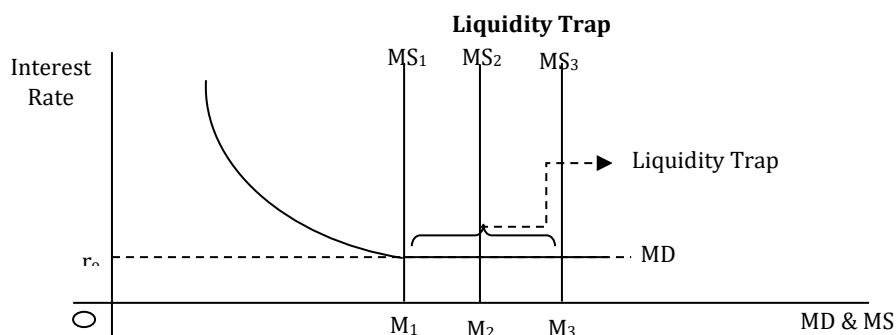
Total Demand for Money (MD)	=	Transactional Demand for Money	+	Precautionary Demand for Money	+	Speculative Demand for Money
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4.1 Liquidity Trap

Liquidity trap is a situation where prevailing interest rates are low and saving rates are high, causing monetary policy to be ineffective."

Liquidity trap refers to that situation of an economy where interest is as lower (called critical rate of interest) that any effort to decrease in interest by increasing money supply becomes useless. According to Keynes Liquidity Trap, people wait for good time for purchasing bonds. They prefer to hold liquid money (cash balances) which makes monetary policy ineffective.

► *Graphically:*



Measure to Overcome the Liquidity Trap

A number of policies can help to break out of the liquidity trap:

- **Fiscal policy:** becomes a very important instrument in raising demand, for example running a larger budget deficit.
- **Rising inflation expectations:** higher inflation will cause savings to be worth less. This will be a disincentive for hoarding of cash, as its real value will decrease. Therefore, consumption will increase.
- **Expectations of increase in rate of interest:** If government borrows from commercial banks, so as market rate of interest increases. As a result, individuals start purchasing bonds and with this inflow of resources into financial system, economy will slowly pull out from the liquidity trap.

5 SUPPLY OF MONEY (MS)

After having a detailed discussion of demand for money, now we will move to another significant concept i.e., **supply of money**.

Supply of money refers to total stock of money in circulation in a country at a given time. It includes currency notes, currency coins, banks demand deposits etc. Supply of money is quite different concept from supply of goods. As in case of goods, supply of goods once gone into someone hands may be consumed and abolished permanently. Whereas in case of supply of money even it is used as many times, it remains in total stock of money supplied in a country.

The central authorities in many countries have adopted a scaled system for the categorisation of different types of money:

- **Transactional money (M_0):**

It is used to buy and sell things within an economy. It includes currency note and coins.

- **Checking accounts (M_1):**

Money that is in peoples' accounts that they have immediate access too.

$$M_1 = M_0 + \text{Demand Deposits}$$

- **Savings deposits (M_2):**

Money that belongs to people, but which they cannot access immediately

$$M_2 = M_1 + \text{Time Deposits}$$

- **Large time assets (M_3):**

such as Mutual funds and securities

$$M_3 = M_2 + \text{Long term securities}$$

The key variable amongst these different sources of money is their level of liquidity. We see that the types of money here are categorised by their liquidity, with large time assets being the most illiquid, and transactional money, by its nature, already being fully liquid.

One of the most important points to understand is that to hold any value, the supply of money must be finite.

If the currency could be produced to an unlimited extent, then people could use it to bid up the price of all goods in the economy, meaning prices and incomes would be sky-high.

Consequently, power over the money supply is left with the government.

5.1 Importance of Money Supply

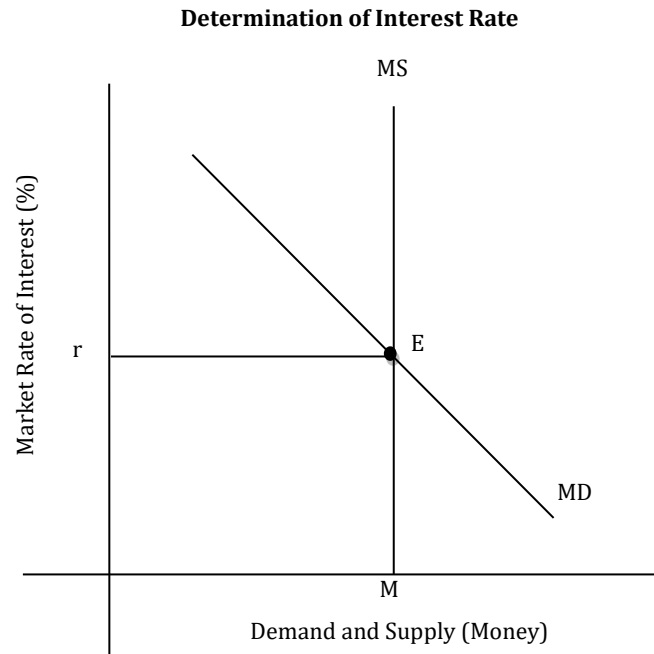
The reason that money supply is important is that money is intertwined with almost all aspects of daily life.

An increase in money supply has the effect of lowering the interest rate at which people can borrow, hence directly affecting the level of investment of and consumption within an economy.

5.2 Determination of Interest Rate

Demand for money and supply of money forces play a vital role in determining market rate of interest. Keynes assumed that at any given time the supply of money remains unchanged since the central bank or federal authorities can change it.

► Graphically:



In the graph above, vertical supply curve of money represents a fixed money supply and downward sloping demand curve represents an inverse relationship with interest rate. At point E both are intersecting each other which determines interest rate at r .

5.3 Change in supply of money

Suppose prevailing inflation rates are high, and government wishes to drag it down. To control rising inflation government will try to control supply of money. With this purpose plan of central bank will be:

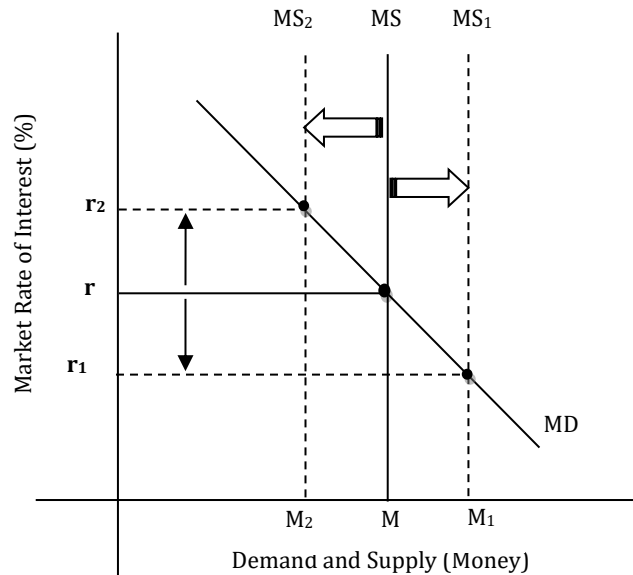
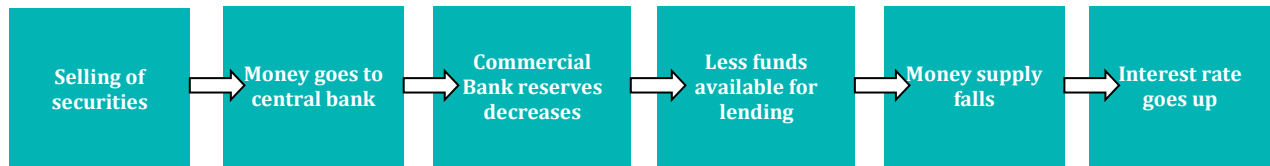
Government will try to increase interest rate to shrink consumption and investment in the country,

- Central bank will sell securities in open market
- Doing so, bank reserves will decline
- Commercial banks have less lending power
- Overall money supply will fall
- And interest rate will be high

Conversely in deflationary situation, where prevailing prices are too low and investors have no incentive to invest. Government will try to reduce interest rates. For this purpose, government will buy securities from open market and so on.

5.4 Change in Supply of Money and impact on market rate of interest

Process of changing interest rate due to different policies adopted by central bank is given below:



In the graph, due to increase in money supply the MS shift to MS_1 which lowering the interest rate to r_1 . While a decrease in money supply shift MS to MS_2 which cause an increase in interest rate to r_2

REFERENCES

Crowther, G. (1940). *An Outline of Money*. Nelson, London

Fisher, I. assisted by Brown, H. G. (1911). *The purchasing Power of Money. Its Determination and Relation to Credit, Interest and Crises*. New York: Macmillan. 1911. 2nd Edition. 1913.

STICKY NOTES

Barter is the exchange of one economic good or service for another

Money may be defined as anything that is generally acceptable as a means of exchange and at the same time acts as a measure and a store of value.

Fiat Money has no intrinsic value. All paper currency is Fiat Money, as these currency notes are only acceptable due to government order.

Credit Money is any monetary claim against physical or legal person that can be used for the purchase of goods and services.

All else equal, demand for money is the amount of money which people wish to hold at a given time at different rates of interest.

Liquidity Trap is a situation where prevailing interest rates are low and liquidity preferences are high, causing monetary policy to be ineffective.

Bond is an investment that is bought up front by an investor, and which then pays a fixed amount in return at regular time periods (usually annually).

Paper Money are all currency notes issued by Central Bank.

Convertible money is that for which government promises to change this currency into gold on demand, whereas inconvertible money is that which cannot be converted into gold as there is no gold at back of such money.

SELF-TEST

1. Which problem of 'Barter system' is solved by function of money 'act as a medium of exchange'?
 - a) Coincidence of wants
 - b) Rate of exchange
 - c) Indivisibility of goods
 - d) Store of value
2. Money in which the intrinsic value is less than its face value:
 - a) Full bodied money
 - b) Token money
 - c) Convertible money
 - d) None of the above
3. Which one is NOT a determinant of demand for money?
 - a) Level of real national income
 - b) The level of interest rates
 - c) Price Level
 - d) Marginal Efficiency of Capital
4. Which one is most sensitive to interest rate?
 - a) Precautionary demand for money
 - b) Transactional demand for money
 - c) Speculative demand for money
 - d) All of the above are equally sensitive
5. Which one is perfectly inelastic to interest rate?
 - a) Precautionary demand for money
 - b) Transactional demand for money
 - c) Speculative demand for money
 - d) All of the above are equally sensitive
6. Mutual funds are considered as form of:
 - a) Mo
 - b) M1
 - c) M2
 - d) M3
7. Money supply can be shrunk by:
 - a) Selling securities by central bank
 - b) Rising bank rate
 - c) Decreasing interest rate
 - d) a & b

8. If demand for money is interest elastic then, any increase in interest rate will:
- a) Push demand for money curve to left with lesser proportion
 - b) Push away the demand for money curve to right with lesser proportion
 - c) Pull demand for money curve to left with higher proportion
 - d) None of the above
9. Which one is NOT a relevant variable in demand for money?
- a) Financial innovations
 - b) Real GDP
 - c) interest rate
 - d) None of the above
10. Nominal interest and money demanded are:
- a) Directly proportion
 - b) Inversely proportion
 - c) Irrelevant
 - d) It depends upon the elasticity of demand for money
11. Which defines liquidity demand for money?
- a) Gold
 - b) Real estate
 - c) Long term security
 - d) All of the above
12. Which defines best as money supply?
- a) money people have in their pockets
 - b) money in checking accounts
 - c) money in time deposits
 - d) all of above
13. Money does not function as a:
- a) Medium of exchange
 - b) Hedge against inflation
 - c) Store of value
 - d) Measure of value
14. Which of the following is not a function of money?
- a) Store of value
 - b) Unit of account
 - c) Standard of deferred payment
 - d) Payment of interest

15. The term “precautionary motive” has been discussed in:
 - a) Quantity theory of money
 - b) Theory of consumer behaviour
 - c) Liquidity preference theory
 - d) Multiplier accelerator theory
16. Which of the following is not one a Keynesian motive for holding money?
 - a) Investment motive
 - b) Precautionary motive
 - c) Speculative motive
 - d) Transaction motive
17. In the Keynesian theory of demand for money, the transactions demand for money is determined by:
 - a) The rate of interest
 - b) The level of consumers’ income
 - c) Expected changes in consumer prices
 - d) The amount of money in circulation
18. Which of the following is not a method of holding wealth?
 - a) Bonds and equities
 - b) Human wealth
 - c) Consumer durables
 - d) Commodities
19. Which of the following is most likely to lead to a fall in the money supply?
 - a) A fall in interest rates
 - b) Purchases of government securities by the central bank
 - c) Sales of government securities by the central bank
 - d) A rise in the amount of cash held by commercial banks
20. According to Keynesian liquidity preference theory, an increase in the money supply will
 - a) Raise the price of financial assets
 - b) Increase in price of bonds
 - c) Lower the rate of interest
 - d) All of above
21. Pace of financial innovations will affect:
 - a) Demand for money
 - b) Supply of money
 - c) Liquidity preference
 - d) a & c

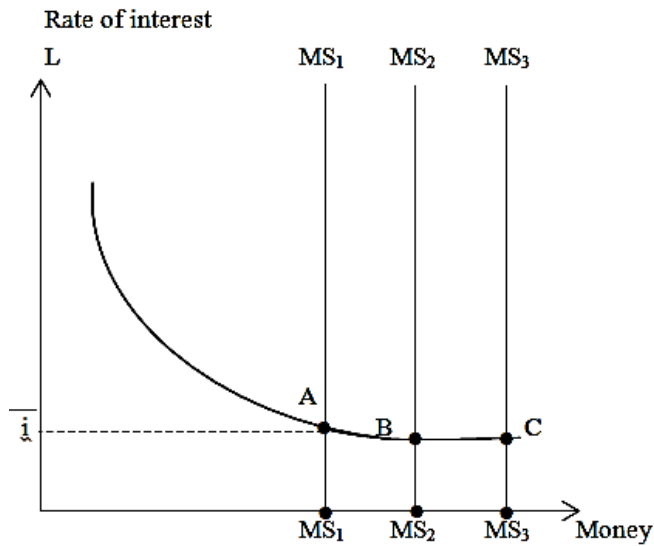
22. In barter system tax collected in form of _____ it is not possible to spend it on development projects.
- a) Money
 - b) Goods
 - c) Dollar
 - d) None of the above
23. According to classical economist's money acts as lubricant to allow a smoother interaction between:
- a) Market forces
 - b) Buyers and sellers
 - c) Demand and supply
 - d) All of the above
24. According to monetarists aggregate expenditures in the economy are influenced by:
- a) Market focus
 - b) Credit money
 - c) Exchange rate
 - d) Market of interest
25. Money which having no intrinsic value is called:
- a) Commodity money
 - b) Fiat money
 - c) Full bodied money
 - d) Token money
26. Which of the following is not an advantage of paper money?
- a) Saving of precious metals
 - b) Portability
 - c) Economy / Low cost
 - d) Stable value
27. Any monetary claim against physical or legal person can be used for the purchase of goods and services are called:
- a) Money
 - b) Fiat money
 - c) Credit money
 - d) Token money
28. Disadvantage of credit money is / are:
- a) Risk of bad debt
 - b) Lack of trust
 - c) Inflation
 - d) All of the above

29. Characteristic of good money is / are:
 - a) General acceptability
 - b) Stability of value
 - c) Durability
 - d) All of the above
30. Other things remaining the same amount of money. Which people wish to hold at given time at different rates of interest is called:
 - a) Fiat money
 - b) Commodity money
 - c) Supply of money
 - d) Demand for money
31. Which of the following is not a determinant demand for money?
 - a) Rates of interest
 - b) Price level / inflation
 - c) G.D.P.
 - d) Special deposits
32. Which of the following factors will not cause shift in money demand curve?
 - a) G.D.P.
 - b) Financial innovation
 - c) Rates of interest
 - d) Inflation
33. According to Keynesian liquidity preference model following are the motives for demand for money.
 - a) Transactions motive
 - b) Precautionary motive
 - c) Speculative motive
 - d) All of the above
34. A situation where prevailing interest rates are low and liquidity preferences are high, causing monetary policy to be ineffective is called.
 - (i) Depression
 - (ii) Liquidity trap
 - (iii) Recovery
 - (iv) Boom
 - a) (i) & (ii)
 - b) (i) & (iii)
 - c) (iii) & (iv)
 - d) Only (ii)

35. Causes of liquidity trap are:

- (i) Depression
- (ii) Inflation
- (iii) Deflation
- (iv) Lack of business confidence
- a) (ii) & (iv)
- b) (i) & (ii)
- c) (i), (iii) and (iv)
- d) Only (iv)

36.



In the above diagram Situation from A to C shows.

- a) Ineffectiveness of monetary policy
 - b) Liquidity trap
 - c) Depression
 - d) All of the above
37. In order to overcome liquidity trap following policies can be helpful.
- a) Increase on government expenditure
 - b) Raise in inflationary expectations
 - c) Increase in money demand
 - d) All of the above
38. Government can attempt to control the money supply by following policy.
- a) Open market operation
 - b) Bank rate policy
 - c) Government borrowing
 - d) All of the above

39. Market rate of interest is determined by:

- a) Central bank
- b) Commercial bank
- c) Demand & supply of money
- d) Inflation

40. Velocity of circulation of money can be determine by:

- a) $G.D.P. / \text{Money supply}$
- b) $\text{Money supply} / G.D.P.$
- c) $\text{Nominal G.D.P.} / \text{Real G.D.P.}$
- d) None of the above

ANSWERS TO SELF-TEST QUESTIONS

1	(a)	11	(a)	21	(d)	31	(d)
2	(b)	12	(d)	22	(b)	32	(c)
3	(d)	13	(b)	23	(d)	33	(d)
4	(c)	14	(d)	24	(d)	34	(a)
5	(b)	15	(c)	25	(b)	35	(c)
6	(d)	16	(a)	26	(d)	36	(d)
7	(d)	17	(b)	27	(c)	37	(d)
8	(b)	18	(b)	28	(d)	38	(d)
9	(d)	19	(c)	29	(d)	39	(c)
10	(b)	20	(d)	30	(d)	40	(a)

INFLATION AND UNEMPLOYMENT

IN THIS CHAPTER

AT A GLANCE

SPOTLIGHT

1. Inflation
2. Unemployment
3. Philips Curve Approach

REFERENCES

STICKY NOTES

SELF-TEST

AT A GLANCE

This chapter will put light on the value of money through various aspects. Rise in price level causes a fall in value of money which is generally known as “inflation”. Defining inflation is not enough, even there are few questions that need to be addressed such as; how many kinds of inflation exist? Which inflation is acceptable? How to measure inflation? What are the main causes of inflation? Who can get hurt by inflation? We will try to address these questions and their relevance to economic activity in this chapter. Index number as a measure of inflation will also be discussed. Furthermore, causes of cost push and demand pull inflation will be taken in to account, and different diagrams will be presented for better understanding.

Later on, important issue i.e. unemployment, will be covered in detail. A brief sketch of frictional, cyclical, seasonal and structural unemployment will be presented.

In the subsequent section substantial time will be devoted to discuss the relationship between inflation and unemployment in short run.

1 INFLATION

Term “Inflation”, generally, refers to a persistent rise in general price levels and then fall in real value of money. To understand inflation, there are some key points which we should keep in mind. First, it is about an absolute rise in price level rather relative rise. Second, it implies only rise in value of goods and services not in change in prices of financial instruments. Third, it considers average price of a basket of goods rather a particular good. Fourth, it considers only persistent rise in overall price level rather of a particular year.

Various economists have defined inflation in different ways.

“Too much money chasing too few goods”, Coulborn.

“Inflation is a rise in the general level of prices”, Samuleson-Nordhaus.

In simple words:

‘It is a measure of rate of increase in general price level of a predetermined basket of goods and services of an economy’.

1.1 Measuring Inflation

If we know that inflation is caused by continuous increase in the general price level, how then do we measure this change?

Conceptually, this is achieved through measuring the prices of a set of goods at various points in time, and then seeing by how much they have increased or decreased overtime. Some may rise, and some may fall, but the overall change in the price level is an indication of the inflation level.

The most common way in which this is done is through the consumer price index (CPI).

Note: Rate of inflation is measured on annual basis as it represents the annual change in price of basket of consumer goods.

1.2 Consumer Prices Index (CPI)

A measure of the weighted average of prices of a basket of goods and services.

- The **CPI** is calculated by taking price changes for each item in the predetermined basket, averaging them, and then weighting by their importance.
- It is an **index** because the changes in prices are measured in relation to an index of 100.
- If the price of bread increases from Rs.150 to Rs.165 (10%), then the new price in indexed terms would be 110.

The reason that the items are “weighted” is that certain goods and services contribute to the cost of living more than others. For example, most people buy food as an everyday occurrence, and so a change in price will affect the cost of living. However, people may only infrequently purchase a house. Nevertheless, it still plays a role in the rate of inflation.

► For Example:

We can explain Consumer Price Index by using a hypothetical data of an economy.

A hypothetical data to calculate Inflation (using CPI)			
Items	Price Index	Weighting	Price x Index
Food	104	22	2288
Clothing	105	18	1890
Housing	98	15	1470
Transportation	15	14	210

A hypothetical data to calculate Inflation (using CPI)			
Items	Price Index	Weighting	Price x Index
Health care	95	5	475
Education	108	20	2160
Leisure	109	6	654
		100	9147

Calculation: Price Index of a Year = $\Sigma (\text{Price} \times \text{Weight}) / \Sigma \text{weights}$

Price index of current year = $9147/100 = 91.5$ (rounding off to one decimal place)

Rate of inflation is percentage change in the price index from one year to another

Suppose that price index of last year was = 89.5, then the Inflation rate this year will be:

$$\frac{\text{Price index current year} - \text{Price index last year}}{\text{price index last year}} \times 100$$

$$\text{C.P.I} = \frac{91.5 - 89.5}{89.5} \times 100$$

Rate of Inflation = 2.2% (rounding off)

Limitations of CPI as a measure

Though it is widely regarded as the best measure for inflation, the CPI is not without its downfalls.

- **Not fully representative:** Because CPI takes the “average” basket of goods, this would not be reflective of what everyone is faced with. Single people will have different spending habits to married couples, as will rich and poor families.
- **Changing quality of goods and services:** A price rise may come about because of an improvement in the quality of the good, or it may be due to an increase in costs. This is not distinguishable, and can be problematic if a price rise is wrongly attributed as inflationary, when in fact it is for a superior product.
- **Index-number problems:** It is debatable which is the most appropriate “base year”, as this can drastically change the values of numbers.
- **Spending pattern:** It ignores the spending pattern of individuals.

1.3 Degrees of Inflation

- **Moderate inflation:** It is also called low inflation, when rate of inflation remains within the range of 1% - 20% per annum. On the lower side if it remains less than 5% p.a, we will call it as creeping inflation and on the side if it exceeds over 5% p.a, we called it trotting inflation.
- **Hyperinflation:** Hyperinflation or rapid inflation. It refers to an uncontrollable rise in prices of goods and services. A price rise with extremely high speed even over a month or weeks is referred to as hyperinflation. Prices increase so quickly, that money becomes worthless – it is no longer a store of value, and cannot be used for transactions. Prices increase so quickly that people begin to hoard “things” that can be used to barter.

► For Example:

A popular example of hyperinflation has been observed in Zimbabwe, when it had the second highest incidence of hyperinflation on recorded. During 2008, it was estimated 79,600,000,000%.

- **Deflation:** A contrary situation to inflation, where average price level decreases consistently.
- **Stagflation:** Stagflation is marked with slow economic growth combined with high unemployment leading to economic stagnation with higher inflation and reduced gross domestic product.

1.4 Cost or Effects of Inflation

Inflation affects the economy in many ways.

- **Debtors and creditors:** Debtors benefit from inflation because inflation reduces the value of money or purchasing power, and debtors pay less in real terms. Conversely, creditors suffer during period of inflation because they receive less in real terms.

(Real interest = Nominal Interest - Inflation)

- **Entrepreneurs:** With high and volatile inflation, businesses are less likely to commit to big projects, as they are uncertain as to the economic future.
- **Fixed income group:** Higher inflation can have a regressive effect on lower income families, and elderly people in society. Especially if the price of food and utilities increases drastically.
- **Investors:** As we shall see in a later section, in response to high inflation, governments may increase the interest rates. This will increase the cost of businesses getting a loan, which may stifle investment.
- **Government:** Rapid inflation also hurts government in different ways. It reduces the purchasing power of the people and government has to spend more money to compensate purchasing power. Furthermore, rising inflation forces government to have a cut on its expenditures, while it reduces the pace of development of a country.
- **Business competitiveness:** If prices in one country are higher than another, then when selling comparable goods, the country with lower inflation will have a lower price and therefore have much better international competitiveness.

1.5 Kinds of Inflation Types or Causes of Inflation

Now we will move towards the different kinds of inflation. There are TWO major classifications of inflation which help us to improve our understanding about the concept of inflation. These are covered in brief as follows.

Demand Pull Inflation

It refers to that kind of inflation which arises due to rise in aggregate demand in an economy. Rising aggregate demand pulls the price level upward. This kind of inflation gets swifter if aggregate supply doesn't respond to change in aggregate demand. Once the full employment level in an economy has achieved, pace of demand pull inflation gets more severe.

Reasons for Demand Pull Inflation

The main causes of demand-pull inflation are:

- **Fiscal stimulus:** Fiscal actions of the state can cause an increase in AD. If there is an increase in government spending, then the effects of the multiplier might make this an even greater increase.
- **Monetary stimulus:** A fall in interest rates may spark an increase in demand, therefore leading to "too much money chasing too few goods". The surplus money in the economic system would increase the price level and therefore, inflation.
- **Depreciation of the exchange rate:** If exports become cheaper to foreigners, and a comparative amount of imports are not bought, then AD will shift outwards, causing a rise in the level of inflation.
- **Fast growth in other countries:** If pace of economic growth in neighbouring countries increases, it will impact on our exports. Neighbouring countries will buy more of technical and non-technical commodities from our country, which can cause an increase in demand for our goods and AD will shift upward. This rising AD demand will ultimately increase the price level.

Remedies

When faced with *demand-pull inflation*, the response is to reduce the level of demand in the economy by:

- **Rise in interest rates:** This will reduce investment, and hence aggregate demand decreases.

- **Raise taxes to reduce disposable income and spending:** This could include increasing a Value Added Tax (i.e. a tax associated with buying goods) as a way to discourage spending.
- **Reduce money supply:** By removing money from circulation, the central authority reduces the possibility for transactions to occur, thereby, reducing the potential for prices to rise.
- **Increase in Direct Taxes:** Increase in direct taxes will reduce disposable income and hence consumption and aggregate demand decreases.

Cost Push Inflation

It is supply side inflation. An increase in price level as a result of an increase in cost of production is usually known as cost push inflation. Rising cost of production, due to increase in wages or due to cost of other inputs, will discourage investors and as a result, level of production will fall. Under such circumstances the short run aggregate supply curve (SRAS) will shift inward. Prevailing shortage in market will put upward pressure on market price level.

In the graph above, output is along X-axis and Price level is along Y-axis. Vertical LRAS curve represents the full employment in the economy. Rising cost of production due to input cost or other factors will shift SRAS upward to the left which creates shortage and pull the price up. In diagram SRAS₁ shift to SRAS₂ which drags price P₁ to P₂.

Reasons for Cost Push Inflation

There can be several reasons for an increase in costs:

- **Rising labour costs:** An increase in wages often occurs when unemployment is low, and skilled labour can demand more of a wage increase.
- **Expectations of inflation:** If people in the economy expect inflation to be higher in the following period, then they will ask for a higher wage, in order to protect their real income. In doing so, this will increase the costs to a firm, increasing their costs and therefore fulfilling the expectation of higher inflation. When higher inflation does materialise, employees then expect it to be higher in the following year, and hence the chain of events continues. This is called the **wage-price spiral**.
- **Component costs:** An increase in the price of raw materials is a higher cost incurred by the firm.
- **Higher indirect taxes:** Such as increased duties on fuel or particular types of food will increase the final cost of goods sold.
- **Cost of imports rising:** If there is a fall in the exchange rate, then firms will see the price that they pay for imports increase, thereby increasing the costs to their firm.

Remedies

When faced with **cost-push inflation**, the response is often to get control over the cost of inputs.

- **Limit wage increases:** Wages can be a significant input cost, and so by keeping wages low, this will assist in reducing the upward pressure on final prices.
- **Limit cost of utilities:** As noted earlier, another significant input cost is energy, and so the government can reduce or increase energy prices to temper inflation.
- **Reduce cost of imports:** This can be done by allowing the domestic currency to appreciate in relation to the currency it is importing from, thereby, reducing the costs of domestic firms.
- **Subsidies and Indirect Taxes:** Provision of subsidies and reduction in indirect taxes reduces the cost of production and hence helps in a controlling cost push inflation.

1.6 Wage-Price Spiral

Rise in wages increases the disposable income of people, which therefore increases demand for goods and eventual increase in prices. The rising prices (inflation) can cause greater demand for higher wages, therefore, increasing disposable income and the cycle continues.

This effect is known as a spiral as it is self-perpetuating.

2 UNEMPLOYMENT

Unemployment is considered as one of the most serious issues for an economy. The health of an economy can be gauged by looking into the unemployment situation of a country. Unemployment has its economic, social and political consequences. High rate of unemployment refers to an economic crisis in a country while high employment rate indicates prosperity.

Simply unemployment refers to the state of being unemployed. Or unemployment represents a situation of joblessness.

Unemployment is a situation where an able embodied; actively searching for job, is unable to find work.

2.1 Measuring Employment Rate

Unemployment rate is; the number of unemployed labour force divided by the total labour force at a given time.

$$\text{Unemployment Rate} = \frac{\text{Unemployed Labour Force}}{\text{Total Labour Force}} \times 100$$

2.2 Categories of Unemployment OR Types of unemployment

Long Run Unemployment:

Unemployment which arises for a long period and is permanent in nature is called long run unemployment. Following are different types of long run unemployment.

- **Demand-deficient unemployment:** When an economy is in recession or a period of low growth, aggregate demand may be deficient to meet the potential output in an economy. Firms therefore cutback production; in the process the amount of labour required also reduces.
- **Structural unemployment:** It is unemployment that arises through inefficiencies in the labour market. This often occurs through a misalignment of skill sets in certain geographical locations.

It is more prominent if labour is unwilling to move geographically in search of new work, or if firms are unwilling to take on people with different skill sets.

► For Example:

Suppose someone is working with old typewriter for many decades. Now the organization has decided to switch over to modern computerized system. In such situation, most of the workers will become misfit with new technology and can be fired.

- **Real wage unemployment:** Also known as classical unemployment, real wage unemployment occurs when wages are kept artificially high through powerful trade unions. A higher minimum wage means that the demand for labour is less, because firms cannot afford to employ that many people.

In the graph, demand and supply of labour is along X-axis and wage rate is along Y-axis. Without government intervention the wage rate was W₁ while after intervention by state to set minimum wage rate a higher than market wage rate was kept. At W_m demand for labour becomes lesser than supply of labour which cause an unemployed labour force (OS_L - OD_L)

Short Run Unemployment:

Unemployment which arises for a short period and then disappears is called short run unemployment. Following are different types of short run unemployment

- **Seasonal Unemployment:** Unemployment which arises due to seasonal variation is called seasonal unemployment
- **Frictional unemployment:** This kind of unemployment arises when people are searching for or are transitioning from one job to another. This can often just be temporary, and can take a while whilst people's skillsets adapt.
- **Voluntary unemployment:** Voluntary unemployment occurs when people choose not to enter the labour force at the prevailing wage rate. It may be more beneficial for them to receive social security, rather than go into a job and be required to pay tax.

2.3 Consequences or Effects of Unemployment

Unemployment is harmful for economy by many aspects.

- It creates a greater loss of GDP of a country. Unemployed labour force does not participate in economic activity and government has to face a shortfall in tax collections.
- Unemployment also causes an increase in poverty. People without jobs remain unable to feed their families.
- It causes greater disparities in income distribution.
- Due to unemployment, national output falls, this makes the current account deficit worse.
- “Empty minds are devil’s workshops”. Unemployed people slip into social evils such as theft, robbery and other street crimes.

2.4 Measure to Overcome Unemployment

Unemployment costs a lot to the state and society. Following are some suggestions which can be useful to get rid of this situation.

- By utilizing labour intensive technology, demand for labour can be increased which can be helpful to reduce unemployment.
- Agricultural reforms can also help the government to overcome seasonal unemployment. Culture of multiple cropping should be encouraged to keep the labour force busy with different crops throughout the year.
- Mismatch with new technology is another reason for being unemployed. Government should promote on-job and off-job training sessions to enhance their abilities to cope with the frequent structural changes in the industrial sector.
- Government should promote self-employment schemes. In this regard, financial and technical support should be provided.
- Rapid growth in population is another reason for rising unemployment. Government should take necessary steps to control population to address this issue.

3 PHILIPS CURVE APPROACH

In 1958, an economist from New Zealand, named William Phillips, published a study of the historical link between unemployment and the rate of change of money wages.

In his theory, Philips presented an inverse relationship between inflation and unemployment. He stated that for economy, any effort of reducing the unemployment will cause an increase in rate of inflation. This is because, if government increases its expenditures to create jobs in economy the demand for labour increases. Rising demand for labour will put an upward pressure on wages, especially skilled labour will become more expensive. To engage labour force with production process, firms have to increase wages which ultimately cause to cost push inflation.

“A short-run Philips Curve demonstrates an inverse relationship between unemployment and inflation”. This is known as “A trade-off between inflation and unemployment”

Simply saying, more inflation means low unemployment and less inflation means more unemployment

3.1 Natural Rate of Unemployment

Natural rate of unemployment is the combination of frictional unemployment (voluntary unemployment) and structural unemployment (mismatched with new technology).

The implication of this is that there will always be a level of unemployment in the economy which is unavoidable. Looking at historical data, this would appear to be the case.

The people who are affected by this are known as frictionally, or structurally unemployed. This is known as a type of “voluntary unemployment” because they are choosing to abstain from the labour market.

Whilst this might seem unfair, in economic terms these people who do not participate in the labour market at the current wage are unemployed. Even if a whole industry has declined and there is not any work in the local economy, they could in theory move to another part of the country and engage in work.

This means that in an economy, there will always be a level of unemployment. Therefore, known as the natural rate.

REFERENCES

Phillips, A.W. (1958). The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom 1861–1957. *New Series*, Vol. 25, No. 100 (Nov., 1958), pp. 283-299 (17 pages). Wiley

Friedman, Milton (1968). "The Role of Monetary Policy". *American Economic Review*. 58 (1): 1–17. JSTOR 1831652.

Samuelson, P.A. & W.D. Nordhaus (2010) *Economics*. Nineteenth edition. New York, McGraw-Hill.

STICKY NOTES

Inflation: *'It is a measure of rate of increase in general price level of a predetermined basket of goods and services of an economy'.*

CONSUMER PRICES INDEX (CPI) *is a measure of the weighted average of prices of a basket of goods and services.'*

Stagflation is marked with slow economic growth combined with high unemployment leading to economic stagnation with higher inflation and reduced gross domestic product.

Demand Pull Inflation refers to kind of inflation which arises due to rise in aggregate demand in an economy.

COST PUSH INFLATION is an increase in price level in result of an increase in cost of production.

WAGE-PRICE SPIRAL

Rise in wages increases the disposable income of people, which therefore increases demand for goods, increasing prices. The rising prices (inflation) cause greater demand for higher wages, therefore, increasing disposable income and so on... This effect is known as a spiral as it is self-perpetuating.

Unemployment is a situation in which an able embodied; actively searching for job is unable to find work.

*"A short-run **Philips Curve** demonstrates an inverse relationship between unemployment and inflation". This is known as "A trade-off between inflation and unemployment"*

Natural rate of unemployment *is the combination of frictional unemployment (voluntary unemployment) and structural unemployment (mismatched with new technology).*

Frictional unemployment: This kind of unemployment arises when people are searching for or are transitioning from one job to another.

Voluntary unemployment: Voluntary unemployment occurs when people choose not to enter the labour force at the prevailing wage rate. It may be more beneficial for them to receive social security, rather than go into a job and be required to pay tax.

SELF-TEST

1. Which of the following would reduce inflation?
 - a) An increase in direct taxes
 - b) An increase in indirect taxes
 - c) Increase in government spending
 - d) Increase in income
2. If the price of bread increases from Rs.150 to Rs.165, Price Index will be:
 - a) 110
 - b) 90
 - c) 100
 - d) 120
3. If price index for year 2018 was 89.5 and during 2019 it become 91.5 then 2019 CPI will be:
 - a) 2%
 - b) 2.5%
 - c) 2.2%
 - d) 1.9%
4. An increase in unemployment rate along cost push inflation refers to:
 - a) Mild inflation
 - b) Stagflation
 - c) Hyper inflation
 - d) None of above
5. A creeping inflation is:
 - a) Less than 5%
 - b) Less than 2%
 - c) Less than 10%
 - d) zero percent
6. Who gets benefit from inflation?
 - a) Debtor
 - b) Creditor
 - c) Fixed income group
 - d) All of above
7. A fall in interest rate can cause:
 - a) Cost push inflation
 - b) Demand pull inflation
 - c) Expected inflation
 - d) Wage spirals

8. Depreciation of domestic currency can cause:
- a) A fall in AD
 - b) A fall in AS
 - c) A rise in AD
 - d) A rise in AS
9. Which one is NOT a cause of cost-push inflation?
- a) Rising labour cost
 - b) Government spending on labour development
 - c) Higher indirect taxes
 - d) Rising Oil prices
10. Rising unemployment during recession:
- a) Cyclical unemployment
 - b) Demand deficient unemployment
 - c) Frictional unemployment
 - d) a & b
11. Unemployment that arises through inefficiencies in the labour market is:
- a) Frictional unemployment
 - b) Structural unemployment
 - c) Voluntary unemployment
 - d) Seasonal unemployment
12. Natural rate of unemployment is the combination of:
- a) Frictional and cyclical
 - b) Frictional and seasonal
 - c) Frictional and structural
 - d) Cyclical and structural
13. A demand pull inflation can be restricted by:
- a) Limit wage increase
 - b) Increase in direct taxes
 - c) Limit government spending
 - d) All of the above
14. Value of money and inflation are:
- a) Directly proportion
 - b) Inversely proportion
 - c) Irrelevant
 - d) Depends upon magnitude of change in rate of inflation

15. Which is correct with inflation?
 - a) Rise in budget deficit
 - b) Rise in price level
 - c) Fall in value of money
 - d) b & c
16. Which one is the cause of inflation?
 - a) An increase in money supply with increase in production accordingly
 - b) An increase in money supply with decrease in production accordingly
 - c) An increases in money supply more than increase in production
 - d) An increase in money supply lesser than increase in production
17. Which one account for cost push inflation?
 - a) Increase in population
 - b) Increase in indirect taxes
 - c) Increase in direct tax
 - d) Increase in imports
18. Central bank can _____ to control inflation:
 - a) Sell government securities
 - b) Buy government securities
 - c) Rising discount rate
 - d) a & c
19. Which is NOT a distortion to C.P.I?
 - a) Changing quality of products
 - b) Spending pattern
 - c) Future expectations
 - d) None of the above
20. Which one is most effective remedy to control inflation?
 - a) Raising interest rates
 - b) Raising direct taxes
 - c) Reducing money supply
 - d) All of above
21. Rise in discount rate by 10%, the inflation will:
 - a) Increase
 - b) Decrease
 - c) Increase by 10%
 - d) Decrease by 10%

22. Persistent rise in general price levels and then fall in real value of money is called:

- a) Deflation
- b) Recession
- c) Inflation
- d) Disinflation

23. Below formula represents.

$$= \frac{\text{Price index of current year} - \text{price index of base year}}{\text{Price index of base year}}$$

- a) R.P.I. (Retail Price Index)
- b) C.P.I. (Consumer's Price Index)
- c) S.P.I. (Sensitive Price Index)
- d) None of the above

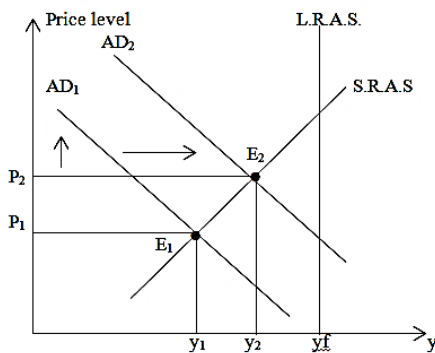
24. If rate of inflation remains within the range of 1% - 2% per annum it said to be:

- a) Moderate inflation
- b) Hyperinflation
- c) High inflation
- d) Deflation

25. A situation where unemployment increases with high rate of inflation it is said to be:

- a) Deflation
- b) Recovery
- c) Stagflation
- d) Wage spiral

26. In the above diagram due to Fiscal stimulus aggregate demand shift towards right it will create.

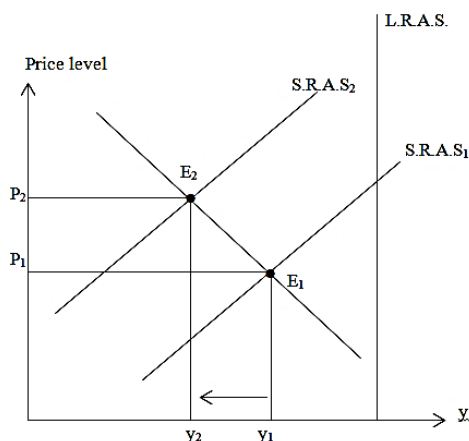


- a) Demand pull inflation
- b) Cost push inflation
- c) Imported inflation
- d) Exceptional inflation

27. When faced with demand pull inflation, the response is to reduce the level of demand in the economy by:

- a) Raise in interest rate
- b) Raise in direct taxes
- c) Reduce money supply
- d) All of the above

28. In the following diagram due to increase in wage rate S.R.A.S. shift towards left as result economy faces.



- a) Cost push inflation
- b) Demand pull inflation
- c) Import cost push inflation
- d) Stagflation

29. Devaluation of currency will cause:

- i. Imported inflation (import cost push)
 - ii. Demand pull inflation
 - iii. Cost push inflation
 - iv. Monetary inflation
- a) (ii) & (iii)
 - b) (i) & (iii)
 - c) (ii) & (iii)
 - d) (iii) & (iv)

30. Rise in wages increases the disposable income of people, which therefore increases demand for goods, increasing prices. The rising price cause greater demand for higher wages therefore increasing disposable income and so on

This effect is known as

- a) Depression
- b) Stagflation
- c) Wage – price spiral
- d) Demand pull inflation

31. Persistent rise in general price level due to increase in indirect taxes is known as:
- Demand pull inflation
 - Cost push inflation
 - Import cost push inflation
 - Monetary inflation
32. A situation in which labour force searching for job is unable to do so is known as:
- Unemployment
 - Recession
 - Stagflation
 - None of the above
33. Unemployment which arises due to recession or deficient aggregate demand is known as:
- Demand deficient unemployment
 - Structural unemployment
 - Real wage unemployment
 - Voluntary unemployment
34. _____ occurs when people choose not to enter the labour force at the prevailing wage rate.
- Frictional unemployment
 - Structural unemployment
 - Voluntary unemployment
 - Seasonal unemployment
35. Unemployment which arises due to increases in wage rate is called.
- Real wage unemployment
 - Demand deficient unemployment
 - Structural unemployment
 - Voluntary unemployment
- (inefficiencies misalignment geographical)
36. Structural unemployment arises through __a__ of the labour market. This often occurs through a __b__ of skill sets in certain __c__ locations.
37. Relationship between rate of inflation and rate of unemployment is presented by a diagram known as:
- L.R.A.S.
 - S.R.A.S.
 - Aggregate demand
 - Phillips curve
38. Continuous or persistent rise in general price level due to devaluation of currency is known as
- Import Cost Push inflation
 - Monetary Inflation
 - Expansional Inflation
 - Demand Pull Inflation

39. Unemployment which arises due to increase in wage rate is called
- a) Structural unemployment
 - b) Demand Deficient Unemployment
 - c) Real Wage Unemployment
 - d) Frictional Unemployment

ANSWERS TO SELF-TEST QUESTIONS

1	(a)	11	(b)	21	(b)	31	(b)
2	(a)	12	(c)	22	(c)	32	(a)
3	(a)	13	(d)	23	(b)	33	(a)
4	(b)	14	(b)	24	(a)	34	(c)
5	(a)	15	(d)	25	(c)	35	(a)
6	(a)	16	(c)	26	(a)	36	(a) = Inefficiency (b) = Misalignment (c) = Geographical
7	(b)	17	(b)	27	(d)	37	(d)
8	(b)	18	(d)	28	(a)	38	(a)
9	(b)	19	(d)	29	(b)	39	(c)
10	(d)	20	(d)	30	(c)		

MONETARY POLICY

IN THIS CHAPTER

AT A GLANCE

SPOTLIGHT

1. Bank
2. Central Bank And Monetary Policy
3. Contractionary And Expansionary Monetary Policies
4. Limitations Of Monetary Policy
5. Roles of State Bank

STICKY NOTES

SELF-TEST

AT A GLANCE

In this chapter, we will cover evolution of banking system which will eventually help us to understand its role in economic development. Banks are facilitating international trade giving a big push to overall economic growth and development of a country. Later in the section of this chapter, we will discuss credit, its types, functioning of commercial banks and process of credit creation.

Process of credit creation is widely acceptable in modern world. Developed banking system provides sound base to commercial banks to create credit or deposits. Banks with initial amount deposited by people eventually create large amount of deposits.

Subsequent sections, discuss central bank and monetary policy. Central bank performs numerous functions in the economy, yet monetary policy is its distinctive function which helps government to achieve macroeconomic objectives.

1 BANK

1.1 Historical background

Journey of banking system started when people began to keep their precious coins (made of gold and silver) with local goldsmith (a rich, well reputed and influential personality) against which they used to receive deposits voluntarily. However, as time passed, goldsmiths started charging 'services charges' for their role as intermediary. Gradually they realized that people withdraw little of their total deposit, whereas a large amount remains with goldsmith. Knowing this fact goldsmith started advancing loans against nominal returns. As people trust goldsmith, they agreed to accept receipts issued by them and use them as a medium of exchange in the economy. Over the time, system of goldsmith turned into formal banking.

Bank is a financial institute licensed by the government to receive deposits, which then invests these funds in a number of securities'.

Bank is a financial institution which receives deposits and issues loans'.

In other words, Bank is 'a financial institution which is engaged in borrowing and lending of money'.

Financial intermediaries

'A financial intermediary is a financial institution through which savers can indirectly provide funds to borrowers'.

1.3 Functions of commercial banks

A brief discussion is given below about functions of commercial banks.

- **Receiving Deposits:** One of the primary functions of commercial bank is to receive deposits. People keep their surplus funds into banks to earn profit (in form of interest).
- **Advancing Loans:** Deposited money by general public is liability of commercial banks as they have to pay a pre-determined return to depositors. Banks issues loan against some returns (interest) to those who need funds for their domestic or business activities.
- **Discounting of Bills of Exchange:** Bill of exchange is an instrument which is used to make a credit transaction possible. Seller of goods receives documentary evidence, guaranteeing that buyer will make payment within promised time. If seller needs money before its promised time, he can get money from bank against this bill of exchange. Bank will deduct some amount as the payment is being made before maturity. This process is called discounting of bill of exchange.
- **Lockers Facility:** Commercial banks also offer some safety lockers to general public to keep their valuables such as jewellery and other secret documents. Banks charge a nominal fee against this facility.
- **Credit Creation:** This is a process by which commercial banks generate funds for further loans. This process will be covered in detail in subsequent section of this chapter.

2 CENTRAL BANK AND MONETARY POLICY

None of the economy can work without a developed banking system in the country. Central bank is known as the father of banking system or watch dog of monetary system of the country. Although, central bank operates in a similar way as the banks described in the previous section, however it is nevertheless a separate institution with its own roles and objectives. Central bank serves as a non-profit organization with the only objective to ensure a sustainable economic growth of a country.

State bank is a central institution which is authorized to provide banking and other financial services to commercial banks and government. It is responsible to implement policies of the state and to exercise its power of issuance currency and its circulation in the country'.

Or

"Central bank serves as chief of money and banking system of a country and therefore it, has designated different types of powers to control money and banking of the country by formulating and regulating national monetary policy".

2.1 Functions of The Central Bank

The responsibilities of the central bank are generally universal, however there will be some variation between countries.

- **Note Issuance:** The central bank is the sole authority to issue currency in the country. It is not only responsible to issue uniform currency in the economy but also maintain its supply. Two systems are usually adopted to issue currency notes:
 - **Fixed Fiduciary System:** This system allows the note issuing authority to issue currency notes up to a certain limit without backing reserves or precious metals etc. But any note issued beyond this limit must be backed by 100% reserves.
 - **Proportional Reserve System:** This is a flexible system of note issuance and is popular in most of the countries of the world. Under this system central bank can issue currency notes by keeping a certain percentage of reserves in form of gold, silver or foreign currencies. (In Pakistan reserve requirement varies from 30% - 40%)

► For Example:

Suppose, with 30% reserve requirement is being followed in the country and central bank needs to issue currency notes of worth Rs. 100 million. Hence, it needs to keep a reserve of gold or silver of worth only 30 million.

- **Banker to the government:** It offers advice and also provide funding for governments looking to fund projects, in the same way a commercial bank would also for its customers.
- **Banker to the banks:** By holding cash reserves from each bank for safe keeping, the central bank brings a level of protection to the banks. Having a centralised cash reserve yields greater confidence in the system, and a better buffer against financial shocks.
Further, a central bank can offer a counselling service to commercial banks if ever they find themselves in financial difficulty, and in need of advice.
- **Lender of last resort:** If a commercial bank is unable to use other sources to meet its financial requirements then they use the central bank. This brings greater liquidity to the system, and helps protect savers' deposits.
- **Exchange rate controls:** The central bank has control over a country's foreign currency, and gold reserves. These are used in times to manipulate the exchange rates with other countries, and also other policy objectives, such as the balance of payments.
- **Clearing agent:** As all commercial banks have accounts with the central bank, when undertaking transactions, they can do so within the central bank, reducing the necessity of issuing and transferring cash.
- **Custodian of Monetary Reserves:** Central bank serves as custodian of monetary reserves such as gold and foreign currencies.

This shows, at least in part, how the central bank performs a number of operations within the economy. The reason for this is to share responsibility for the economic performance of a country with the government.

The central bank is often trusted more than the government to fulfil government objectives, because it does not have the primary objective of being re-elected.

2.2 Monetary Policy

In modern economies bank credit has become the life blood of business sector. Commercial banks play an important role to facilitate business sector to meet their financial requirements. Although, they perform this function in a smart manner, however, a threat of over issuance of credit always prevails side by side. Issuance of credit beyond the upper and lower limits can cause to inflationary or deflationary situations in the economy. Hence central bank has been designated to chalk out responsible policies in order to maintain money supply in economy. In this context, it formulates one of the most important economic policies known as **Monetary Policy**.

“The policy which is adopted by central bank of a country to control supply of money and credit is known as monetary policy”.

In other words;

“Monetary policy refers to measures taken by central bank to influence macroeconomic activity especially by manoeuvring money supply and credit by changing rates of interest.”

Instruments of Monetary Policy

Instruments of monetary policy are classified into:

Quantitative Controls:

Quantitative controls include:

- **Bank Rate:** It is also called discount rate. It is a rate at which central bank rediscount bills of exchange. By discounting a bill of exchange actually central bank is providing loan to commercial banks. By changing the bank rate, central bank indirectly influences the market rate of interest.

► For Example:

If central bank increases bank rate, cost of borrowing for commercial banks will increase. It will discourage the amount of loan issue. Therefore, rising cost of borrowing likely to have depressing effect on money supply. Tight money supply. Eventually, increase rate of interest and this will drag AD to the left.



- **Open Market Operations (OMOs):** Buying or selling of government securities in open market, is known as open market operation. Rational behind open market operations is to change the level of reserves that are held by commercial banks.

Let's suppose that the central bank wishes to reduce the level of aggregate demand in the economy; the process will follow like so:

- If central bank decides it wants to decrease the level of aggregate demand and so agrees to sell Rs.1 billion government bonds from its portfolio of reserves.
- The bonds are sold to dealers in government bonds, who then resell them to commercial banks, and other financial institutions.
- The buyers pay for these bonds by the central bank reducing the balance of reserves that the commercial banks hold with them.
- As we have seen, if the cash reserves of a commercial bank drop, then the level of demand deposits (that it can take) drops by a magnitude of the money multiplier.
- Consequently, the level of money supply tightens, and aggregate demand declines.



- **Changes in Reserve Requirement:** It is a powerful tool of central bank. Suppose the central bank is looking to reduce the level of aggregate demand in an economy. It can do so through manipulating the reserves that commercial banks must hold. In order that the reserves are kept safe, commercial banks will have them deposited at the central bank.

The central bank controls the level of reserves that commercial banks must hold with them. By decreasing the level of reserves that they must hold, and keeping the reserve ratio constant, the commercial banks must reduce the level of loans that they give out.

► *For Example:*

- Suppose a Rs.1 reduction in the level of reserves that commercial banks must hold translates, through the multiplier effect, to be a much bigger contraction in the overall money that they loan out. This causes the money supply to decline.
- As the money supply contracts, money becomes “tight” (i.e. less available and more expensive). This reduced level of money in the economy raises the interest rate, and reduces the amount of credit available in the economy. Consequently, interest rates rise for mortgage borrowers and firms looking for investment are discouraged from borrowing, and spending more money.
- High interest rates reduce the wealth of firms and individuals, causing a drop in consumption and investment. This causes a shift to the left of aggregate demand ($AD = C + I + G + (X - M)$). In short, tight money has a contractionary effect on aggregate demand.
- The effect of tight money reduces the level of aggregate demand, causing a drop in output, employment and inflation.



- **Credit Rationing:** Fixing the maximum limit of loan issue, by central bank to its member commercial banks is called credit rationing. By changing this limit central bank can control money supply in the economy.

Qualitative Controls

Qualitative controls include:

- **Changes in Marginal Requirements:** Marginal Requirement refers to the difference between value of security demanded by central bank to advance loan to commercial banks and the amount of loan actually issued. Central bank advances loan to commercial banks against some securities. In order to control money supply, central bank can change this margins.
- **Moral Persuasion:** The central bank can also discourage behaviour from banks by simply conducting personal discussions with them, and persuading them not to go through with actions that may jeopardise the wider objectives that the central bank has.

This is not a particularly easy instrument to measure, but is nevertheless an important part of the central bank's arsenal.

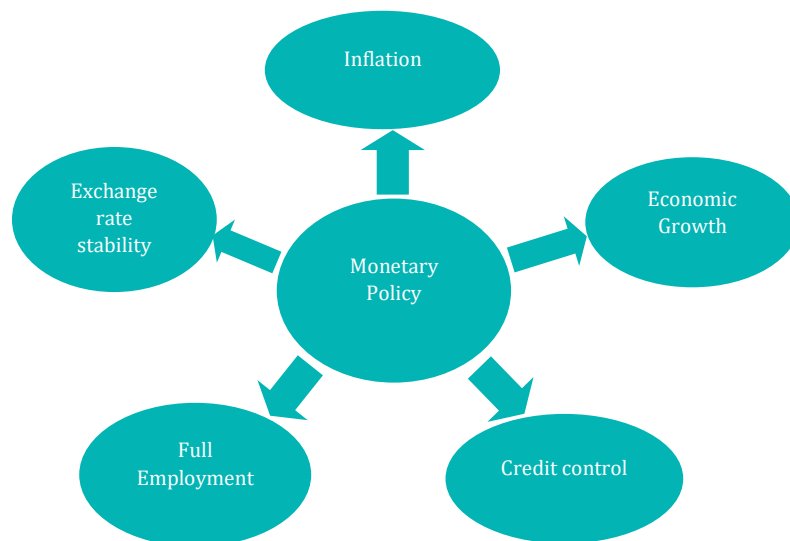
- **Direct Action:** This a severe action could be taken by central bank in some extreme situation. Central bank exercises this action only when commercial bank does not cooperate with central bank or commercial bank refuses to follow the policies of central bank. The central bank may take direct action in a number of ways such as;
 - It can impose fine and penalty to bank who is not cooperating.
 - It may refuse discount facility to the bank under consideration.
 - It may change the rates over the bank rate for particular bank etc.

- **Special Deposit:** Central Banks offers special deposits to commercial banks for short term on which it offers more attractive rate of interest than the market. This deposit reduces money supply in market.
- **Prudential Control:** Central Bank can control credit by issuing some articles & regulations related to credit volume which are known as Prudential control.

2.3 Objectives of Monetary Policy

There are numerous objectives that monetary policy looks to achieve and, as we shall see, it is not possible to satisfy all of them.

- **Inflation:** Keeping inflation low and steady for a more stable economic performance.
- **Economic growth:** With appropriate economic policy, the government wishes to develop overall per capita income within the country.
- **Exchange rate stability:** Achieve stable exchange rates between countries in part through adjusting the balance of payments.
- **Full employment:** It is necessary to increase production and demand for goods, allowing resources to be fully utilised for the economy to reach full employment.
- **Credit control:** Making banks exercise control over their issuance of credit, but also ensuring that the most vulnerable in society are receiving their fair share.
- **Correction of Current Account Deficit:** One of the major objective of monetary policy is the correction of balance of payment or current account deficit. It can be done by variation in rate of interest specially on bonds.



Though these objectives are all desirable, it is not possible to achieve all of these at once – **some conflict** between them exists.

- **Price stability vs full employment:** By undertaking monetary policy to increase full employment, a central bank could undertake policies to increase aggregate demand. Doing so could drive up inflation, putting more pressure on the price stability target.
- **Economic growth vs exchange rate stability:** In order to boost economic growth, a central bank may decide to manipulate exchange rates to increase the likelihood of exports. Doing so would jeopardise stability in exchange rates.
- **Economic growth vs credit control:** A way to grow the economy might be through the expansion of credit, as it would spur investment and spending. However, this comes with heightened economic risk of credit defaulting.

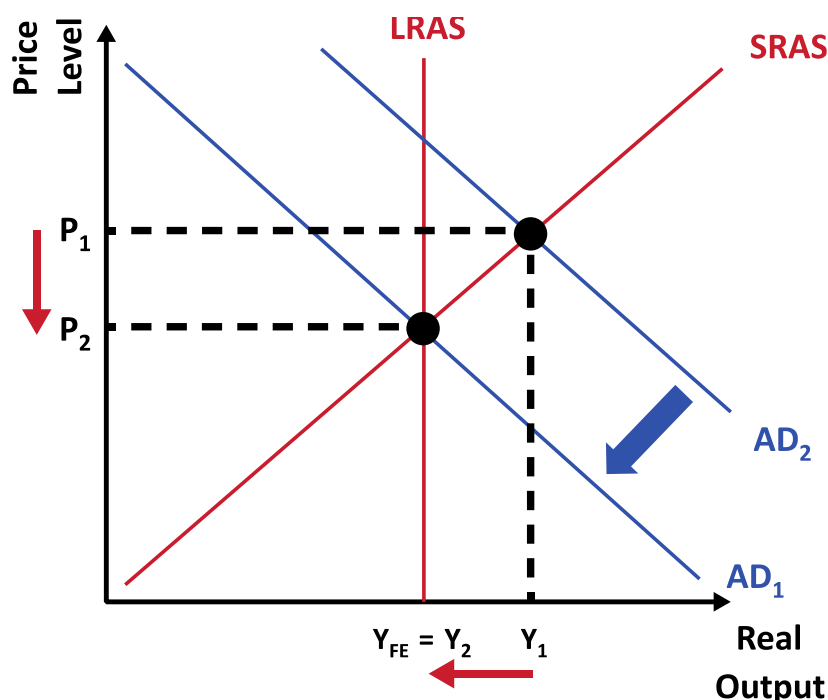
3 CONTRACTIONARY AND EXPANSIONARY MONETARY POLICIES

3.1 Contractionary Monetary Policy or Anti-Inflationary Monetary Policy

The monetary policies can be used to either expand or contract the level of output in an economy through a mechanism that takes the actions of the central bank, and sees the effect in the real economy.

We shall now run through an example of both a contractionary, and expansionary policy, and how this changes the macroeconomic equilibrium that exists.

► *Graphically:*



Central Bank increases the rate of interest for commercial banks to borrow or central bank raises reserve requirement that in turn decreases the level of reserves that commercial banks themselves hold.

In order to cover the higher cost of borrowing, commercial banks will either reduce the total amount of loans that they issue, or increase the cost of borrowing to those individuals with existing loans (and who have not predetermined the fixed level of interest that they will pay).

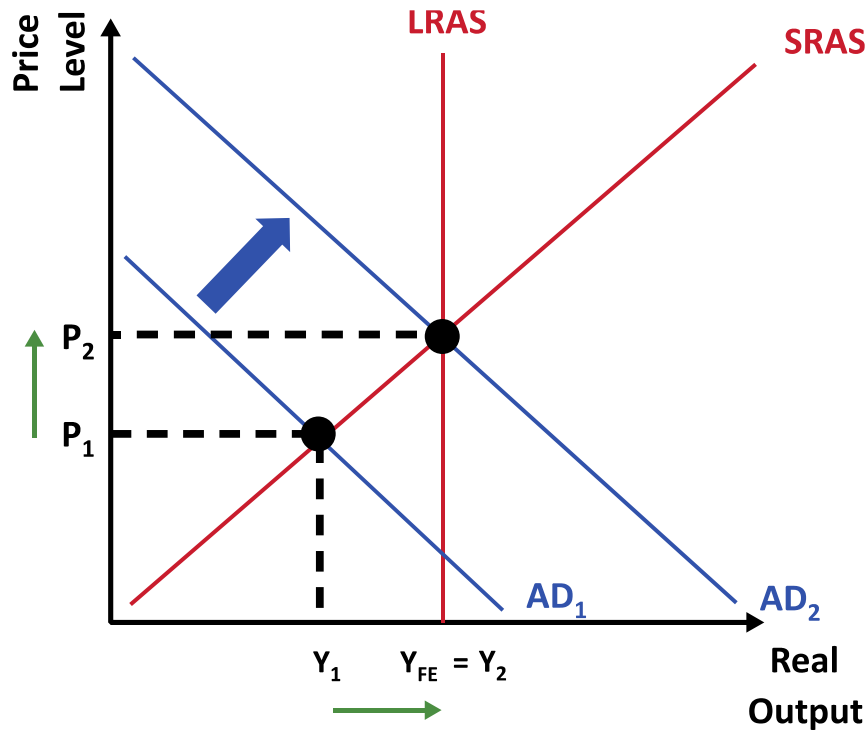
These both have the effect of reducing the level of disposable income that individuals have, hence reducing consumption. It also reduces the level of investment that occurs in the economy, as a higher interest rate is a disincentive for firms to invest in long term projects.

This results in a decrease in aggregate demand which, as the diagram shows, reduces the level of output from Y_1 to Y_2 , and the price level from P_1 to P_2 .

3.2 Expansionary policies or –Anti Deflationary Monetary Policy

An expansionary monetary policy will be used when the central bank wishes to stimulate the level of demand within an economy.

If the level of output is low, meaning central bank objectives are not being met, then they will look at ways of stimulating aggregate demand through one, or a combination of, monetary policies.



By purchasing government bonds from commercial banks, the central bank transfers money to the banks, increasing the cash reserves that they hold.

The commercial banks, with their bolstered reserves, will loan out these additional reserves, to the level of the reserve rate. Doing so increases the reserve level for second-generation banks, which do the same. Consequently, the initial increase in cash reserves to the first bank translates to a multiplied effect across the wider economy.

This increases the level of money supply in the economy, and brings down the market rate of interest. Consequently, firms and consumers then increase their investment and consumption respectively, and the level of aggregate demand increases.

This is shown in the diagram by an increase in output from Y_1 to Y_2 , and the price level from P_1 to P_2 .

4 LIMITATIONS OF MONETARY POLICY

Despite the many advantages that monetary policy can bring, there are limitations to its effectiveness in the real economy.

These can take place in a number of ways:

- **Existence of non-monetary sector:** This is especially so in developing countries. If a large portion of society are not using money for exchange (for example bartering in rural areas), then they are not using commercial banks, which limits the effect of policies reaching to the people.
- **Existence of non-banking financial institutions:** These are organisations that offer credit to consumers, however, do not come under the supervision of the central bank.
- **High liquidity in financial markets:** When a central bank looks to tighten the money supply, its effects will be hindered if agents in the economy have access to highly liquid assets. If the central bank tries to tighten money supply, agents can counter this by creating their own liquidity.
- **Time lags:** The effects of a monetary policy will often take time to occur. Therefore, a central bank must have to predict what will happen in the future, and implement policies accordingly. Sometimes however, there will be too much uncertainty for these policies to be correct.
- **Lack of co-ordination between monetary and fiscal policies:** In simple terms, monetary policies are implemented by the central bank, and fiscal policies are implemented by the government. If the two organisations do not co-ordinate their objectives, then the effect will be corruptive.

5 ROLE OF STATE BANK OF PAKISTAN

The "State Bank of Pakistan (SBP)" is the central bank of Pakistan that plays role in the management of financial systems of the country. The basic features of State Bank of Pakistan is to prepare the monetary policy of the government of Pakistan, and organization, management of the entire economic, banking, and financial systems. Further State Bank of Pakistan also control all financial matters of the government of Pakistan such as controlling the foreign reserve of the country, currency rate, currency supply in the open market, etc.

State Bank of Pakistan has also established several financial institutes to improve the performance of financial and economic matters of Pakistan. For facilitation of government and general consumers, SBP establishes NBP (National Bank of Pakistan). It is the largest commercial bank of Pakistan, and it is an agent to SBP that handles treasury transactions for the government of Pakistan. The government of Pakistan established banks under SBP for the promotion of the agriculture sector and the industry sector, Zarai Taraqiyati Bank (ZTB) Industrial Development Bank of Pakistan (IDBP). For the growth and development of the agriculture sector.

Both banks give soft loans to consumers for the development of the agriculture and industrial sectors.

Further The State Bank of Pakistan promotes the Islamic mode of the banking system in the country. For this purpose, SBP gave the order to the commercial bank that they establish a separate counter for consumers wishing to deposit in an Islamic mode of investment then.

For the development of export, SBP makes possible for exporters to get easy foreign remittance in the country without any hurdles; for the encouragement of exporter, State Bank of Pakistan gives incentives to exporters with the understanding of central government of Pakistan. On another hand, SBP makes such rules and regulations to discourage unnecessary import from foreign country, particularly luxury goods and services.

The State Bank of Pakistan' role in the controlling of inflation in the country is very important and essential as well. For this purpose, SBP uses method of open market operation techniques. such as for controlling the currency circulation in the country, fixing rate of interest, fixing the foreign exchange rate and controlling the banking loans in the country.

STICKY NOTES

A Bank is 'A financial institute licensed by the government to receive deposits, which then invests these funds in a number of securities'.

CREDIT is a contractual agreement whereby a borrower receives something of value in the present, in exchange for payment in the future, generally with interest'.

A financial intermediary is a financial institution through which savers can indirectly provide funds to borrowers.

Central Bank is a state institution which is authorized to provide banking and other financial services to commercial banks and government. It is responsible to implement policies of the state and to exercise its power of issuance currency and its circulation in the country.

Credit Creation is a process by which commercial bank increases the supply of money through creation of new deposits in the name of borrowers.

Monetary policy refers to measures taken by central bank to influence macroeconomic activity especially by manoeuvring money supply and credit by changing rates of interest.

Buying or selling of government securities in open market, is known as open market operation. Rational behind is to change the level of reserves that are held by commercial banks.

An expansionary monetary policy will be used when the central bank wishes to stimulate the level of demand within an economy.

A contractionary monetary policy will be used when the central bank wishes to reduce the level of demand within an economy.

SELF-TEST

1. Which one of the following is not an asset of a commercial bank?
 - a) Balances at the central bank
 - b) Money at call
 - c) Customers' deposits
 - d) Advances to customers
2. Which of these appears as a liability on a bank's balance sheet?
 - a) Reserves
 - b) Checking accounts
 - c) Loans
 - d) Investments and securities
3. If the reserve ratio is 40%, and Rs. 10,000 is deposited in a commercial bank, what is the final outcome for the economy?
 - a) Rs. 4,000
 - b) Rs. 10,000
 - c) Rs. 25,000
 - d) Rs. 40,000
4. Which of the following is not the function of a central bank?
 - a) Lender of the last resort
 - b) Monetary policy
 - c) Fiscal policy
 - d) Credit creation
5. Which of the following is a central bank unable to do?
 - a) Influence banks to tighten or loosen their credit policies
 - b) Create a climate of monetary ease or restraint
 - c) Directly set market interest rates
 - d) Influence the interest rate on new treasury bonds
6. To counteract a recession, the central bank should:
 - a) Raise the reserve requirement and the discount rate
 - b) Sell securities on the open market and lower the discount rate
 - c) Buy securities on the open market and raise the discount rate
 - d) Buy securities on the open market and lower the discount rate
7. An increase in the cash reserve ratio would:
 - a) Decrease prices
 - b) Reduce inflation
 - c) Control lending
 - d) All the above

8. Which of the following is most likely to be affected by a change in interest rates?
 - a) Consumer spending
 - b) Investment spending
 - c) Government spending
 - d) Exports
9. A stimulative fiscal policy combined with a restrictive monetary policy will necessarily cause:
 - a) Gross domestic product to increase
 - b) Gross domestic product to decrease
 - c) Interest rate to fall
 - d) Interest rates to rise
10. The government makes a new issue of bonds and sells them on the open market, where they are bought by private investors using cheques drawn on their banks.
Which of the following describes the effect this has on the commercial banks?
 - a) They can raise lending because their cash base will rise.
 - b) There is no effect on bank lending.
 - c) They must cut lending to maintain an appropriate ratio of cash to loans.
 - d) They will only be able to increase long term loans.
11. Which of the following is a financial intermediary?
 - a) Pension fund
 - b) International monetary fund
 - c) State bank of Pakistan
 - d) Stock exchange
12. Which of the following is not considered to be a credit instrument?
 - a) IOU
 - b) Draft
 - c) Bond
 - d) Stock
13. Which one is not a function of central bank?
 - a) Exchange rate determination
 - b) Note issue
 - c) Exchange control
 - d) None of the above
14. Which function is performed by commercial bank?
 - a) Credit creation
 - b) Utility services
 - c) Underwriting services
 - d) All of above

15. Higher the reserve requirement:
- Slower the process of credit creation
 - Faster the process of credit creation
 - Will stop the process of credit creation
 - Increase the rate of inflation
16. Reserve requirements by central bank and credit creation is:
- Directly proportion
 - Inversely proportion
 - Irrelevant
 - Depends upon the elasticity of or reserve requirement
17. System of note issue by central bank in which 100% gold requirement is mandatory:
- Proportionate reserve system
 - Fixed fiduciary system
 - Deficit financing
 - None of the above
18. Which function is performed by central bank?
- Lender of the last resort
 - Exchange control
 - Clearing agent
 - All of the above
19. Custodian of the monetary reserve is:
- Commercial bank
 - Specialized bank
 - Cooperative bank
 - None of the above
20. Which one is not considered as a quantitative control of central bank?
- Changing reserve requirements
 - Bank rate
 - OMOS
 - Moral persuasion
21. Direct action taken by central bank involves:
- Fine and penalty to banks
 - Refuse to discounting
 - Discrimination of interest rate among banks
 - All of above

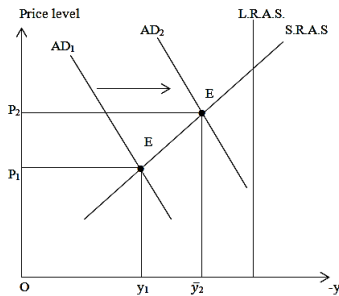
22. which one is not a conflict between objective of monetary policy?
 - a) Price stability and full employment
 - b) Exchange rate stability and economic growth
 - c) Economic growth vs credit control
 - d) Economic growth and credit creation
23. A contractionary monetary policy doesn't involve?
 - a) Increasing interest rate
 - b) Rising discount rate
 - c) Selling of government securities
 - d) Increasing ATM limit
24. A process in which commercial bank gets loan form central bank is:
 - a) Credit rationing
 - b) Discounting
 - c) Clearing house
 - d) All of above
25. A financial institution which is engaged in borrowing and lending is called:
 - a) Financial intermediaries
 - b) Commercial bank
 - c) Retail bank
 - d) All of the above
26. _____ is contractual agreement whereby a borrower receives something of value in present in exchange for payment in the future generally with interest.
 - a) Money
 - b) Fiat money
 - c) Credit
 - d) Foreign exchange
27. A bank targeted to a specific section of economy in which firms and consumers can have access to specialized forms of banking services is known as:
 - a) Commercial bank
 - b) Retail bank
 - c) Investment bank
 - d) Specialized bank
28. The rate of interest that is inflation adjusted is known as:
 - a) Nominal rate of interest
 - b) Real rate of interest
 - c) Bank rate
 - d) Discount rate

29. When central bank wishes to stimulate the level of aggregate demand within an economy, it likely to use.

- a) Liberal monetary policy
- b) Expansionary monetary policy
- c) Inflationary monetary policy
- d) All of the above

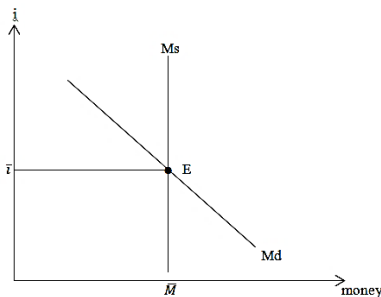
30. In the diagram below, aggregate demand shifts towards right.

It is the result of following policy.



- a) Decrease in rate of interest
- b) Decrease in reserve ratio
- c) Purchasing bonds
- d) All of the above

31. In the following diagram supply of money is perfectly inelastic. According Keynes. In this situation monetary policy will be.



- a) Ineffective
- b) Very effective
- c) Uncertain
- d) None of the above

32. Value of credit money multiplier is reciprocal of.

- a) Reserve ratio
- b) Bank rate
- c) Exchange rate
- d) Bond price

33. Duration of trade credit is generally not more than.
 - a) 30 days
 - b) 60 days
 - c) 90 days
 - d) One year
34. Inefficient and liberal credit policies can lead to:
 - a) Inflation
 - b) Creation of monopolies
 - c) Economic instability
 - d) All of the above
35. Which one of the following would leads to a rise in bond price?
 - a) A fall in rate of interest
 - b) A rise in rate of interest
 - c) An increase in liquidity preference
 - d) A fall in reserve ratio
36. The difference between rate of inflation and nominal rate of interest is known as:
 - a) Bank rate
 - b) KIBOR
 - c) Real rate of interest
 - d) Discount rate
37. Which of the following would be likely to occur if there is an increase in money supply by central bank?
 - i. Inflation
 - ii. Fall in rate of interest
 - iii. Fall in exchange rate
 - iv. Fall in price of bonds
 - a) (i) & (ii)
 - b) (ii) & (iv)
 - c) (i) & (iii)
 - d) (iii) & (iv)
38. A rise in interest rates will raise the price of __a__ rates of return on __b__ will becomes less attractive, furthermore high interest rates will keep the value of currency higher. This will discourage the __c__.
39. Which one of the following is/are the intermediate target of monetary policy?
 - i. Market rate of interest
 - ii. Supply of money
 - iii. Economic growth
 - iv. Inflation

- a) (i) & (iv)
- b) (i) & (ii)
- c) (ii) & (iii)
- d) (iii) & (iv)

40. If central bank wishes to reduce the rate of inflation which of the following policy / policies would be appropriate.

- i. A rise in bank rate
- ii. A rise in reserve ratio
- iii. Restrictions on the level of imports
- iv. Promotion of exports

- a) (iii) & (iv)
- b) (ii) & (iv)
- c) (i) & (iii)
- d) (i) & (ii)

41. If central bank wishes to reduce current account deficit which of the following policy would be appropriate.

- a) A rise in rates of interest on bonds
- b) A rise in reserve ratio
- c) Fixed exchange rate
- d) None of the above

42. Main objectives of monetary policy are _____.

- a) Certain
- b) Conflicting
- c) uncertain
- d) long-term

43. In order to decrease sales of bonds, Central bank increases

- a) Bank Rate
- b) Reserve Ratio
- c) Credit Quota
- d) All of the above

44. Authorized Capital of SBP at the time of establishment was

- a) PKR 3 Billion
- b) PKR 5 Billion
- c) PKR 30 Million
- d) PKR 500 Million

ANSWERS TO SELF-TEST QUESTIONS

1	(c)	11	(a)	21	(d)	31	(a)	41	(a)
2	(b)	12	(d)	22	(d)	32	(a)	42	(b)
3	(c)	13	(d)	23	(d)	33	(c)	43	(a)
4	(c)	14	(d)	24	(b)	34	(d)	44	(c)
5	(c)	15	(a)	25	(d)	35	(a)		
6	(d)	16	(b)	26	(c)	36	(c)		
7	(d)	17	(d)	27	(d)	37	(a)		
8	(b)	18	(d)	28	(b)	38	(a) Borrowing (b) Investment (c) Exports		
9	(d)	19	(d)	29	(d)	39	(b)		
10	(c)	20	(d)	30	(d)	40	(d)		

AT A GLANCE

SPOTLIGHT

STICKY NOTES

Head Office-Karachi:	Chartered Accountants Avenue, Clifton, Karachi-75600. Phone: (92-21) 99251636-39, UAN: 111-000-422, Fax: (92-21) 99251626
Hyderabad Office:	Ground Floor, State Life Building, Thandi Sarak, Near Giddu Chowk, Hyderabad, Sindh. Phone: (022) 2730161, e-mail: hyderabad@icap.org.pk
Sukkur Office:	Upstairs, 1st Floor, Auditorium Hall, Sukkur IBA University, Airport Road, Sukkur. Phone: (92-71) 5804421, e-mail: sukkur@icap.org.pk
Quetta Office:	ICAP House # 253/163-B, Near Tareen Bungalow's, Jinnah Town, Quetta. Phone: (92-81) 2870317, e-mail: quetta@icap.org.pk
Regional Office-Lahore:	155-156, West Wood Colony, Thokar Niaz Baig, Raiwind Road, Lahore. Phone: (92-42) 37515910-12, UAN: 111-000-422, e-mail: lahore@icap.org.pk
Islamabad Office:	G-10/4, Mauve Area, Islamabad. UAN: 111-000-422, Fax: (92-51) 9106095, e-mail: islamabad@icap.org.pk
Gujranwala Office:	ICAP House, 2nd Floor, Gujranwala, Business Center, Opposite Chamber of Commerce, Main G.T. Road, Gujranwala. Phone: (92-55) 3252710, e-mail: gujranwala@icap.org.pk
Multan Office:	3rd Floor, Parklane Tower, Officers' Colony, Near Eid Gaah Chowk, Khanewal Road, Multan. Phone: (92-61) 6510511-6510611, Fax: (92-61) 6510411, e-mail: multan@icap.org.pk
Faisalabad Office:	P- 3/33 East Canal road, Muhammadi Colony, Near Govt. College of Commerce Abdullahpur, Opposite Nusrat Fateh Ali Khan under pass, Faisalabad. Phone: (92-41) 8531028, Fax: (92-41) 8712626, e-mail: faisalabad@icap.org.pk
Peshawar Office:	Office No. 01, 1st Floor, Ali Tower, Shaheen Town, University Road, Peshawar. Phone: (92-91) 5702001-2, Fax: (92-91) 5851649 e-mail: peshawar@icap.org.pk
Mirpur AJK Office:	Basic Health Unit (BHU) Building Sector D, New City Mirpur, Azad Jammu and Kashmir. Phone: 05827-487170, e-mail: mirpur@icap.org.pk
Sialkot Office:	Kashmir Road, Allied Bank Building, Second Floor ICAP Sialkot. Mobile: 0309-1998080, e-mail: sialkot@icap.org.pk
Gilgit Office:	1st Floor, Azam Plaza, Main Shah-Rah-E-Quaid-E-Azam, Zulfikarabad, Jutial, Gilgit. Mobile: 0344-8822212, e-mail: gilgit@icap.org.pk

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