Introduction to Economics

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- Have you ever heard anything about Economics?
- What is meant by “economy”?
- What are resources, human needs and efficient allocation mean?
- What does demand and supply mean?
- What does market mean?
- What do we mean by Consumers and Producers?
- What do you understand by Households, Firms and Government?

- How do you understand Economic growth?
- What are Output(Income), Price (Inflation) and Unemployment ?
- What is budget and Budget deficit?
- What do you know about Export, Import and Trade deficit??
- What about Fiscal and Monetary Policy?

- This course will answer those questions and

  - ❖introduce you to the nature of economics (Chapter 1)
  - ❖demand and supply theories (Chapter 2)
  - ❖theories of consumer (Chapter 3)
  - ❖theories of production and cost (Chapter 4)
  - ❖market structure (Chapter 5)
  - ❖Fundamental concepts of macroeconomics (Chapter 6)

General objective and expected outcomes

❑ General objective

- The course will introduce students to the fundamental economic concepts and principles and students are expected to be equipped with the basic concepts of microeconomics and macroeconomics and the Ethiopian economy.

❑ Specific objectives of the course

- This course is aimed at:

- Describing the major economic agents and their respective roles and objectives

- Introducing the concepts of demand and supply and their interactions

- Introducing students to the neoclassical theory of consumer preferences and utility maximization approaches.

- Discuss short- run behaviour of production and the related cost structure,

- Introduce the different market structures and their real world applications, and

- Equipping students with macroeconomic goals, national income accounting, economic problems and policy instruments in light Ethiopian context.

Readings and texts

- ***INTRODUCTION TO ECON-Module***
- N. Gregaory Mankiw.2007, Principles of Economics, 5the edition *
- Hal R. Varian, Intermediate Microeconomics: A Modern Approach, 6th edition.*
- A. Koutsoyiannis, Modern Microeconomics*
- N. Gregory Mankiw, 2007, Macroeconomics, 4th edition.*
- Begg, Fisher &Dornbusch, 2005, Macroeconomics, 8th Ed.*
- R.S. Pindyck& D.L. Rubinfeld, Microeconomics
- Ayele Kuris, Introduction to Economics, 2001.
- D.N.Dwivedi, 1997, Micro Economic Theory, 3rd edition., Vikas Publishing

Chapter One

Nature of Economics

Chapter objectives

- After successful completion of this chapter, you will be able to:

✓ understand the concept and nature of economics;

✓ analyze how resources are efficiently used in producing output;

✓ identify the different methods of economic analysis ;

✓ distinguish and appreciate the different economic systems;

✓ understand the basic economic problems and how they can be solved; and

✓ identify the different decision making units and how they interact with each other

1.1 Definition of Economics

- The word economy comes from the Greek phrase —one who manages a household.

- The science of economics in its current form is about two hundred years old.

- *Adam Smith* – generally known as the father of economics – brought out his famous book, —*An Inquiry into the Nature and Causes of Wealth of Nation*, in 1776.

- Though many other writers expressed important economic ideas before Adam Smith, economics as a distinct subject started with his book.

- Economics was called *political economy* at this time.

- There is no universally accepted definition of economics (its definition is controversial) because different economists defined economics from different perspectives:

    a. Wealth definition,
    b. Welfare definition,
    c. Scarcity definition,
    d. Growth definition

- Hence, its definition varies as the nature and scope of the subject grow over time.

- But, the formal and commonly accepted definition is as follow.

- **Economics** is a social science which studies about efficient allocation of scarce resources so as to attain the maximum fulfillment of unlimited human needs.

- As economics is a science of choice-it studies how people choose to use scarce or limited productive resources to produce various commodities.

- The aim (objective) of economics is to study how to satisfy the unlimited human needs up to the maximum possible degree by allocating the resources efficiently.

1.2 The rationales of economics

- There are two fundamental facts that provide the foundation for the field of economics.

    1) Human (society‘s) material wants are unlimited.
    2) Economic resources are limited (scarce).

- The basic economic problem is about scarcity and choice since there are only limited amount of resources available to produce the unlimited amount of goods and services we desire.

- Thus, economics is the study of how human beings make choices to use scarce resources as they seek to satisfy their unlimited wants.

- Therefore, choice is at the heart of all decision-making.
- As an individual, family, and nation, we confront difficult choices about how to use limited resources to meet our needs and wants.
- Economists study
  - ✓how these choices are made in various settings;
  - ✓evaluate the outcomes in terms of criteria such as efficiency, equity, and stability; and
  - ✓search for alternative forms of economic organization
    - that might produce higher living standards or a more desirable distribution of material well-being.

1.3 Scope of Economics

- The field and scope of economics is expanding rapidly and has come to include a vast range of topics and issues.

- In the recent past, many new branches of the subject have developed, including development economics, industrial economics, transport economics, welfare economics, environmental economics, and so on.

- However, the core of modern economics is formed by its two major branches: microeconomics and macroeconomics.

- That means economics can be analyzed at micro and macro level.

1. Microeconomics

- concerned with the economic behavior of individual decision making units such as households, firms, markets and industries.

- It deals with how households and firms make decisions and how they interact in specific markets.

- Its main tools are the demand and supply of particular commodities and factors.

- Discusses how the equilibrium of a consumer, a producer or an industry is attained(Partial equilibrium).

- Its central problem is price determination and allocation of resources.

- It helps to solve the central problem of what, how and for whom to produce‘ in an economy so as to maximize profits.

- Examples: Individual income, individual savings, individual prices, an individual firm‘s output, individual consumption, etc.

2. Macroeconomics

- is a branch of economics that deals with the aggregate behaviour of all decision making units in a certain economy.

- It is an aggregative economics that examines the interrelations among various aggregates, their determination and the causes of fluctuations in them.

- It looks at the economy as a whole.

- Its main tools are aggregate demand and aggregate supply of an economy as a whole.

- Its central problem is determination of level of income and employment at aggregate level (General equilibrium).

- Helps to solve the central problem of full employment of resources in the economy.‘

- Examples: national income, national savings, general price level, national output, aggregate consumption, etc.

❑ Note: Both microeconomics and macroeconomics are complementary to each other.

- That is, macroeconomics cannot be studied in isolation from microeconomics.

1.4 Method of analysis in economics

- Economics can be analyzed from two perspectives: positive economics and normative economics.

i) Positive economics

- concerned with analysis of facts and information.
- attempts to describe the world as it is.
- It tries to answer the questions what was; what is; or what will be?
- It does not judge a system as good or bad, better or worse.
- Any disagreement on can be checked by looking in to facts.

- **Example** of positive statements
  - ✓ The current inflation rate in Ethiopia is 12 percent.
  - ✓ Poverty and unemployment are the biggest problems in Ethiopia.
  - ✓ The life expectancy at birth in Ethiopia is rising.

ii) Normative economics

- deals with the questions like, what ought to be? Or what the economy should be?
- evaluates the desirability of alternative outcomes based on one's value judgments about what is good or what is bad.
- is a matter of opinion (subjective in nature) which cannot be proved or rejected with reference to facts.
- Since normative economics is loaded with judgments, what is good for one may not be the case for the other.
- Any disagreement can be solved by voting.

- **Example:**
  - ✓ The poor should pay no taxes.
  - ✓There is a need for intervention of government in the economy.
  - ✓Females ought to be given job opportunities.

❑ Inductive and deductive reasoning in economics

- The fundamental objective of economics is the establishment of valid generalizations about certain aspects of human behaviour.
- Those generalizations are known as theories.
- A theory is a simplified picture of reality.
- *Economic theory* provides the basis for *economic analysis* which uses *logical reasoning*.

❖ There are two methods of logical reasoning:

a) Inductive reasoning

- is a logical method of reaching at a correct general statement or theory based on several independent and specific correct statements.

- It is the process of deriving a principle or theory by moving from facts to theories and from particular to general economic analysis.

- steps

1. Selecting problem for analysis

2. Collection, classification, and analysis of data

3. Establishing cause and effect relationship between economic phenomena.

b) Deductive reasoning

- a logical way of arriving at a particular or specific correct statement starting from a correct general statement.
- It deals with conclusions about economic phenomenon from certain fundamental assumptions or truths or axioms through a process of logical arguments.
- The theory may agree or disagree with the real world and we should check the validity of the theory to facts by moving from general to particular.

- Major steps in the deductive approach include:
  1. Problem identification
  2. Specification of the assumptions
  3. Formulating hypotheses
  4. Testing the validity of the hypotheses

1.5 Scarcity, choice, opportunity cost and production possibilities frontier

Scarcity

- refers to the fact that all economic resources that a society needs to produce goods and services are finite or limited in supply.

- The fundamental economic problem that any human society faces.

- But their being limited should be expressed in relation to human wants.

- Thus, the term reflects the imbalance between our wants and the means to satisfy those wants.

❑ **Resources are classified as**

1) Free resources

- A resource is said to be free if the amount available to a society is greater than the amount people desire at zero price.

  E.g. sunshine

2) Scarce (economic) resources

- A resource is said to be scarce or economic resource when the amount available to a society is less than what people want to have at zero price.

- Have price

- usually classified into four categories.

i) Labour

- the physical as well as mental efforts of human beings in the production and distribution of goods and services.

The reward for labour is called **wage.**

ii) Land

- the natural resources or all the free gifts of nature usable in the production of goods and services.

The reward for the services of land is known as **rent.**

iii) Capital

- all the manufactured inputs that can be used to produce other goods and services. Ex: equipment, machinery, transport and communication facilities, etc.

The reward for the services of capital is called **interest.**

iv) Entrepreneurship

- a special type of human talent that helps to organize and manage other factors of production to produce goods and services and takes risk of making loses.

  The reward for entrepreneurship is called **profit**

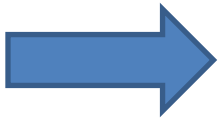
- Entrepreneurs are individuals who:
  - Organize factors of production to produce goods and services.
  - Make basic business policy decisions.
  - Introduce new inventions and technologies into business practice.
  - Look for new business opportunities.
  - Take risks of making losses.

Note: *Scarcity does not mean shortage.*

- A good is said to be scarce if the amount available is less than the amount people wish to have at zero price.

- But we say that there is shortage of goods and services when people are unable to get the amount they want at the prevailing or on going price.

- Shortage is a specific and short term problem but scarcity is a universal and everlasting problem.

❑ **Scarcity implies choice** 

2. Choice

- If resources are scarce, then output will be limited.
- If output is limited, then we cannot satisfy all of our wants.
- Thus, choice must be made.
- Due to the problem of scarcity, individuals, firms and government are forced to choose as to what output to produce, in what quantity, and what output not to produce.
- In short, scarcity implies choice**.**

- Choice, in turn, implies cost-whenever choice is made, an alternative opportunity is sacrificed.
- This cost is known as opportunity cost.

Scarcity → limited resource → limited output → we might not satisfy all our wants →choice involves costs → opportunity cost

3. Opportunity cost

- In a world of scarcity, a decision to have more of one thing, at the same time, means a decision to have less of another thing.
- The value of the next best alternative that must be sacrificed is, the opportunity cost of the decision.
- Opportunity cost is the amount or value of the next best alternative that must be sacrificed (forgone) in order to obtain one more unit of a product.

Examples

- It is measured in goods & services but not in money costs
- It should be in line with the principle of substitution.
- When opportunity cost of an activity increases people substitute other activities in its place.

4. The Production Possibilities Frontier or Curve (PPF/ PPC)

- is a curve that shows the various possible combinations of goods and services that the society can produce given its resources and technology.

Assumptions.

a. The quantity and quality of economic resource available is fixed.

b. There are two classes of output to be produced over the year.

c. The economy is operating at full employment and is achieving full production (efficiency).

d. Technology does not change during the year.

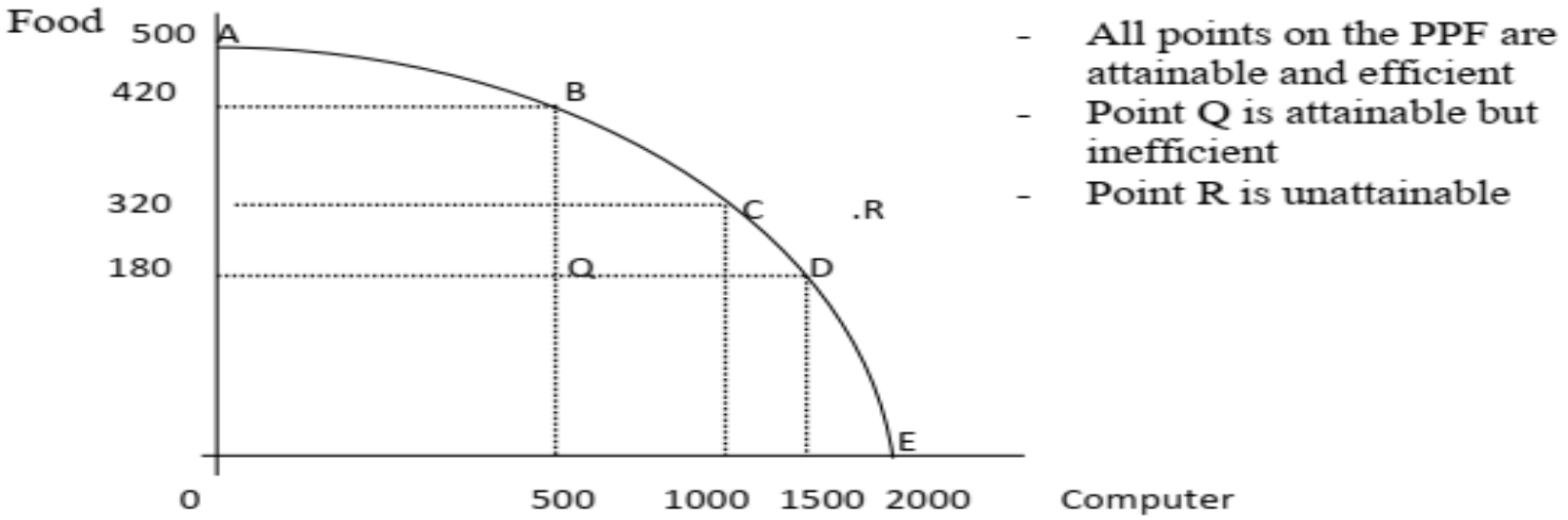
e. Some inputs are better adapted to the production of one good than to the production of the other (specialization).

Suppose a hypothetical economy produces food and computer given its limited resources a available technology (table 1.1).

Table 1.1: Alternative production possibilities of a certain nation

Types of products	Unit	Production alternatives				
		A	B	C	D	E
Food	metric tons	500	420	320	180	0
Computer	number	0	500	1000	1500	2000

We can also display the above information with a graph.



- All points on the PPF are attainable and efficient
- Point Q is attainable but inefficient
- Point R is unattainable

Figure 1.1: Production Possibilities Frontier

- The PPF describes three important concepts:

i) The concepts of scarcity

ii) The concept of choice

iii) The concept of opportunity cost- is reflected by the downward sloping PPF.

❑ The law of increasing opportunity cost states that as we produce more and more of a product, the opportunity cost per unit of the additional output increases.

- The reason is that economic resources are not completely adaptable to alternative uses (specialization effect).
- This makes the shape of the PPF **concave** to the origin.

Mathematically OC is calculated as

$$\textit{Opportunity cost of a good} = \frac{\text{the amount of the next best alternative sacrificed}}{\text{the amount of the good gained}}$$

Example

Referring to table 1.1 above what is the opportunity cost of producing one more unit of computer?

- if the economy is initially operating at point A
- if the economy is initially operating at point B
- if the economy is initially operating at point C
- if the economy is initially operating at point D

❑ What do you understand from the results?

Economic Growth and the PPF

Economic growth or an increase in the total output level occurs when one or both of the following conditions occur.

1. Increase in the quantity or/and quality of economic resources.
2. Advances in technology.

Economic growth is represented by outward shift of the PPF.

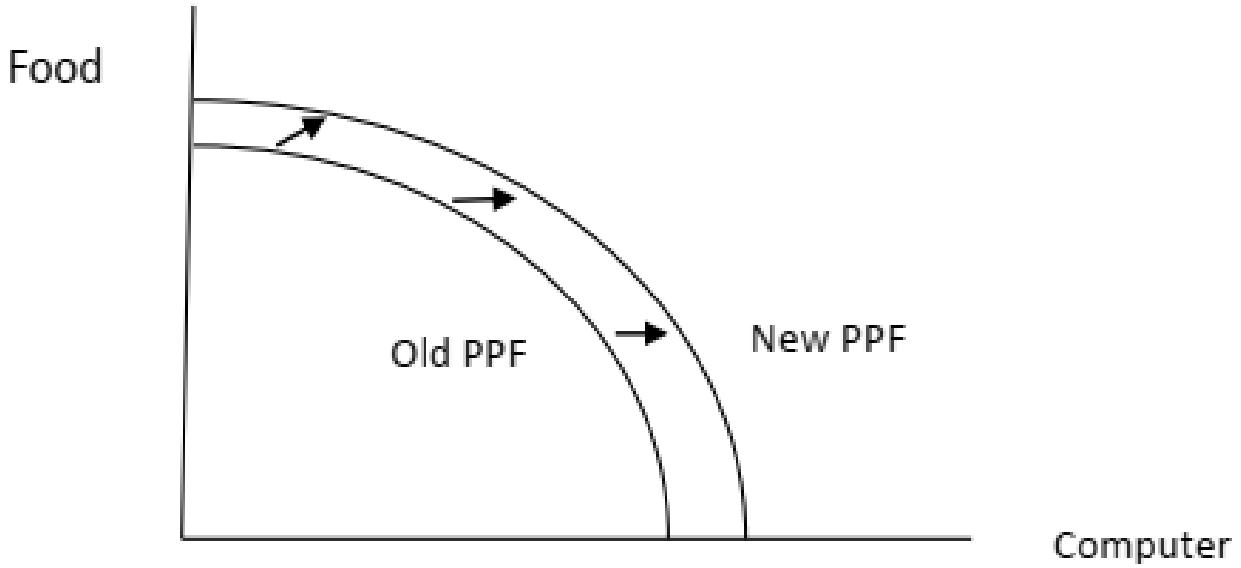


Figure 1.2: Economic growths with a new PPC

❖ An economy can grow because of an increase in productivity in one sector of the economy.

- For example, an improvement in technology applied to either food or computer would be illustrated by a shift of the PPF along the Y-axis or X-axis.
- This is called *asymmetric growth* (figure 1.3).

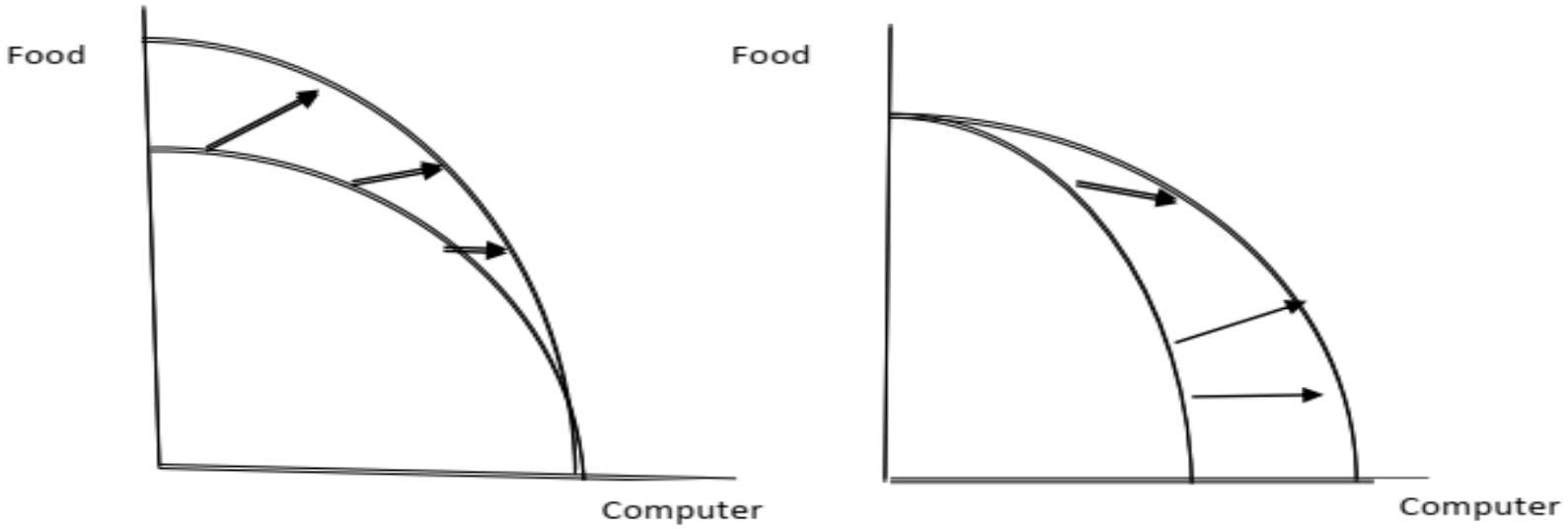


Figure 1.3: improvements in technology and quantity and/or quality of resources on national output

1.6 Basic economic questions

- Economic problems faced by an economic system due to scarcity of resources are known as basic economic problems-central problems of an economy
- are common to all economic systems.
- Therefore, any human society should answer the following three basic questions.

i) What to Produce?

- the *problem of allocation of resources*.
- implies that every economy must decide which goods and in what quantities are to be produced.
- The economy must make choices such as consumption goods versus capital goods, civil goods versus military goods, and necessity goods versus luxury goods.

- As economic resources are limited we must reduce the production of one type of good if we want more of another type.

- Generally, the final choice of any economy is a combination of the various types of goods but the exact nature of the combination depends upon the specific circumstances and objectives of the economy.

ii) How to Produce?

- the *problem of choice of technique*.
- the economy must decide how to produce the types of goods to be produced
- choosing between alternative methods or techniques of production.

- Broadly speaking, the various techniques of production can be classified into two groups:

i) A *labour-intensive technique* involves the use of more labour relative to capital, per unit of output.

ii) A capital-intensive technique involves the use of more capital relative to labour, per unit of output.

- The choice between different techniques depends on the available supplies of different factors of production and their relative prices.

- Making good choices is essential for making the best possible use of limited resources to produce maximum amounts of goods and services.

iii) For Whom to Produce?

- the *problem of distribution of national product*.
- how a product is to be distributed among the members of a society.
- For example, whether to produce for the benefit of the few rich people or for the large number of poor people.
- An economy that wants to benefit the maximum number of persons would first try to produce the necessities of the whole population and then to proceed to the production of luxury goods.

❖ All these and other fundamental economic problems center around human needs and wants.

❖ Many human efforts in society are directed towards the production of goods and services to satisfy human needs and wants.

❖ These human efforts result in economic activities that occur within the framework of an *economic system*.

1.7 Economic systems

- An **economic system** is a set of organizational and institutional arrangements established to answer the basic economic questions.
- Customarily, we can identify three types of economic system.
    - capitalism, command and mixed economy

1 Capitalist economy

- *Capitalism, free market economy* or *market system* or *laissez faire*
- is the oldest formal economic system in the world.
- It became widespread in the middle of the 19th century.
- all means of production are privately owned, and production takes place at the initiative of individual private entrepreneurs who work mainly for private profit.
- Government intervention in the economy is minimal.

Features of Capitalistic Economy

✓ **The right to private property**

- economic or productive factors such as land, factories, machinery, mines etc. are under private ownership.

✓ **Freedom of choice by consumers**

- Principle of consumer sovereignty
- Consumers can buy the goods and services that suit their tastes and preferences.
- Producers produce goods in accordance with the wishes of the consumers.

✓ **Profit motive:**

- Entrepreneurs are guided by the motive of profit-making.

✓ **Competition**

- Competition exists among sellers or producers ; among buyers; among workers; among employers.

✓ **Price mechanism**

- All basic economic problems are solved through the price mechanism.

✓ **Minor role of government**

- The government does not interfere in day-to-day economic activities and confines itself to defense and maintenance of law and order.

✓ **Self-interest**

- Each individual is guided by self-interest and motivated by the desire for economic gain.

Advantages of Capitalistic Economy

- ✓ **Flexibility or adaptability** to changing environments.
- ✓ **Decentralization of economic power**
- Market mechanisms work as a decentralizing force against the concentration of economic power.
- ✓ **Increase in per-capita income and standard of living**
- ✓ **New types of consumer goods**
- ✓ **Growth of entrepreneurship**
- Profit motive creates and supports new entrepreneurial skills and approaches.
- ✓ **Optimum utilization of productive resources:** due to innovations and technological progress.
- ✓ **High rate of capital formation**

Disadvantages of Capitalistic Economy

✓ ***Inequality of income and Unbalanced economic activity***

- as there is no check on the economic system, the economy can develop in an unbalanced way and promotes economic inequalities and creates social imbalance, in terms of poor and rich; geographic regions and different sections of society.

✓ ***Exploitation of labour*: by paying low wages.**

✓ ***Negative externalities***

- where profit maximization is the main objective, decision of firms may result in negative externalities against another firm or society in general.

❖ A negative externality is the harm, cost, or inconvenience suffered by a third party because of actions by others.

2. **Command economy** (socialistic economy)

- the economic institutions that are engaged in production and distribution are owned and controlled by the state.
- In the recent past, socialism has lost its popularity and most of the socialist countries are trying free market economies.

Main Features

✓ **Collective ownership**

- All means of production are owned by the society as a whole
- there is no right to private property.

✓ **Central economic planning**

- Planning for resource allocation is performed by the controlling authority according to given socio-economic goals.

✓ **Strong government role**

- Government has complete control over all economic activities.

✓ **Maximum social welfare**

- maximizing social welfare and does not allow the exploitation of labour.

✓ **Relative equality of incomes**

- Private property does not exist , the profit motive is absent, and there are no opportunities for accumulation of wealth lead which leads to to greater equality in income distribution, in comparison with capitalism.

Advantages of Command Economy

✓ **Absence of wasteful competition**

- There is no place for wasteful use of productive resources through unhealthy competition.

✓ **Balanced economic growth**

- regions and different sectors grow in balanced way through centralized planning and allocation of resources.

✓ **Elimination of private monopolies and inequalities**

- Command economies avoid the major evils of capitalism such as inequality of income and wealth, private monopolies, and concentration of economic, political and social power.

Disadvantages of Command Economy

✓ ***Absence of automatic price determination***

- since all economic activities are controlled by the government.

✓ ***Absence of incentives for hard work and efficiency***

- The entire system depends on bureaucrats who are considered inefficient in running businesses.
- The economy grows at a relatively slow rate.

✓ ***Lack of economic freedom*** for consumers, producers, investors, and employers.

✓ ***Red-tapism*** because all decisions are made by government officials.

3. Mixed economy

- is an attempt to combine the advantages of both the capitalistic economy and the command economy.
- It incorporates some of the features of both and allows private and public sectors to co-exist.

Main Features of Mixed Economy

✓ **Co-existence of public and private sectors**

- Their respective roles and aims are well-defined.
- Industries of national and strategic importance, such as heavy and basic industry, defense production, power generation, etc. are set up in the public sector,
- whereas consumer-goods industry and small-scale industry are developed through the private sector.

✓ **Economic welfare**

- The public sector tries to remove regional imbalances, provides large employment opportunities and seeks economic welfare through its price policy.
- Government control over the private sector leads to economic welfare of society at large.

✓ **Economic planning**

✓ The government uses instruments of economic planning to achieve co-ordinated rapid economic development, making use of both the private and the public sector.

✓ **Price mechanism**

- operates for goods produced in the private sector, but not for essential commodities and goods produced in the public sector.
- Those prices are defined and regulated by the government.

✓ **Economic equality**

- Private property is allowed, but rules exist to prevent concentration of wealth.
- Limits are fixed for owning land and property.
- Progressive taxation, concessions and subsides are implemented to achieve economic equality.

Advantages of Mixed Economy

✓ **Private property, profit motive and price mechanism**

- All the advantages of a capitalistic economy exist but at the same time, government control ensures that they do not lead to exploitation.

✓ **Adequate freedom** to different economic units such as consumers, employees, producers, and investors.

✓ **Rapid and planned economic development**

- because resources are properly and efficiently utilized, and the private and public sector complement each other.

✓ **Social welfare and fewer economic inequalities:**

- The government‘s restricted control over economic activities helps in achieving social welfare and economic equality.

Disadvantages of Mixed Economy

✓ **Ineffectiveness and inefficiency**

- A mixed economy might not actually have the usual advantages of either the public sector or the private sector.
- The public sector might be inefficient due to lack of incentive and responsibility, and the private sector might be made ineffective by government regulation and control

.

✓ **Economic fluctuations:**

- If the private sector is not properly controlled by the government, economic fluctuations and unemployment can occur.

✓ **Corruption and black markets:**

- if government policies, rules and directives are not effectively implemented, the economy can be vulnerable to increased corruption and black market activities.

1.8 Decision making units and the circular flow model

❑ There are three decision making units in a closed economy.

i) Household

- A household can be one person or more who live under one roof and make joint financial decisions.
- Households make two decisions.
  a) Selling of their resources, and
  b) Buying of goods and services.

ii) **Firm**

- A firm is a production unit that uses economic resources to produce goods and services.
- Firms also make two decisions:
  a) Buying of economic resources
  b) Selling of their products.

iii) Government:

- is an organization that has legal and political power to control or influence households, firms and markets.
- Government also provides some types of goods and services known as **public goods and services** for the society.
- In order to undertake these and other activities, government collects tax both from households and firms.

❑ The three economic agents interact in two markets:

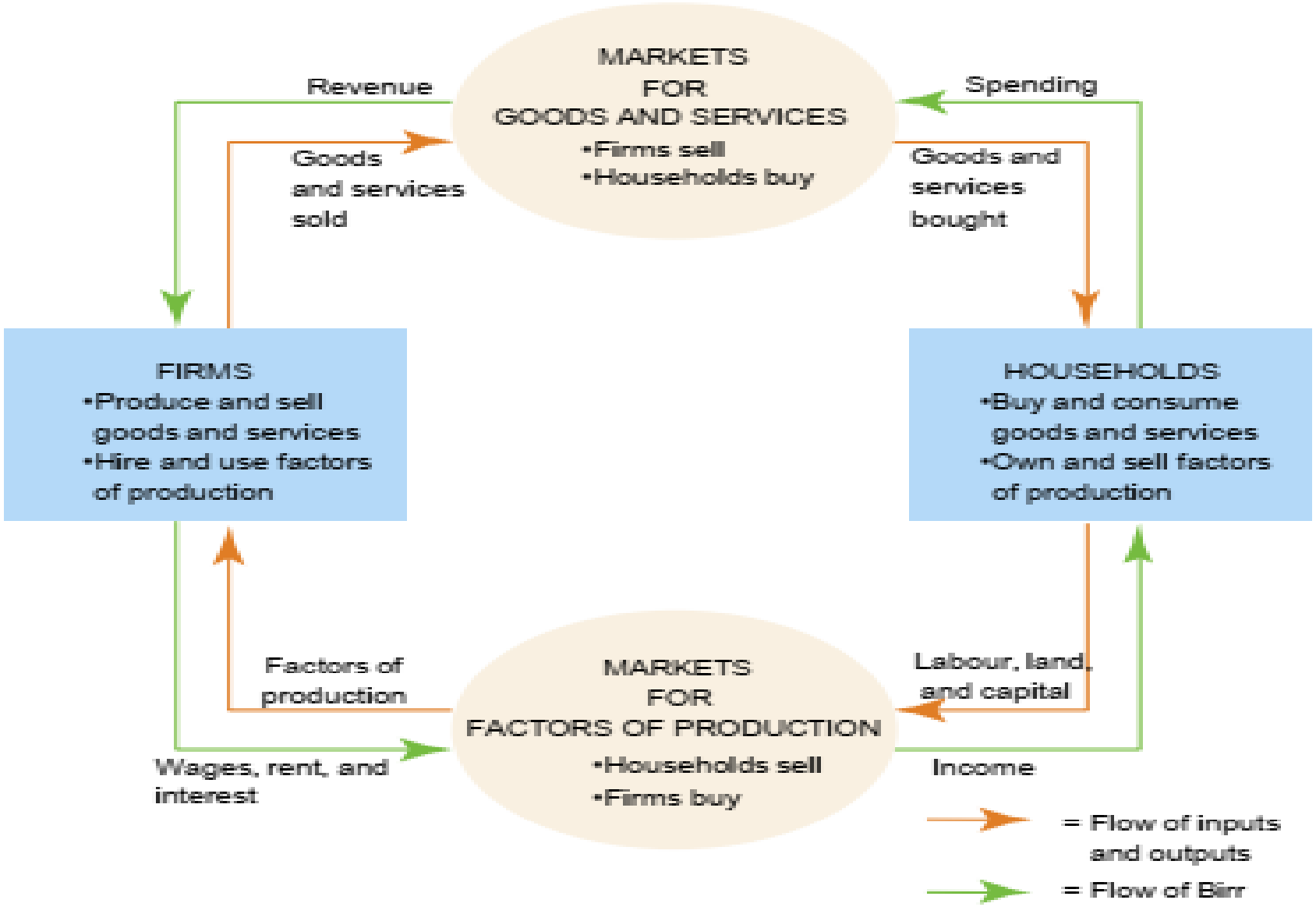
a) **Product market:** is a market where goods and services are transacted/ exchanged.

b) **Factor market (input market):** it is a market where economic units transact/exchange factors of production (inputs).

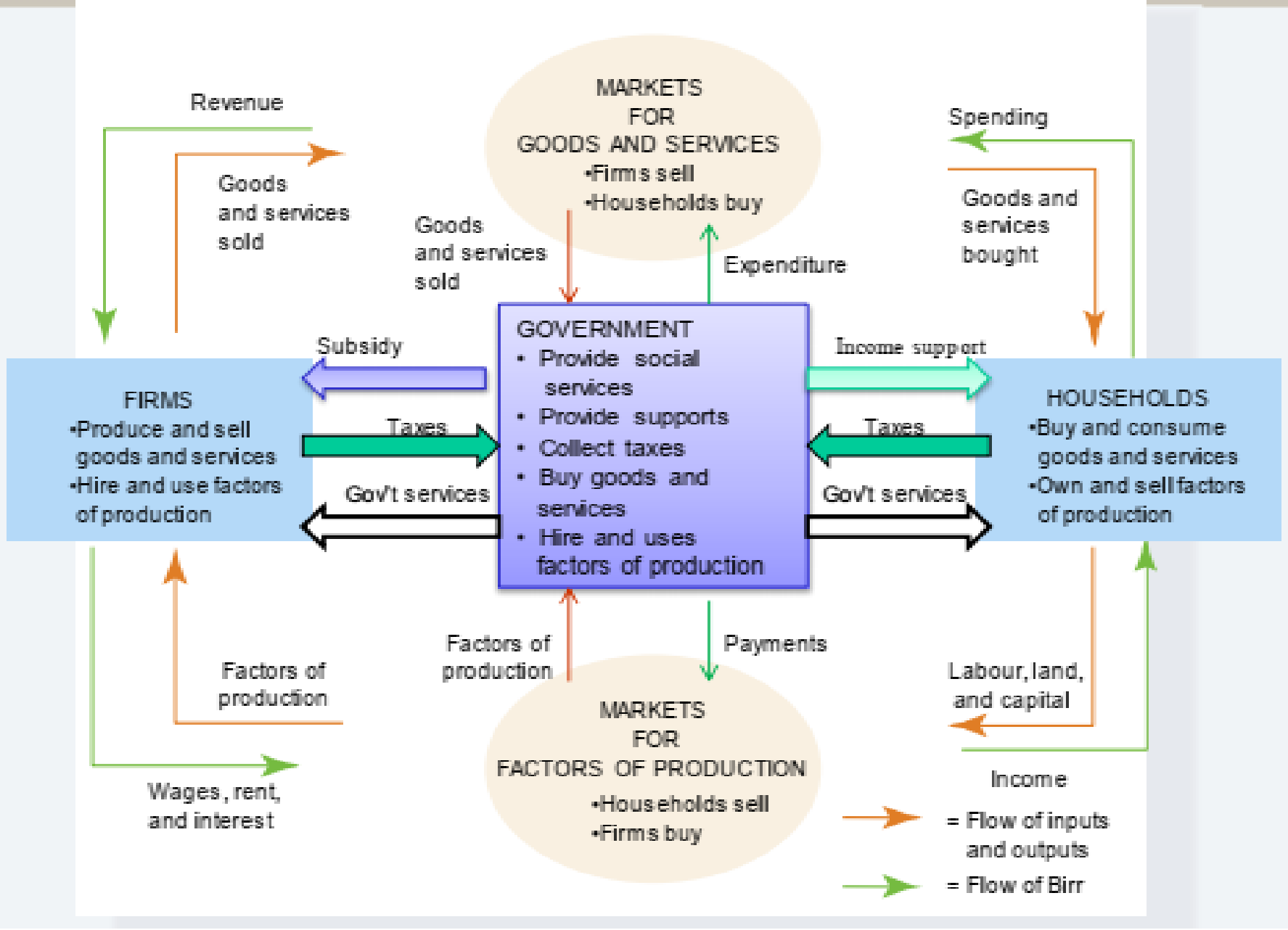
- **The circular-flow diagram** is a visual model of the economy that shows how money (Birr), economic resources and goods and services flows through markets among the decision making units.

- For simplicity, let‘s first see a two sector model where we have only households and business firms. (Fig 1.4)

- Then we have also a three sector model in which the government is involved in the economic activities. (Fig 1.5)



- Fig 1.4 A two sector Model



- Fig 1.5 A Three sector Model

End of Chapter One

CHAPTER TWO

THEORY OF DEMAND AND SUPPLY

Chapter Objectives

- Understand the concept of demand and the factors affecting it;
- Explain the supply side of a market and the determinants of supply;
- understand how the market reaches equilibrium condition, and the possible factors that could cause a change in equilibrium and
- explain the elasticity of demand and supply

2.1 Theory of demand

- Demand is one of the forces determining prices.
- Related to the economic activities of consumers-consumption.

- Demand implies **more than a mere** desire to purchase a commodity.

✓ It states that the consumer must be willing and able to purchase the commodity, which he/she desires.

✓ His/her desire should be backed by his/her purchasing power.

❑ Demand, thus, means the desire of the consumer for a commodity backed by purchasing power.

Demand is an effective desire

Therefore a desire become an effective desire(demand only when it is backed by

- ✓ Willingness to pay
- ✓ Ability to pay for the good desired
- ✓ Availability of the good

- ❑ More specifically, demand refers to various quantities of a commodity or service that a consumer would purchase at a given time in a market at various prices, given other things unchanged (ceteris paribus).

- Law of demand: is a principle of demand which states that , ceteris paribus, price of a commodity and its quantity demanded are inversely related

  - It is the basis for the downward sloping demand curve

Note- Demand and quantity demanded are two different concepts.

- Whereas *demand* refers to the relationship between the price of a commodity and its quantity demanded, other things being same

- the q*uantity demanded* refers to a specific quantity which a consumer is willing to buy at a specific price.

Demand schedule (table),curve and function

❖ The relationship that exists between price and the amount of a commodity purchased can be represented by a table (schedule) or a curve or an equation.

➢ An individual **demand schedule** is a list of the various quantities of a commodity, which an individual consumer purchases at various levels of prices in the market.

- **Is tabular statement** that states the different quantities of a commodity that would be demanded at different prices

Combinations	A	B	C	D	E
Price per kg	5	4	3	2	1
Quantity demand/week	5	7	9	11	13

Demand curve is a graphical representation of the relationship between different quantities of a commodity demanded by an individual at different prices per time period.

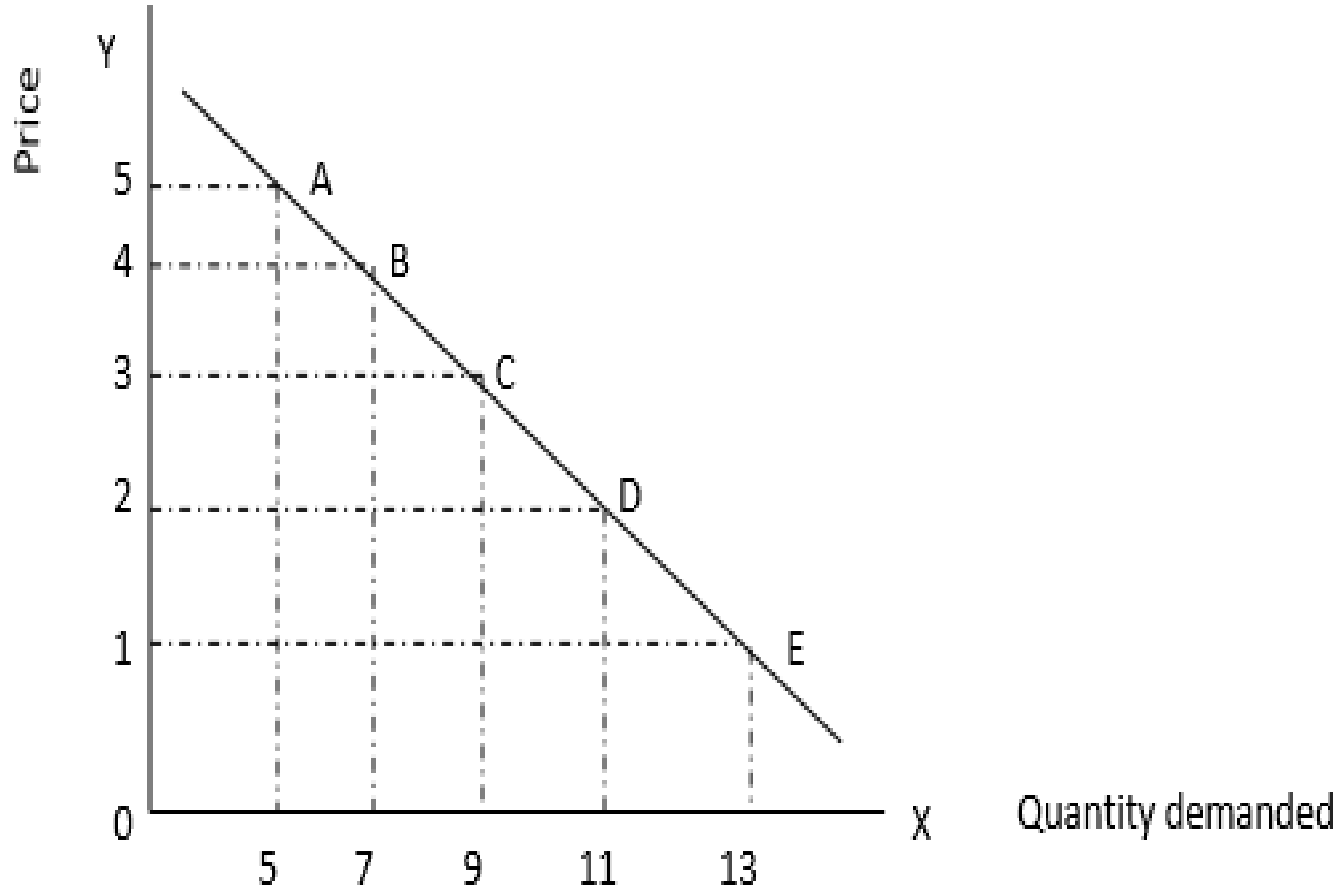


Figure 2.1: Individual demand curve

- **Demand function** is a mathematical relationship between price and quantity demanded, all other things remaining the same.

A typical demand function is given by: Qd=f(P)

Example: Let the demand function be Q = a+ bP

$$b = \frac{\Delta Q}{\Delta P}$$ (e.g. moving from point A to B on figure 2.1 above)

$$b = \frac{7-5}{4-5} = -2$$, where b is the slope of the demand curve

Q = a-2P, to find a, substitute price either at point A or B.

7= a-2(4), a = 15

Therefore, Q=15-2P is the demand function for orange in the above numerical example.

Individual Vs Market Demand:

- are not identical.

The market demand schedule, curve or function is derived by **horizontally adding** the quantity demanded for the product by **all buyers(individual demands)** at each price.

Table 2.2: Individual and market demand for a commodity

Price	Individual demand			Market demand
	Consumer-1	Consumer-2	Consumer-3	
8	0	0	0	0
5	3	5	1	9
3	5	7	2	14
0	7	9	4	20

The following graph depicts market demand curve at price equal to 3

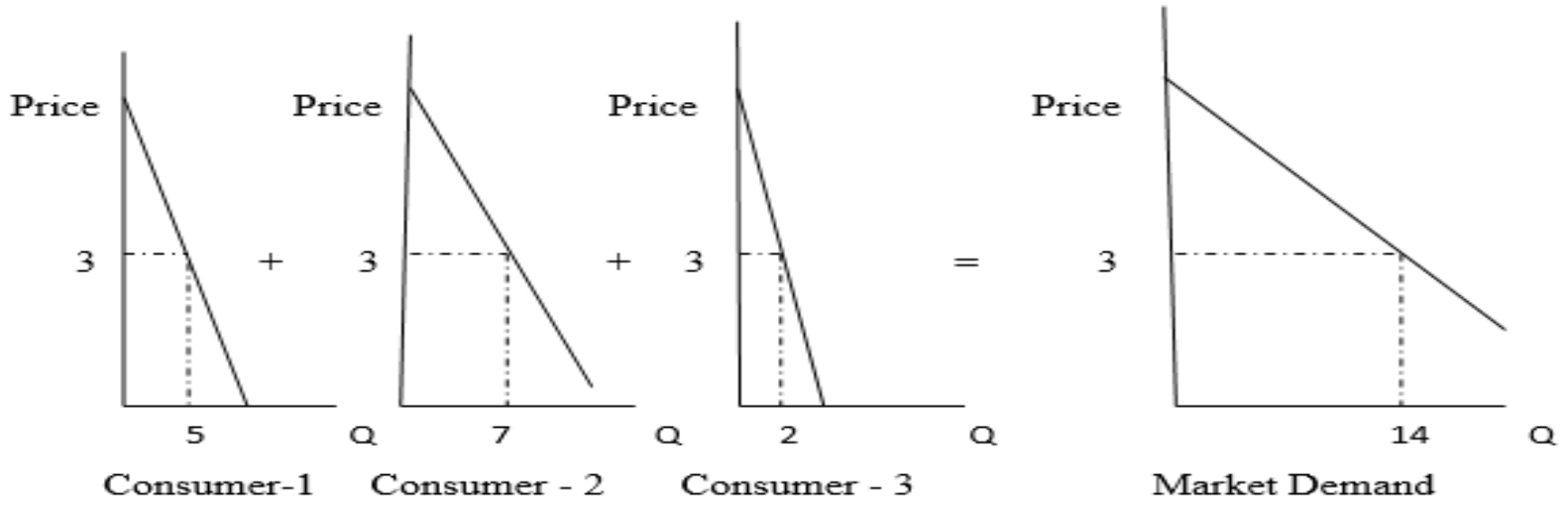


Figure 2.2: Individual and Market demand curve

- Numerical Example: Suppose the individual demand function of a product is given by: $P=10 - Q/2$ and there are about 100 identical buyers in the market. Then the market demand function is given by:

$$P= 10 - Q/2 \leftrightarrow Q/2 =10-P \leftrightarrow Q= 20 - 2P \text{ and}$$

$$Qm = (20 - 2P)\,100 = 2000-200P$$

Determinants of Demand

I. Price of the product

II. Taste or preference of consumers

III. **Income of the consumers**

IV. **Price of related goods**

V. Consumers expectation of income and price

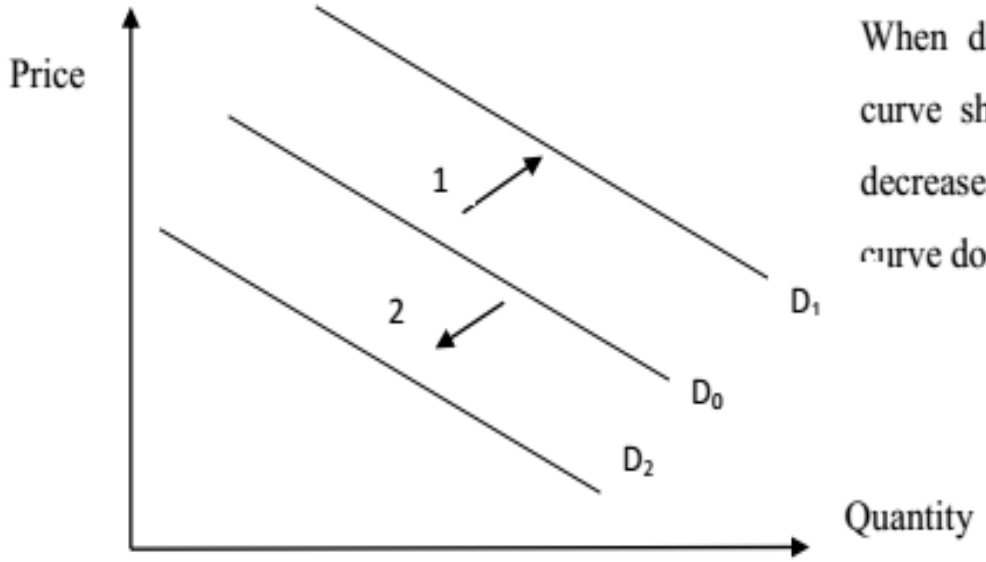
VI. Number of buyers in the market etc.

i) Price of the good is the most important factor affecting demand for a commodity.

- Ceteris paribus, if P increases Quantity demanded decreases, while if P decreases, quantity demanded increases.
- That is change in Price of the good, causes change in quantity demanded, Hence only a movement along the same demand curve. Upward and downward movement.

- A change in any of the above listed factors except the price of the good will **change the demand**, while a change in **the price**, other factors remain constant will bring change in **quantity demanded**.

- A change in demand will shift the demand curve from its original location. ⟹ **demand shifters.**



When demand increases, demand curve shifts upward (D_1) while a decrease in demand shifts demand curve downwards (D_2).

Figure 2.3: Shift in demand curve

Let us examine how each factor affect demand.

I. Taste or preference

- When the taste of a consumer changes in favour of a good, her/his demand will increase and the opposite is true.

II. Income of the consumer

- Generally when income increases, demand also increases, however an increase in come **doesn't invariably** leads to an increase in demand for all the commodities, it depends on the **nature of the commodity.**

- Normal Goods are goods whose demand increases as income increase-, while
- inferior goods are those whose demand is inversely related with income-poor quality goods, whose buyers are expected to shift to normal goods as their income increases.

III Price of related goods

- Two goods are said to be related if a change in the price of one good affects the demand for another good.

❑ Substitute goods are goods, which can be used in place of each other, to satisfy the same desire of the consumer.

Ex. tea and coffee or Paepsi and Coca-Cola.

- If two goods are substitutes, then price of one and the demand for the other are **directly related**.

❑ Complimentary goods goods which are jointly consumed to satisfy a given want.

- Ex. car and fuel or tea and sugar.
- If two goods are complements, then price of one and the demand for the other are **inversely related**.

IV. Consumer expectation of price

- Higher price expectation will increase demand while a lower future price expectation will decrease the demand for the good.

V. Number of buyer in the market

- Since market demand is the horizontal sum of individual demand, an increase in the number of buyers will increase demand while a decrease in the number of buyers will decrease demand.

Elasticity of demand

- is a measure of responsiveness(sensetivity) of a dependent variable to changes in an independent variable.

- Elasticity of demand refers to the degree of responsiveness of **quantity demanded** of a good to a change in its **price**, or change in **income,** or change in **prices of related goods.**

1) Price Elasticity of Demand

- degree of responsiveness of demand to change in price.
- indicates how consumers react to changes in price.
- how much the quantity demanded of a good responds to a change in the price of that good.
- The greater the reaction the greater will be the elasticity, and the lesser the reaction, the smaller will be the elasticity.

- Demand for commodities like clothes, fruit etc. changes when there is even a small change in their price, whereas

- Demand for commodities which are basic necessities of life like salt, food grains etc., may not change even if price changes, or it may change, but not in proportion to the change in price.

- computed as the percentage change in quantity demanded divided by the percentage change in price.

$$E_d^p = \frac{Percentage\ change\ in\ quantity\ demanded}{percentage\ change\ in\ price} = \frac{\%\Delta Q_d}{\%\Delta P}$$

- can be measured in two ways.

a. Point Price Elasticity of Demand

- calculated to find elasticity at a given point.

$$E_d^P = \frac{\Delta Q}{\Delta P} \cdot \frac{P_0}{Q_0}$$

- Example- The demand for tickets to an Ethiopian Camparada film is given by D(p)= 200,000- 10,000p, where p is the price of tickets. If the price of tickets is 12 birr, calculate price elasticity of demand for tickets and draw the demand curve.

b. Arc price elasticity of demand

- Between the two points.

$$E_d = \frac{Q_1 - Q_0}{Q_o + Q_1} \div \frac{P_1 - P_0}{P_o + P_1}$$

- Suppose that the price of a commodity is Br. 5 and the quantity demanded at that price is 100 units of a commodity. Now assume that the price of the commodity falls to Br. 4 and the quantity demanded rises to 110 units.

Note that:

- ✓ Elasticity of demand is unit free because it is a ratio of percentage change.
- ✓ Elasticity of demand is usually a negative number because of the law of demand. If the price elasticity of demand is positive the product is inferior.

i) If $|\varepsilon| > 1$, demand is said to be elastic and the product is luxury product

ii) If $0 \le |\varepsilon| < 1$, demand is inelastic and the product is necessity

iii) If $|\varepsilon| = 1$, demand is unitary elastic.

iv) If $|\varepsilon| = 0$, demand is said to be perfectly inelastic.

v) If $|\varepsilon| = \infty$, demand is said to be perfectly elastic.

Determinants of price Elasticity of Demand

i) **The availability of substitutes**: the more substitutes available for a product, the more elastic will be the price elasticity of demand.

ii) **Time**: In the long- run, it tends to be elastic because more substitute goods could be produced or/and People tend to adjust their consumption pattern.

iii) **The proportion of income** consumers spend for a product:

- the smaller the proportion of income spent for a good, the less price elastic will be.

iv) **The importance of the commodity in the consumers' budget**

- ✓ Luxury goods tend to be more elastic, example: gold.
- ✓ Necessity goods tend to be less elastic example: Salt.

v) **Possibility of postponement of consumption**

v) **Habit of the consumer** – ex-Smoker

ii. Income Elasticity of Demand

It is a measure of responsiveness of demand to change in income.

$$\varepsilon_d^I = \frac{\%\Delta Qd}{\%\Delta I} = \frac{\Delta Q}{\Delta I} \cdot \frac{I}{Q}$$

Point income elasticity of demand:

i) If $\varepsilon_d^I > 1$, the good is **luxury** good.

ii) If $\varepsilon_d^I < 1$ (and positive), the good is **necessity** good,

iii) If $\varepsilon_d^I < 0$, (negative), the good is **inferior** good.

iii. Cross price Elasticity of Demand

Measures how much the demand for a product is affected by a change in price of another good.

$$\varepsilon_{xy} = \frac{\%\Delta Qx}{\%\Delta P_y} = \frac{Q_{x_1} - Q_{x_0}}{P_{y_1} - P_{y_0}} \cdot \frac{P_{y_0}}{Q_{x_0}}$$

i) The cross – price elasticity of demand for substitute goods is **positive.**

ii) The cross – price elasticity of demand for complementary goods is **negative.**

iii) The cross – price elasticity of demand for unrelated goods is **zero.**

2.2 Theory of Supply

- **Supply** indicates various quantities of a product that sellers (producers) are willing and able to provide at different prices in a given period of time, other things remaining unchanged

- Note that **supply** shows a relationship between quantity supplied and price of a commodity, whereas
- **quantity supplied** refers to a specific quantity which a producer is willing to sell at a specific price.

- The law of supply: states that, **ceteris paribus**, there is a **positive relationship** between price and quantity supplied.

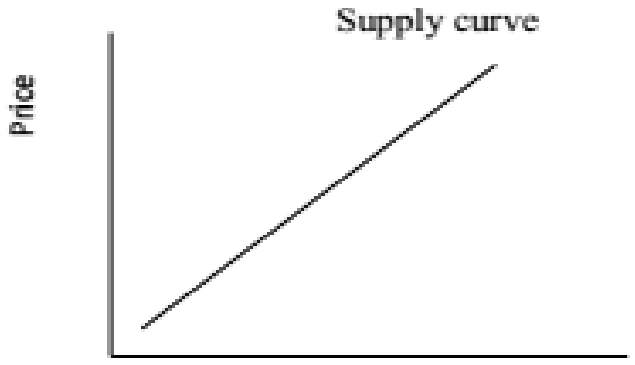
2.2.1 Supply schedule, supply curve and supply function

A supply schedule is a tabular statement that states the different quantities of a commodity offered for sale at different prices.

Table 2.3: an individual seller's supply schedule for butter

Price (birr per kg)	30	25	20	15	10
Quantity supplied kg/week	100	90	80	70	60

A supply curve conveys the same information as a supply schedule. But it shows the information graphically rather than in a tabular form.



In this diagram the quantities of oranges are measured along X axis and prices along Y axis. The supply curve slopes upward as we go from the left to the right. This means, as the price rises, more is offered for sale and vice-versa.

Figure 2.5 supply curve

The supply of a commodity can be briefly expressed in the following functional relationship:

$S = f(P)$, where S is quantity supplied and P is price of the commodity.

Individual Vs Market supply:

- Individual supply refers to the different quantities of a commodity offered for sale by an individual firm at different prices per time period
- Market supply is derived by horizontally adding the quantity supplied of the product by all sellers at each price.

Table 2.4: Derivation of the market supply of good X

Price per unit	Quantity supplied by seller 1	Quantity supplied by seller 2	Quantity supplied by seller 3	Market supply per week
5	11	15	8	34
4	10.5	13	7	30.5
3	8	11.5	5.5	25
2	6	8.5	4	18.5
1	4	6	2	12

Determinants of supply

i) price of the product

ii) price of inputs (cost of inputs)

iii) technology

iv) prices of related goods

v) sellers‘ expectation of price of the product

vi) taxes & subsidies

vii) number of sellers in the market

viii) weather, etc.

i) Price – is the most important determinant

- Causes changes in quantity demanded
- movement along the supply curve

ii) input price

An increase in the price of inputs such as labour, raw materials, capital, etc causes a decrease in the supply of the product which is represented by a leftward shift of the supply curve.

iii) Technology

- Technological advancement enables a firm to produce and supply more in the market. This shifts the supply curve outward.

iv) Effect of change in weather condition

- other things remain unchanged, good weather condition boosts the supply of agricultural products. This shifts the supply curve of a given agricultural product outward.

v) Price of related goods

An increase in the price of other, related goods induces the firms to produce more of those other goods, leading to a reduction in the supply of the goods whose price has remained unchanged.

Vi) **Taxes and subsidies**

vii) **Number of sellers**

Viii) **Sellers expectation of future prices**

Elasticity of supply

Price elasticity of supply

- the degree of responsiveness of the supply to change in price.

- a percentage change in quantity supplied divided by the percentage change in price.

- As the case with price elasticity of demand, we can measure the price elasticity of supply using point and arc elasticity methods.

- However, a simple and most commonly used method is point method.

$$Es = \frac{\%\ change\ in\ quantity\ \ supplied}{\%\ change\ in\ price} = \frac{\Delta Q}{Q} \div \frac{\Delta P}{P} = \frac{\Delta Q}{\Delta P} * \frac{P}{Q}$$

Like elasticity of demand, price elasticity of supply can be elastic, inelastic, unitary elastic, perfectly elastic or perfectly inelastic. The supply is elastic when a small change on price leads to great change in supply. It is inelastic or less elastic when a great change in price induces only a slight change in supply. If the supply is *perfectly inelastic*, it will be represented by a vertical line shown as below. If supply is *perfectly elastic* it will be represented by a horizontal straight line as in second diagram.

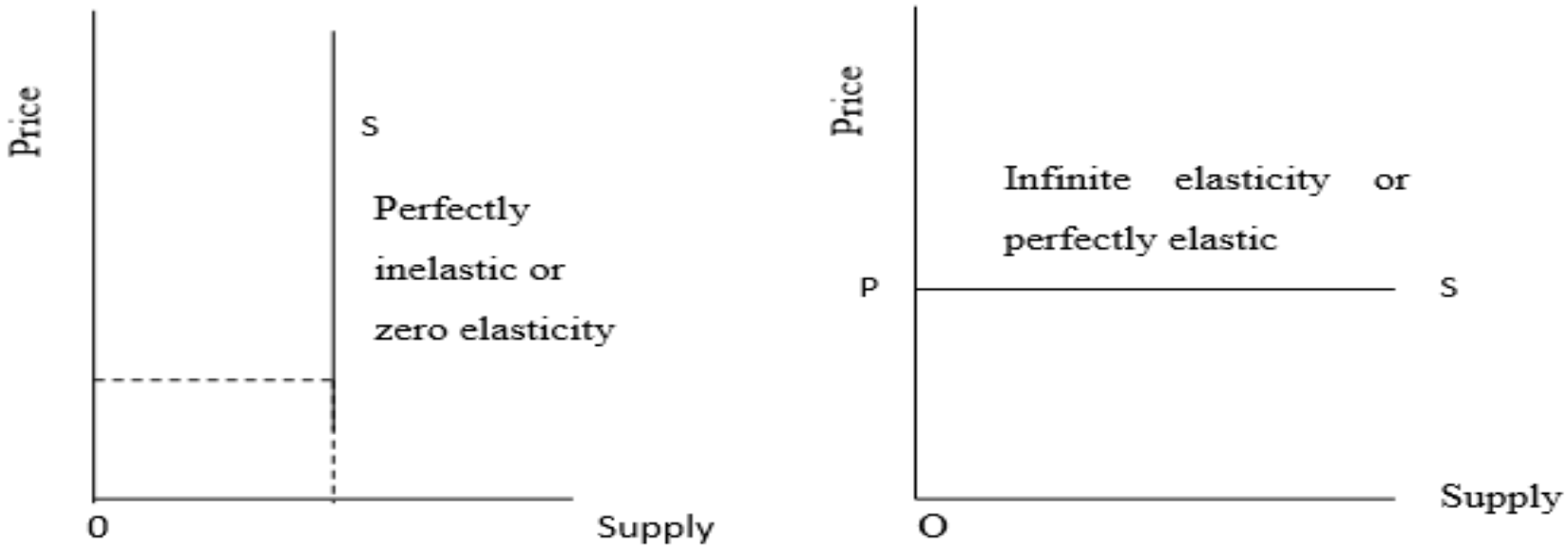
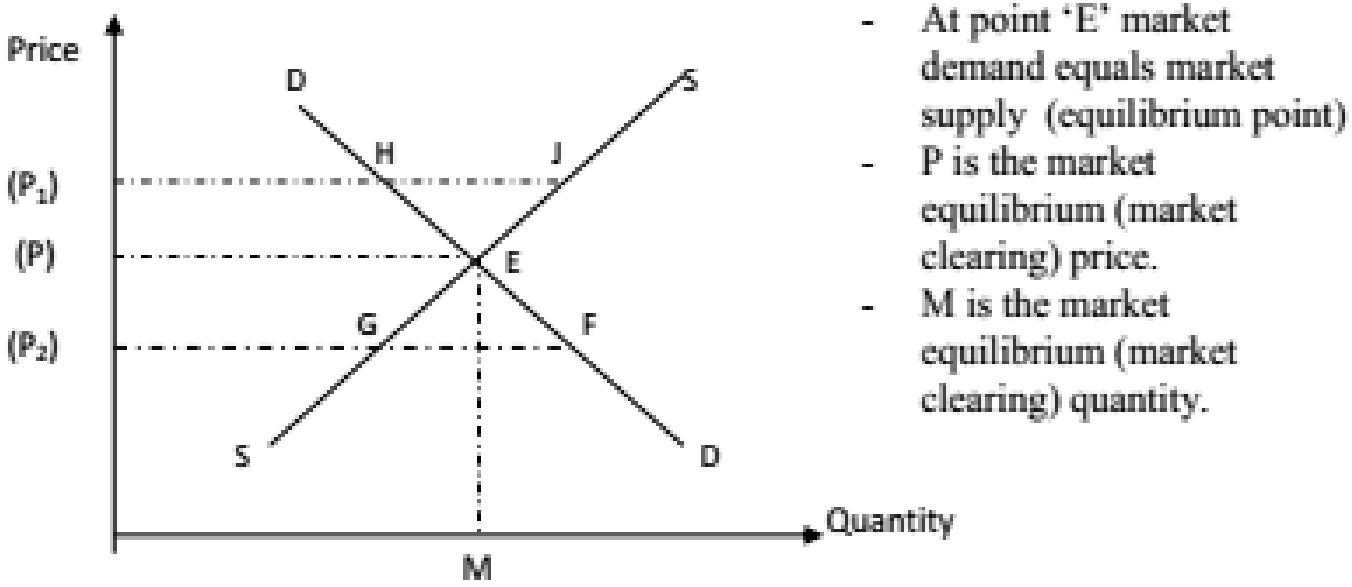


Figure 2.6: Perfectly inelastic and perfectly elastic supply curves

2.3 Market equilibrium

- Having seen the demand and supply side of the market, now let's bring demand and supply together so as to see how the market price of a product is determined.
- Market equilibrium occurs when market demand equals market supply.



- At point 'E' market demand equals market supply (equilibrium point)
- P is the market equilibrium (market clearing) price.
- M is the market equilibrium (market clearing) quantity.

Figure 2.7: market equilibrium

- In the above graph, any price greater than P will lead to market surplus. As the price of the commodity increases, consumers demand less of the product. On the other hand, as the price of increases, producers supply more of the good. Therefore, if price increases to P1 the market will have a surplus of HJ.
- If the price decreases to P2 buyers demand to buy more and suppliers prefer to decrease their supply leading to shortage in the market which is equal to GF.

Numerical example:

Given market demand: Qd= 100-2P, and market supply: P =(Qs /2) + 10

a) Calculate the market equilibrium price and quantity

b) Determine, whether there is surplus or shortage at P= 25 and P= 35.

Effects of shift in demand and supply on equilibrium

- Given demand and supply the equilibrium price and quantity are stable.

- However, when these market forces change what will happen to the equilibrium price and quantity?

- Changes in demand and supply bring about changes in the equilibrium price level and the equilibrium quantity.

i. when demand changes and supply remains constant

- Factors such as changes in income, tastes, and prices of related goods will lead to a change in demand.
- Supply being given, a decrease in demand reduces both the equilibrium price and the quantity and vice versa.

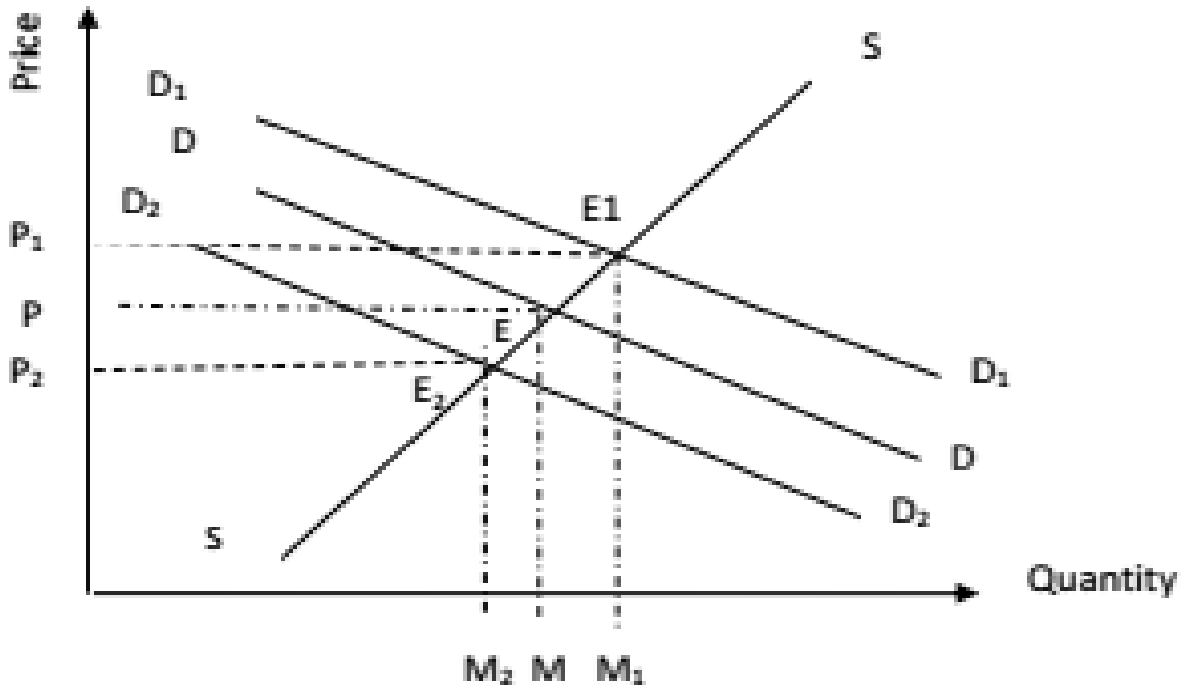


Figure 2.8: The effect of change in demand on market equilibrium

ii. When supply changes and demand remains constant

- Changes in supply are brought by changes in technical knowledge and factor prices.
- The following graph explains the effects of changes in supply.

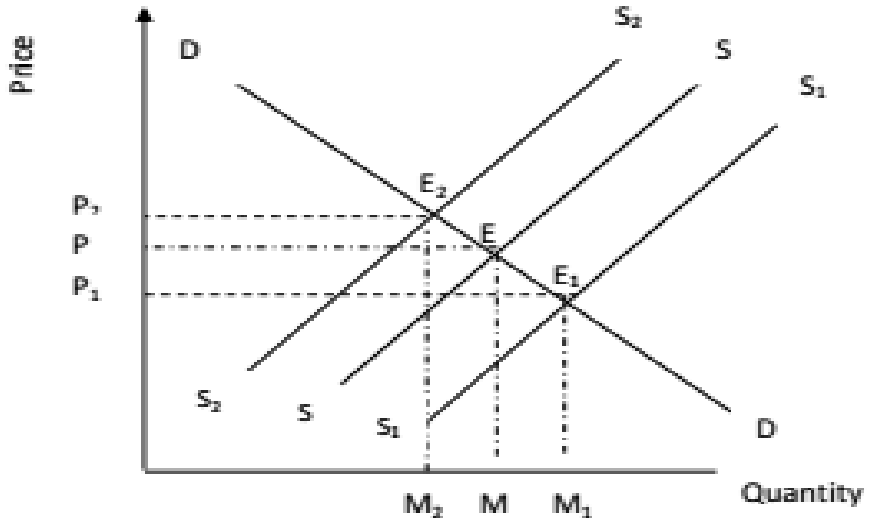


Figure 2.9: The effect of change in supply on market equilibrium

- Given the demand, increases in supply, reduces the equilibrium price and increases the equilibrium quantity.

III) Effects of combined changes in demand and supply

- When both **demand and supply increase**, the quantity of the product will increase definitely.

- But it is not certain whether the price will rise or fall. It depends on **the strength of the relative changes in demand and supply.**

- If an increase in demand is more than an increase in supply, then the price goes up.

- On the other hand, if an increase in supply is more than an increase in demand, the price falls but the quantity increases.

- If the increase in demand and supply is same, then the price remains the same.

❑ When **demand and supply decline**, the quantity decreases.

- But the change in price will depend upon the relative fall in demand and supply.

- When the fall in demand is more than the fall in supply, the price will decrease.

- On the other hand, when the fall in supply is more than the fall in demand, the price will rise.

- If both demand and supply decline in the same ratio, there is no change in the equilibrium price, but the quantity decreases.

END OF CHAPTER TWO

Chapter Three

THEORY OF CONSUMER BEHAVIOUR

?

- Have you ever thought of how your mother or any other person whom you know decides to buy those consumption goods and services? What do they consider ?

Introduction

- Consumer theory is based *"Consumers choose the best that they can afford."*
- Consumer behavior can be best understood in three steps.

1. First, by examining consumer's preference, we need a practical way to describe how people prefer one good to another.
2. We must take into account that consumers face budget constraints – they have limited incomes that restrict the quantities of goods they can buy.
3. Third, we will put consumer preference and budget constraint together to determine consumer choice.

Chapter objectives

- ❑ After successful completion of this chapter, you will be able to:

- ✓ explain consumer preferences and utility
- ✓ differentiate between cardinal and ordinal utility approach
- ✓ define indifference curve and discuss its properties
- ✓ derive and explain the budget line
- ✓ describe the equilibrium condition of a consumer

3.1 Consumer preferences

- A consumer makes choices by comparing bundle of goods.
- Given any two consumption bundles, the consumer either decides that one of the consumption bundles is strictly better than the other, or decides that she is indifferent between the two bundles.

i) If she always chooses X when Y is available, then

- this consumer prefers X to Y. so that **$X \succ Y$** that the consumer strictly prefers X to Y, in the sense that she definitely wants the X-bundle rather than the Y-bundle.

ii) If the consumer is indifferent between two bundles of goods, **$X \sim Y$**.

- Indifference means that the consumer would be just as satisfied, consuming the bundle X as she would be consuming bundle Y.

- If the consumer prefers or is indifferent between the two bundles we say that she weakly prefers X to Y. **$X \succeq Y$.**

❑ Given any two consumption bundles X and Y, the consumer definitely wants the X-bundle than the Y-bundle if and only if the utility of X is better than the utility of Y.

3.2 The concept of utility

- *Utility* describes the satisfaction or pleasure derived from the consumption of a good or service.
- It is the power of the product to satisfy human wants.
- Given any two consumption bundles X and Y, the consumer definitely wants the X-bundle than the Y-bundle if and only if the utility of X is better than the utility of Y.

Note:

- *Utility' and 'Usefulness' are not synonymous*.
- *usefulness* is product centric whereas *utility* is consumer centric For example, paintings by Picasso may be useless functionally but offer great utility to art lovers.

❖ *Utility is subjective.*

- The utility of a product will vary from person to person.
- That means, the utility that two individuals derive from consuming the same level of a product may not be the same.
- For example, non-smokers do not derive any utility from cigarettes.

❖ *Utility can be different at different places and time.*

- For example, the utility that we get from drinking coffee early in the morning may be different from the utility we get during lunch time.

○ ***How do you measure or compare the level of satisfaction (utility) that you obtain from goods and services?***

3.3 Approaches of measuring utility

- There are two major approaches to measure or compare consumer‘s utility: cardinal and ordinal approaches.

- The cardinalist school postulated that utility can be measured objectively.

- According to the ordinalist school, utility is not measurable in cardinal numbers rather the consumer can rank or order the utility he derives from different goods and services.

3.3.1 The cardinal utility theory

- Utility is measurable by arbitrary unit of measurement called ***utils*** in the form of 1, 2, 3 etc.
- For example, we may say that consumption of an orange gives Bilen 10 utils and a banana gives her 8 utils, and so on.
- From this, we can assert that Bilen gets more satisfaction from orange than from banana.

Assumptions

- Rationality of consumers
- Utility is cardinally measurable
- Constant marginal utility of money
- Diminishing marginal utility (DMU)
- Total utility of a basket of goods depends on the quantities of the individual commodities. TU = f (*X1* , *X2* .....*X n*).

- **Total Utility** (TU) is the total satisfaction a consumer gets from consuming some specific quantities of a commodity at a particular time.

- As the consumer consumes more of a good per time period, his/her total utility increases.
- However, there is a saturation point for that commodity beyond which the consumer will not be capable of enjoying any greater satisfaction from it.

- **Marginal Utility** (MU) is the *extra satisfaction* a consumer realizes from an additional unit of the product.

- It is the change in total utility that results from the consumption of one more unit of a product.
- Graphically, it is the slope of total utility.

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

- ***Table 3.1: Total and marginal utility***

Quantity	Total utility (TU)	Marginal utility (MU)
0	0	-
1	10	10
2	18	8
3	24	6
4	28	4
5	30	2
6	30	0
7	28	-2

- TU first increases, reaches the maximum (when the consumer consumes 6 units) and then declines as the quantity consumed increases.
- MU continuously declines (even becomes zero or negative) as quantity consumed increases.

Graphically, the above data can be depicted as follows.

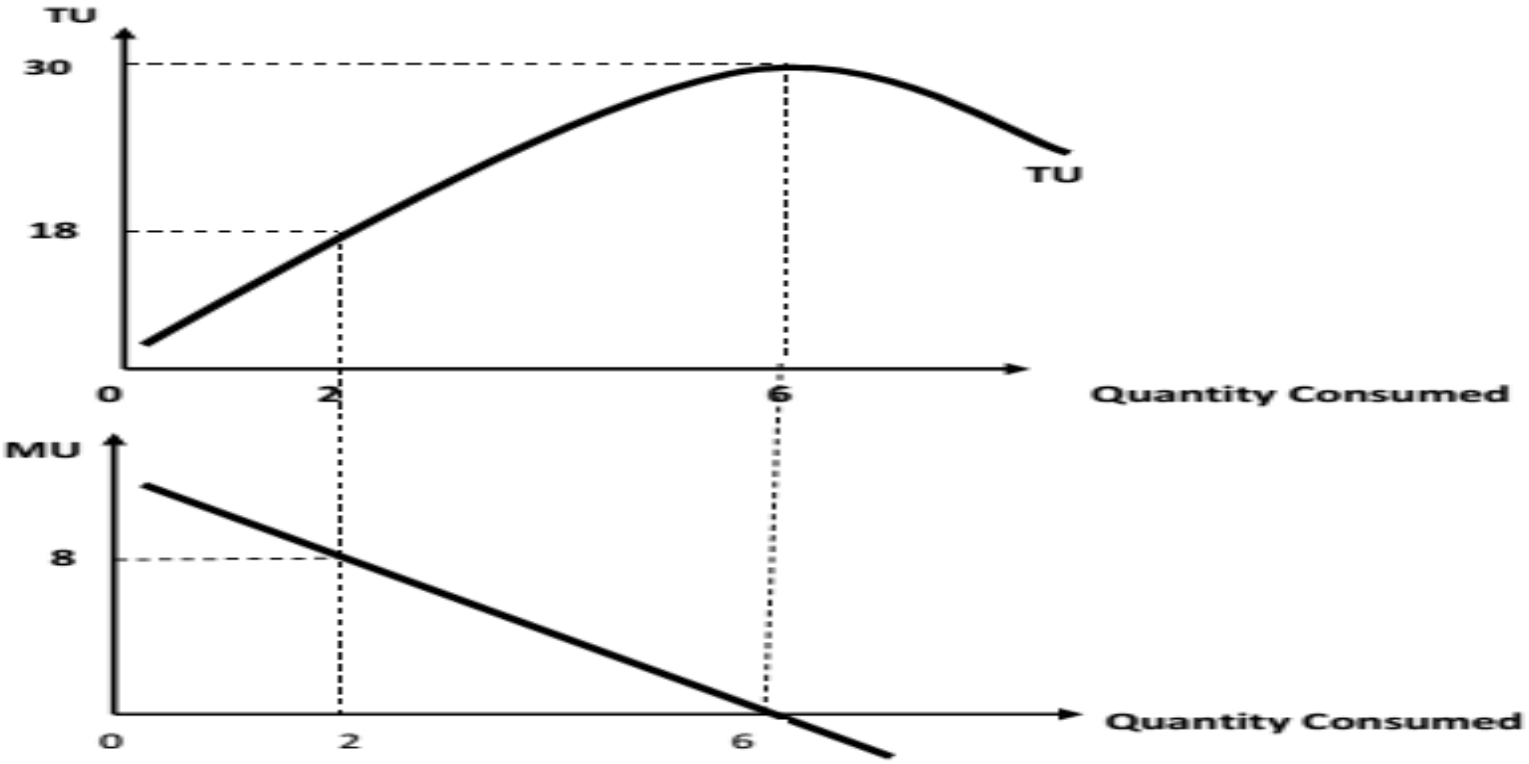


Figure 3.1: Total and marginal utility curves

- As it can be observed from the above figure,
  When TU is increasing, MU is positive.
  When TU is maximized, MU is zero.
  When TU is decreasing, MU is negative.

The Law of diminishing marginal utility (LDMU)

- states that as the quantity consumed of a commodity increases per unit of time, the utility derived from each successive unit decreases, consumption of all other commodities remaining constant.
- the extra satisfaction that a consumer derives declines as he/she consumes more and more of the product in a given period of time.

- The law is based on the following assumptions.
  - ✓The consumer is rational
  - ✓The consumer consumes identical or homogenous product.
  - ✓There is no time gap in consumption of the good
  - ✓The consumer taste/preferences remain unchanged

Equilibrium of a consumer

- The objective of a rational consumer is to maximize total utility.

- As long as the additional unit consumed brings a positive marginal utility, the consumer wants to consumer more of the product because total utility increases.

- However, given his limited income and the price level of goods and services, what combination of goods and services should he consume so as to get the maximum total utility?

a) the case of one commodity

- The equilibrium condition of a consumer that consumes a single good X occurs when the MU of X is equal to its market price.

$$MUX = PX$$

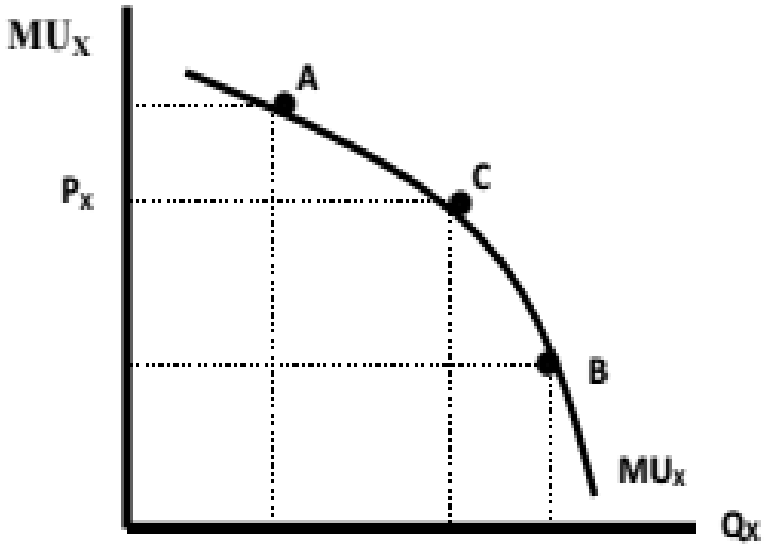


Figure 3.2: Equilibrium condition of consumer with only one commodity

At any point above point C (like point A) where $MU_X > P_X$, it pays the consumer to consume more. When $MU_X < P_X$ (like point B), the consumer should consume less of X. At point C where $MU_X = P_X$ the consumer is at equilibrium.

b) the case of two or more commodities

- the consumer's equilibrium is achieved when the marginal utility per money spent is equal for each good purchased and his money income available for the purchase of the goods is exhausted.
- That is,

$$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y} = \cdots = \frac{MU_N}{P_N} \quad \text{and} \quad P_X Q_X + P_Y Q_Y + \cdots + P_N Q_N = M$$

where, M is the income of the consumer.

Example: Suppose Saron has 7 Birr to be spent on two goods: banana and bread. The unit price of banana is 1 Birr and the unit price of a loaf of bread is 4 Birr. The total utility she obtains from consumption of each good is given below.

Table 3.2: Utility schedule for two commodities

Income = 7 Birr, Price of banana = 1 Birr, Price of bread = 4 Birr							
Banana				*Bread*			
Quantity	*TU*	*MU*	*MU/P*	*Quantity*	*TU*	*MU*	*MU/P*
0	0	-	-	0	0	-	-
1	6	6	6	1	12	12	3
2	11	5	5	2	20	8	2
3	14	3	3	3	26	6	1.5
4	16	2	2	4	29	3	0.75
5	16	0	0	5	31	2	0.5
6	14	-2	-2	6	32	1	0.25

- Recall that utility is maximized when

$$\frac{MU_1}{P_1} = \frac{MU_2}{P_2}$$

- ❑ Saron will be at equilibrium when she consumes 3 units of banana and 1 loaf of bread

Limitation of the cardinal approach

- ❖ The assumption of cardinal utility is doubtful because utility may not be quantified.
  - Utility cannot be measured absolutely (objectively).

- ❖ The assumption of constant MU of money is unrealistic because as income increases, the marginal utility of money changes.

3.3.2 The ordinal utility theory

- It is not possible for consumers to express the utility of various commodities they consume in absolute terms, like 1 util, 2 utils, or 3 utils but
- it is possible to express the utility in relative terms.
- The consumers can rank commodities in the order of their preferences as 1st, 2nd, 3rd and so on.

Assumptions

- Consumers are rational
- Utility is ordinal
- Diminishing marginal rate of substitution
- Total utility (TU) = f (*X1* , *X2* .....*X n*).
- Consumer's preferences are consistent and *transitivity*

- The ordinal utility approach is explained with the help of indifference curves. Therefore, the ordinal utility theory is also known as the *indifference curve approach.*

❑ ***Indifference schedule/*curve** shows different combination of goods for which the consumer is indifferent.

- It shows the various combinations of two goods from which the consumer derives the same level of utility (satisfaction).

○ A set of indifference curves is called **indifference map.**

Table 3.3: Indifference schedule

Bundle (Combination)	A	B	C	D
Orange	1	2	4	7
Banana	10	6	3	1

- Each combination of good X and Y gives the consumer equal level of total utility. Thus, the individual is indifferent whether he consumes combination A, B, C or D.

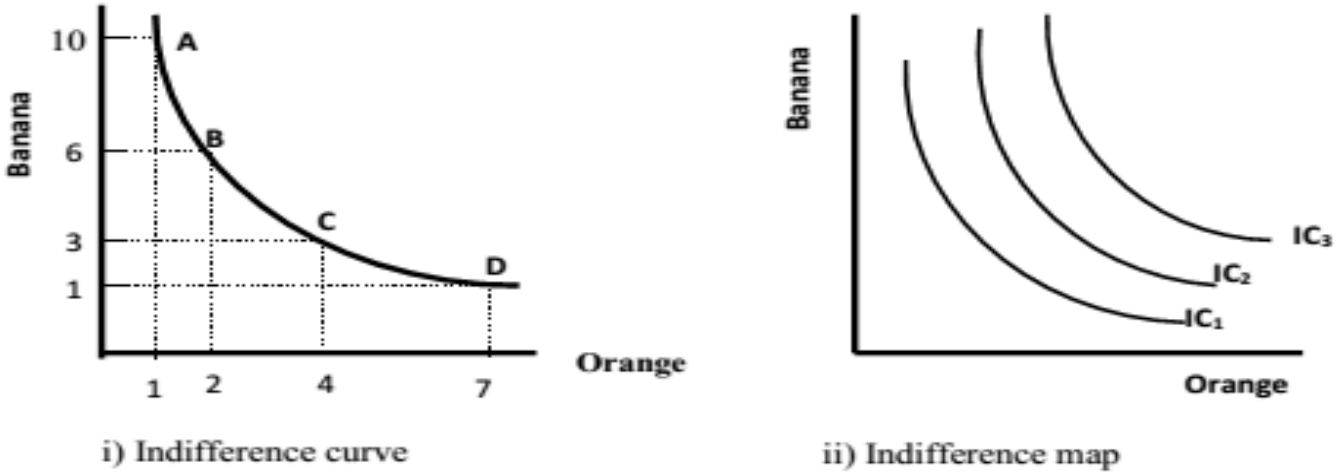


Figure 3.3: Indifference curve and indifference map

❑ Properties of indifference curves

i) have negative slope (downward sloping to the right)

ii) are convex to the origin- the diminishing marginal rate of substitution since the commodities are not perfect substitutes.

iii) A higher IC is always preferred to a lower one

iv) never cross each other (cannot intersect).-The assumptions of consistency and transitivity

- Figure 3.4 shows the violations of the assumptions of preferences due to the intersection of indifference curves.

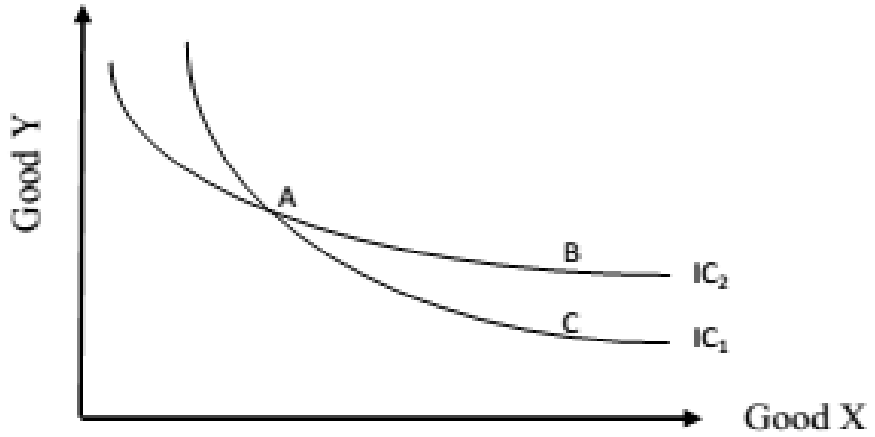


Figure 3.4: Intersection of indifference curves

- The consumer prefers bundle B to bundle C. On the other hand, following IC1, the consumer is indifferent between bundle A and C, and along IC2 the consumer is indifferent between bundle A and B. According to the principle of transitivity, this implies that the consumer is indifferent between bundle B and C which is contradictory or inconsistent with the initial statement where the consumer prefers bundle B to C.
- Therefore, indifference curves never cross each other.

Marginal rate of substitution (MRS)

- is a rate at which consumers are willing to substitute one commodity for another in such a way that the consumer remains on the same indifference curve.
- It shows a consumer‘s willingness to substitute one good for another while he/she is indifferent between the bundles.
- MRS of X for Y is $$MRS_{X,Y} = \frac{Number\ of\ units\ of\ Y\ given\ up}{Number\ of\ units\ of\ X\ gained} = -\frac{\Delta Y}{\Delta X}$$
- Since one of the goods is scarified to obtain more of the other good, the MRS is negative.
- Hence, usually we take the absolute value of the slope.

To understand the concept, consider the following indifference curve.

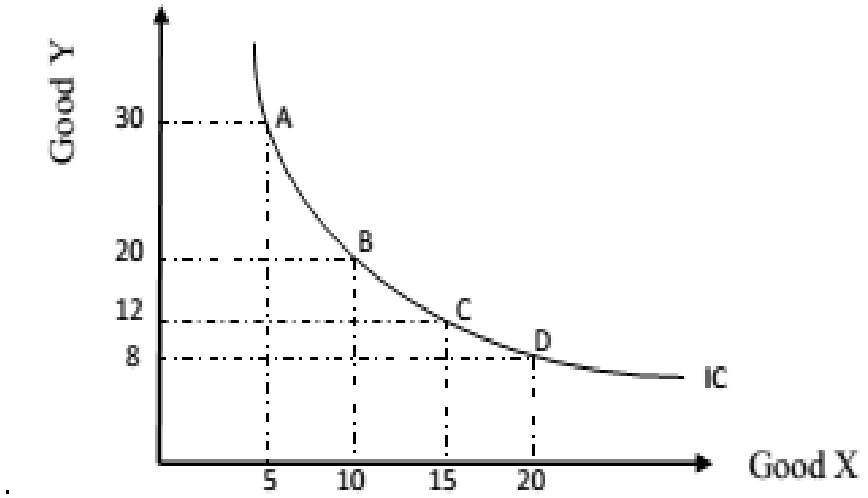


Figure 3.5: Indifference curve for two products X and Y

- MRSX,Y associated with the movement from point A to B, point B to C and point C to D is 2.0,1.6, and 0.8 respectively.

- That is, for the same increase in the consumption of good X, the amount of good Y the consumer is willing to scarify diminishes.
- This principle is reflected by the convex shape of the indifference curve and is called diminishing marginal rate of substitution.

It is also possible to derive MRS using the concept of marginal utility. $MRS_{X,Y}$ is related to MU_X and MU_Y as follows.

$$MRS_{X,Y} = \frac{MU_X}{MU_Y}$$

Proof: Suppose the utility function for two commodities X and Y is defined as:

$$U = f(X, Y)$$

Since utility is constant along an indifference curve, the total differential of the utility function will be zero.

$$dU = \frac{\partial U}{\partial X} dX + \frac{\partial U}{\partial Y} dY = 0$$

$$MU_X dX + MU_Y dY = 0$$

$$\frac{MU_X}{MU_Y} = -\frac{dY}{dX} = MRS_{X,Y} \qquad \text{Similarly, } \frac{MU_Y}{MU_X} = -\frac{dX}{dY} = MRS_{Y,X}$$

Example: Suppose a consumer's utility function is given by $U(X,Y) = X^4Y^2$. Find $MRS_{X,Y}$

Solution: $MRS_{X,Y} = \frac{MU_X}{MU_Y}$

$MU_X = \frac{\partial U}{\partial X} = 4X^3Y^2$ *and* $MU_Y = \frac{\partial U}{\partial Y} = 2X^4Y$ Hence, $MRS_{X,Y} = \frac{MU_X}{MU_Y} = \frac{4X^3Y^2}{2X^4Y} = \frac{2Y}{X}$

The budget line or the price line

- Indifference curves only tell us about consumer preferences for any two goods but they cannot show which combinations of the two goods will be bought.
- In reality, the consumer is constrained by his/her income and prices of the two commodities.
- This constraint is often presented with the help of the budget line.

❑ The *budget line* is a set of the commodity bundles that can be purchased if the entire income is spent.

- It is a graph which shows the various combinations of two goods that a consumer can purchase given his/her limited income and the prices of the two goods.

❑ We can express the budget constraint as:

$$M = P_X X + P_Y Y$$

- By rearranging the above equation, we can derive the following general equation of a budget line.

$$Y = \frac{M}{P_Y} - \frac{P_X}{P_Y} X$$

- Graphically

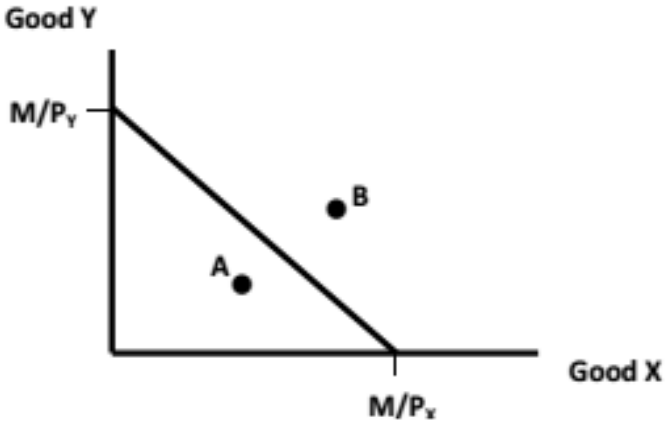


Figure 3.6: The budget line

- The slope of the budget line is given is by the ratio of the prices of the two goods (–Px/Py)

- **Example:** A consumer has $100 to spend on two goods X and Y with prices $3 and $5 respectively. Derive the equation of the budget line and sketch the graph.

Solution: The equation of the budget line can be derived as follows.

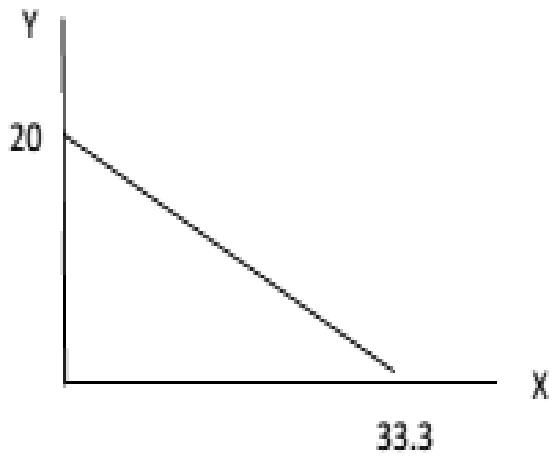
$$P_X X + P_Y Y = M$$

$$3X + 5Y = 100$$

$$5Y = 100 - 3X$$

$$Y = \frac{100}{5} - \frac{3}{5}X$$

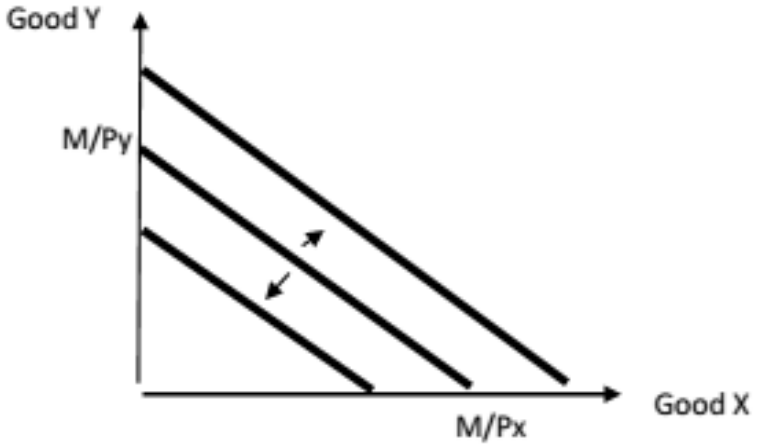
$$Y = 20 - \frac{3}{5}X$$



- Recall that a budget is drawn for given prices and fixed consumer‘s income.
- Hence, the changes in prices or income will affect the budget line.

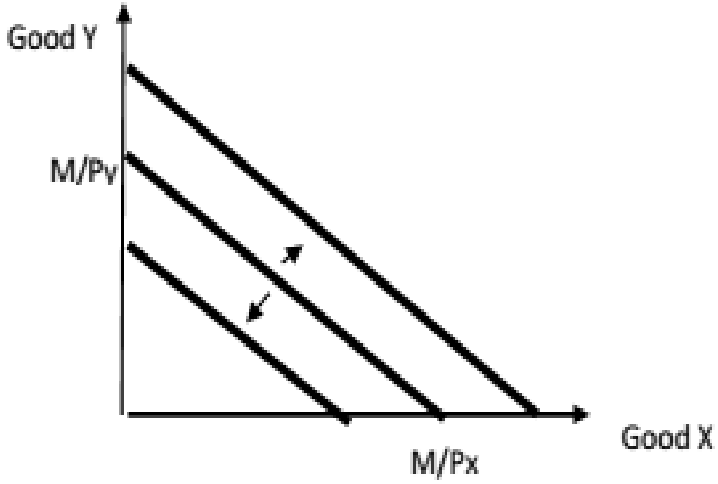
❑ Change in income:

- If the income of the consumer changes (keeping the prices of the commodities unchanged), the budget line also shifts (changes).
- Increase in income causes an upward/outward shift in the budget line that allows the consumer to buy more goods and services and decreases in income causes a downward/inward shift in the budget line that leads the consumer to buy less quantity of the two goods.
- The slope of the budget line (the ratio of the two prices) does not change when income rises or falls.



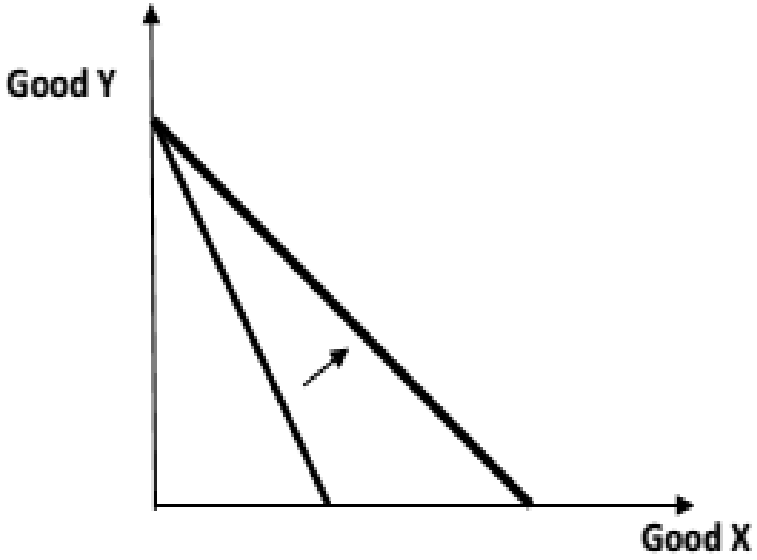
❑ Change in prices:

- An equal increase in the prices of the two goods shifts the budget line inward.
- Since the two goods become expensive, the consumer can purchase the lesser amount of the two goods.
- An equal decrease in the prices of the two goods, one the other hand, shifts the budget line out ward.
- Since the two goods become cheaper, the consumer can purchase the more amounts of the two goods.



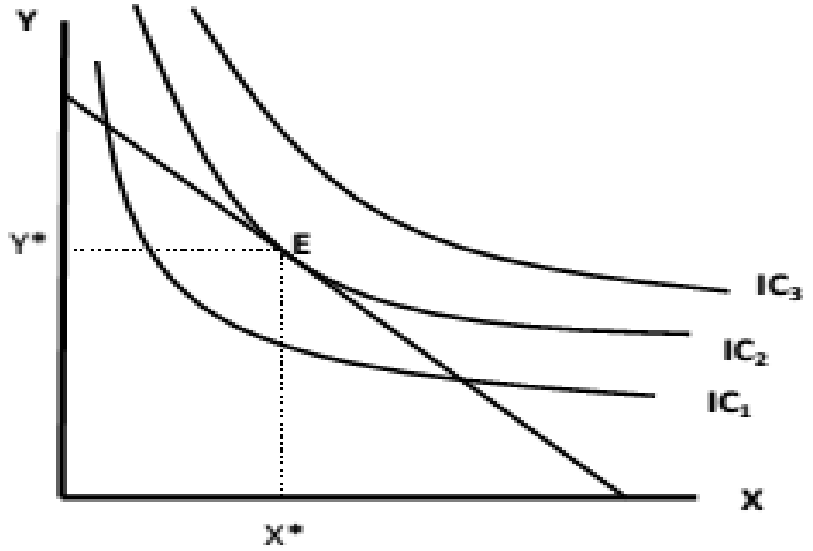
- An increase or decrease in the price of one of the two goods, keeping the price of the other good and income constant, changes the slope of the budget line by affecting only the intercept of the commodity that records the change in the price.

- For instance, if the price of good X decreases while both the price of good Y and consumer‘s income remain unchanged, the horizontal intercept moves outward and makes the budget line flatter.



Equilibrium of the consumer

- The preferences of a consumer (what he/she wishes to purchase) are indicated by the indifference curve.
- The budget line specifies different combinations of two goods (say X and Y) the consumer can purchase with the limited income.
- Therefore, a rational consumer tries to attain the highest possible indifference curve, given the budget line.
- Where the indifference curve is tangent to the budget line so that the slope of the indifference curve (*MRSxy*) is equal to the slope of the budget line (Px/Py).
- The equilibrium of the consumer is at point where the budget line is tangent to the highest attainable indifference curve .



- Mathematically, consumer optimum (equilibrium) is attained at the point where:

Slope of indifference curve = Slope of the budget line

$$MRS_{XY} = \frac{P_X}{P_Y}$$

$$\Rightarrow \frac{MU_X}{MU_Y} = \frac{P_X}{P_Y}$$

Example: A consumer consuming two commodities X and Y has the utility function $U(X,Y)=XY+2X$. The prices of the two commodities are 4 birr and 2 birr respectively. The consumer has a total income of 60 birr to be spent on the two goods.

a) Find the utility maximizing quantities of good X and Y.

b) Find the $MRS_{X,Y}$ at equilibrium.

Solution

a) The budget constraint of the consumer is given by:

$P_X.X + P_Y.Y = M$

$4X+2Y= 60$ ..... (i)

Moreover, at equilibrium

$$\frac{MU_X}{MU_Y}=\frac{P_X}{P_Y}$$

$$\frac{Y+2}{X}=\frac{4}{2}$$

$$\frac{Y+2}{X}=2$$

$$Y=2X-2 \quad \text{..... (ii)}$$

Substituting equation (ii) into (i), we obtain $Y=14$ *and* $X=8$.

b) $MRS_{X,Y}=\frac{MU_X}{MU_Y}=\frac{Y+2}{X}=\frac{14+2}{8}=2$

(At the equilibrium, MRS can also be calculated as the ratio of the prices of the two goods)

END OF CHAPTER THREE

Chapter Four

The Theory of Production and Cost

Chapter objectives

❑ you will be able to:

- define production and production function
- differentiate between fixed and variable inputs
- describe short run total product, average product and marginal product
- compare and contrast the three stages of production in the short run
- explain the difference between accounting cost and economic cost
- describe total cost, average cost and marginal cost functions
- explain the relationship between short run production functions and short run cost functions

4.1 Theory of production in the short run

❑ Production

- is the process of transforming inputs into outputs.
- It is an act of creating value or utility.

❑ Production function

- is a technical relationship between inputs and outputs.

- shows the maximum output that can be produced with fixed amount of inputs and the existing technology.
- A general production function can be described as:

$$Q = f(X1, X2, X3, \ldots, Xn)$$

where, Q is output and X1, X2, X3,…, Xn are different types of inputs.

❑ **Outputs** -the end products of the production process.

- could be tangible (goods) or intangible (services).

❑ **Inputs** includes land, labour, capital and entrepreneurial ability, which are used to transform raw materials into outputs.

- commonly classified as

i) Fixed inputs

- inputs whose quantity cannot readily be changed when market conditions indicate that an immediate adjustment in output is required.

In fact, no input is ever absolutely fixed but may be fixed during an immediate requirement.

- Ex. Buildings, land and machineries.

ii) Variable inputs

- inputs whose quantity can be altered almost instantaneously in response to desired changes in output.
- their quantities can easily be diminished when the market demand for the product decreases and vice versa.
- Ex. unskilled labour.

❑ In economics, economic periods of production are classified

a) ***Short run*** a period of time in which the quantity of at least one input is fixed.

- a time period which is not sufficient to change the quantities of all inputs so that at least one input remains fixed.

b) ***Long Run*** a period of time in which the quantity of all input is variable.

- Different firms have different Short run and long run periods of durations. Some firms can change the quantity of all their inputs within a month while it takes more than a year for other types of firms.

- Consider a firm that uses two inputs: capital (fixed) and labour (variable). Given the assumptions of short run production, the firm can increase output only by increasing the amount of labour.

- Hence, its production function can be given by:

Q = f (L) where, Q is output and L is the quantity of labour.

- Output can be changed only when the amount of labour changes.

- Thus the short run production function shows different levels of output that the firm can produce by efficiently utilizing different units of labour and the fixed capital.

Total, average, and marginal product

In short run, the contribution of a variable input can be described in-

❑ Total product (TP)

- is the total amount of output that can be produced by efficiently utilizing specific combinations of the variable input and fixed input.

- Increasing the variable input (while some other inputs are fixed) can increase the total product only up to a certain point.

- Initially, as we combine more and more units of the variable input with the fixed input, output continues to increase, but eventually if we employ more and more unit of the variable input beyond the carrying capacity of the fixed input, output tends to decline.

- In general, the TP function in the short run initially increases at an increasing rate, then increases at a decreasing rate, reaches a maximum point and eventually falls as the quantity of the variable input rises.

❑ Marginal Product (MP):

- is the change in output attributed to the addition of one unit of the variable input to the production process, other inputs being constant.
- The change in total output resulting from employing additional worker (holding other inputs constant) is the marginal product of labour (MP_L).
- measures the slope of the total product curve at a given point.

$$MP_L = dTP/dL = \Delta Q/\Delta L$$

- first increases, reaches its maximum and then decreases to the extent of being negative.
- That is, as we continue to combine more and more of the variable input with the fixed input, the marginal product of the variable input increases initially and then declines.

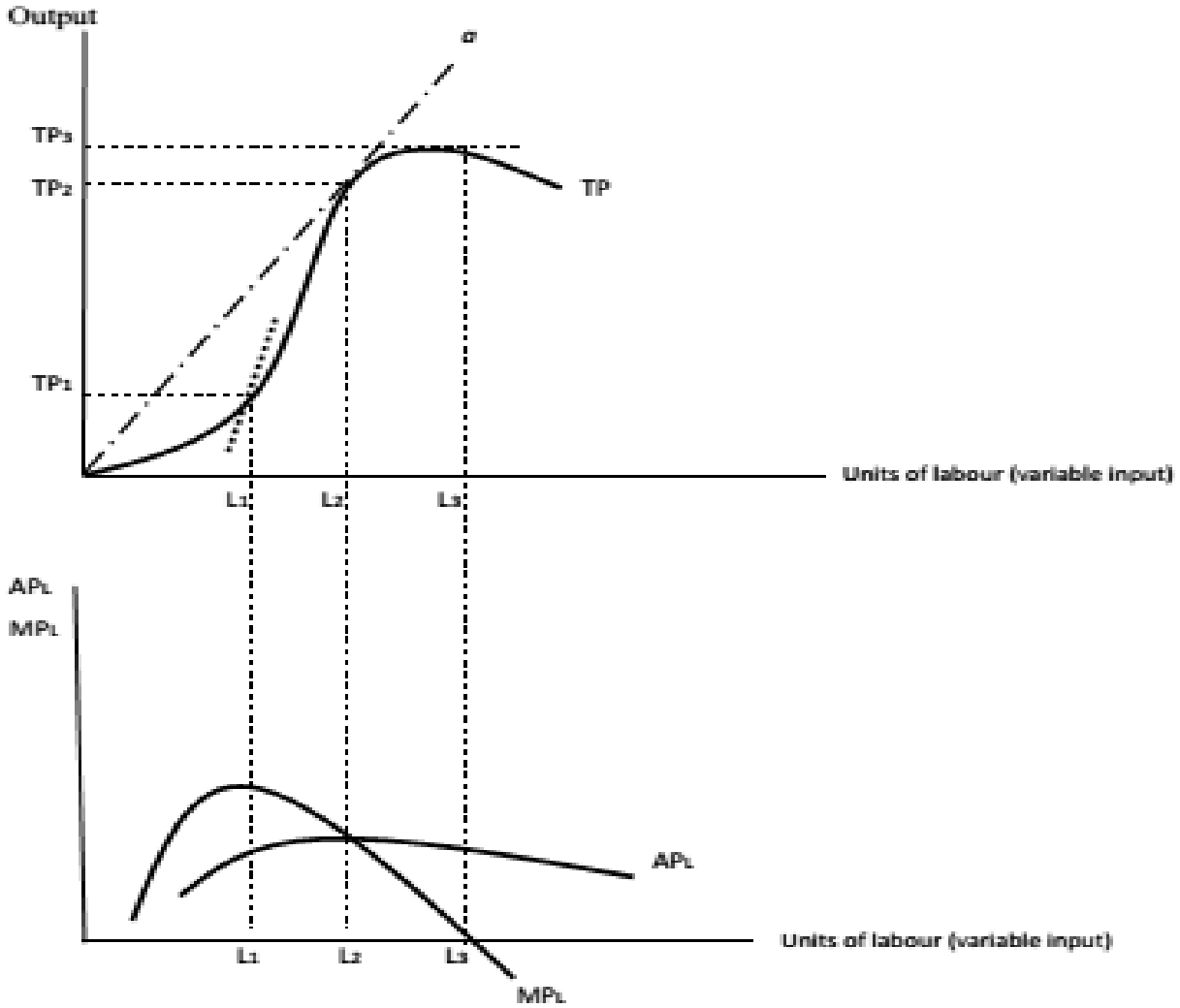
❑ Average Product (AP)

- is the level of output that each unit of input produces, on the average.
- the mean contribution of each variable input to the total product.
- it is the ratio of total output to the number of the variable input.
- The average product of labour (APL)

$$APL=TP/L$$

- first increases, reaches its maximum value and eventually declines.

- The shape of TP, MP,AP can be illustrated using the following **graph**



- When APL is increasing, MPL > APL.
- When APL is at its maximum, MPL = APL.
- When APL is decreasing, MPL < APL.

❖ Example:

Suppose that the short-run production function of certain cut-flower firm is given by: $Q=4KL-0.6K^2-0.1L^2$

where Q is quantity of cut-flower produced, L is labour input and K is fixed capital input (K=5).

a) Determine the AP_L function.
b) At what level of labour does the total output of cut-flower reach the maximum?
c) What will be the maximum achievable amount of cut-flower production?

The law of variable proportions(law of diminishing returns)

- as successive units of a variable input(say, labour) are added to a fixed input (say, capital or land), beyond some point the MP that can be attributed to each additional unit of the variable resource will decline.
- If additional workers are hired to work with a constant amount of capital equipment, output will eventually rise by smaller and smaller amounts as more workers are hired.
  - The law assumes that technology is fixed and thus the techniques of production do not change.
  - Moreover, all units of labour are assumed to be of equal quality.
  - Each successive worker is presumed to have the same innate ability, education, training, and work experience.

- Marginal product ultimately diminishes because more workers are being used relative to the amount of plant and equipment available.
- The law starts to operate after the marginal product curve reaches its maximum

Stages of production

Stage I:

- Covers the range of variable input levels over which APL continues to increase.
- From the origin to the MPL=APL where the APL is maximum.
- is not an efficient region of production though the MP of variable input is positive.
- Because the variable input (the number of workers) is too small to efficiently run the fixed input so that the fixed input is **under-utilized** (not efficiently utilized).

Stage II

- ranges from the MPL=APL to the point where MPL is zero.
- As the labour input increases, output still increases but at a decreasing rate.
- stage of diminishing marginal returns.
- MPL and APL are decreasing due to the scarcity of the fixed factor.
- Once the optimum capital-labour combination is achieved, employment of additional unit of the variable input will cause the output to increase at a slower rate.
- As a result, the marginal product diminishes.
- This stage is the **efficient region of production**.
- Additional inputs are contributing positively to the TP and MP of successive units of variable input is declining (indicating that the fixed input is being optimally used).

Stage III:

- An increase in the variable input is accompanied by decline in the TP.
- Thus, the TP curve slopes downwards, and the MPL becomes negative.
- This stage is also known as the stage of negative marginal returns.
- The cause of negative marginal returns is the fact that the volume of the variable inputs is quite excessive relative to the fixed input; the fixed input is over-utilized.
- Arational firm should not operate in stage III because additional units of variable input are contributing negatively to the TP (MP of the variable input is negative).

4.2 Theory of costs in the short run

- To produce goods and services, firms need factors of production or simply inputs.
- To acquire these inputs, they have to buy them from resource suppliers.
- **Cost** is, therefore, the monetary value of inputs used in the production of an item.

Explicit Cost and Implicit Cost

- Economists use the term "profit" differently from the way accountants use it.
- To the accountant, profit is the firm's total revenue less its explicit costs (**accounting costs**).
- To the economist, economic profit is total revenue less **economic costs** (explicit and implicit costs).

➢ Accounting cost

- is the monetary value of all purchased inputs used in production.
- It ignores the cost of non-purchased (self-owned) inputs.
- It considers only direct expenses such as wages/salaries, cost of raw materials, depreciation allowances, interest on borrowed funds and utility expenses (electricity, water, telephone, etc.).
- These costs are said to be explicit costs which are out of pocket expenses for the purchased inputs.
- An accounting profit.

Accounting profit = Total revenue – Accounting cost

Total revenue – Explicit cost

➢ Economic cost

- considers all inputs (purchased and nonpurchased).
- Calculating economic costs will be difficult since there are no direct monetary expenses for non-purchased inputs.
- The monetary value of these inputs is obtained by estimating their opportunity costs in monetary terms.
- The estimated monetary cost for non purchased inputs is known as **implicit cost.**
- Economic cost is the sum of implicit cost and explicit cost.

Economic profit = Total revenue – Economic cost

(Explicit cost + Implicit cost)

- Economic profit will give the real profit of the firm since all costs are taken into account.
- Accounting profit of a firm will be greater than economic profit by the amount of implicit cost.

Total, average and marginal costs in the short run

❑ **A cost function** shows the total cost of producing a given level of output. **C = f (Q),**

where C is the total cost of production and Q is level of output.

❖ In the short run, total cost (TC) can be broken down in to two

i) Fixed costs

- are costs which do not vary with the level of output.
- are unavoidable regardless of the level of output.
- The firm can avoid fixed costs only if he/she stops operation (shuts down the business).
- May include salaries of administrative staff, expenses for building depreciation and repairs, expenses for land maintenance and the rent of building used for production.

ii) Variable costs

- costs which directly vary with the level of output.

- If the firm produces zero output, the variable cost is zero.

- may include the cost of raw materials, the cost of direct labour and the running expenses of fuel, water, electricity, etc

❑ The short run total cost is given by the sum of total fixed cost and total variable cost.

TC = TFC + TVC

- TFC is denoted by a straight line parallel to the output axis. because such costs do not vary with the level of output.
- TVC has an inverse S-shape

- At the initial stage of production with a given plant, as more of the variable factor is employed, its productivity increases. Hence, the TVC increases at a decreasing rate.
- This continues until the optimal combination of the fixed and variable factor is reached.
- Beyond this point, as increased quantities of the variable factor are combined with the fixed factor, the productivity of the variable factor declines, and the TVC increases at an increasing rate.

- TC curve is obtained by vertically adding TFC and TVC at each level of output.

- The shape of the TC curve follows the shape of the TVC curve, i.e. the TC has also an inverse S-shape.

  - It should be noted that when the level of output is zero, TVC is also zero which implies TC = TFC.

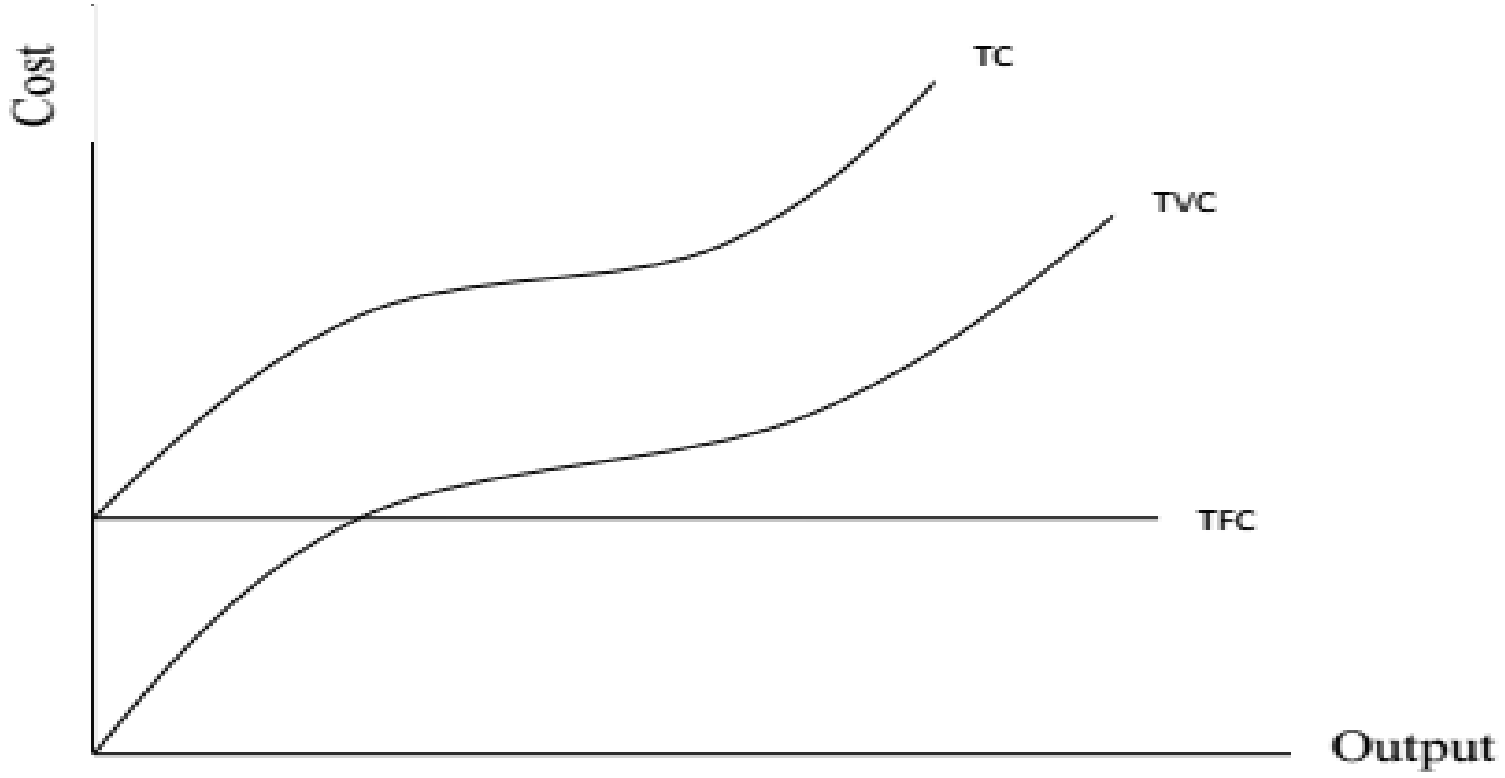


Figure 4.2: *Short run TC, TFC and TVC curves*

❑ Per unit costs

➢ Average fixed cost (AFC) - is total fixed cost per unit of output.

$$AFC = TFC / Q$$

- declines continuously and approaches both axes asymptotically.

➢ Average variable cost (AVC) - is total variable cost per unit of output.

$$AVC = TVC / Q$$

- has U-shape falls initially, reaches its minimum, and then starts to increase- the law of variable proportions.

➢ Average total cost (ATC) or simply Average cost (AC) is the total cost per unit of output.

$$AC = TC / Q$$

$$AC = \frac{TVC + TFC}{Q} = \frac{TVC}{Q} + \frac{TFC}{Q} = AVC + AFC$$

➢ Marginal Cost (MC)

- is the additional cost that a firm incurs to produce one extra unit of output.
- It is the change in total cost which results from a unit change in output.

$$MC = \frac{dTC}{dQ}$$

- is also a change in TVC with respect to a unit change in the level of output.

$$MC = \frac{dTFC + dTVC}{dQ} = \frac{dTVC}{dQ}, \text{ since } \frac{dTFC}{dQ} = 0$$

- is the slope of TC function
- U shaped-initially decreases, reaches its minimum and then starts to rise-the law of variable proportions.

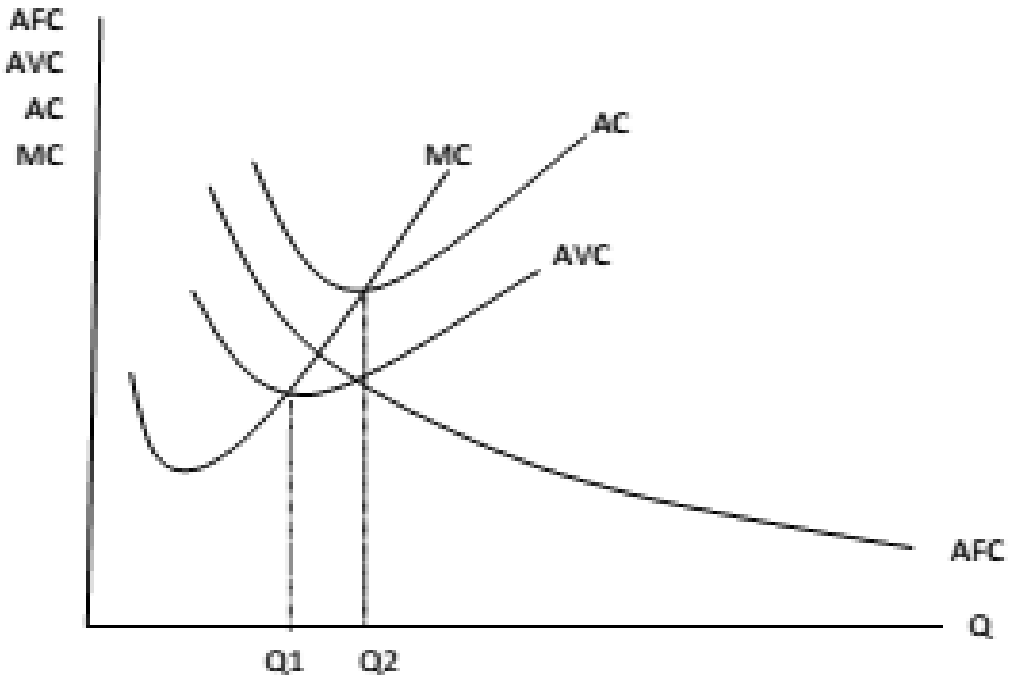


Figure 4.3: *Short run AFC, AVC, AC and MC Curves*

- AVC curve reaches its minimum point at Q1 level of output and AC reaches its minimum point at Q2.
- The vertical distance between AC and AVC i.e. AFC decreases continuously as output increases.
- MC curve passes through the minimum points of both AVC and AC curves.

❑ Example:

Suppose the short run cost function of a firm is given by:

$$TC=2Q^3 -2Q^2 + Q + 10$$

a) Find the expression of TFC & TVC

b) Derive the expressions of AFC, AVC, AC and MC

c) Find the levels of output that minimize MC and AVC and then find the minimum values of MC and AVC

4.3 The relationship between short run production and cost curves

- Suppose a firm in the short run uses labour as a variable input and capital as a fixed input.
- Let the price of labour be given by w, which is constant.
- Given these conditions, we can derive the relation between MC and MPL as well as the relation between AVC and APL.

i) Marginal Cost and Marginal Product of Labour

$$MC = \frac{\Delta TVC}{\Delta Q}, \text{ where } TVC = w.L$$

$$MC = \frac{\Delta(w.L)}{\Delta Q} = w.\frac{\Delta L}{\Delta Q}, \text{ but } \frac{\Delta L}{\Delta Q} = \frac{1}{MP_L}$$

$$\text{Therefore, } MC = \frac{w}{MP_L}$$

- .

- This expression also shows inverse relation between MC and MPL. When initially MPL increases, MC decreases; when MPL is at its maximum, MC must be at a minimum and when finally MPL declines, MC increases

ii) Average Variable Cost and Average Product of Labour

$$AVC = \frac{w}{AP_L} \qquad VC = w.L$$

$$AVC = \frac{w.L}{Q} = w.\frac{L}{Q}, \text{ but } \frac{L}{Q} = \frac{1}{AP_L}$$

- inverse relation between AVC and APL.
- When APL increases, AVC decreases; when APL is at a maximum, AVC is at a minimum and when finally APL declines, AVC increases.

We can also sketch the relationship between these production and cost curves using graphs.

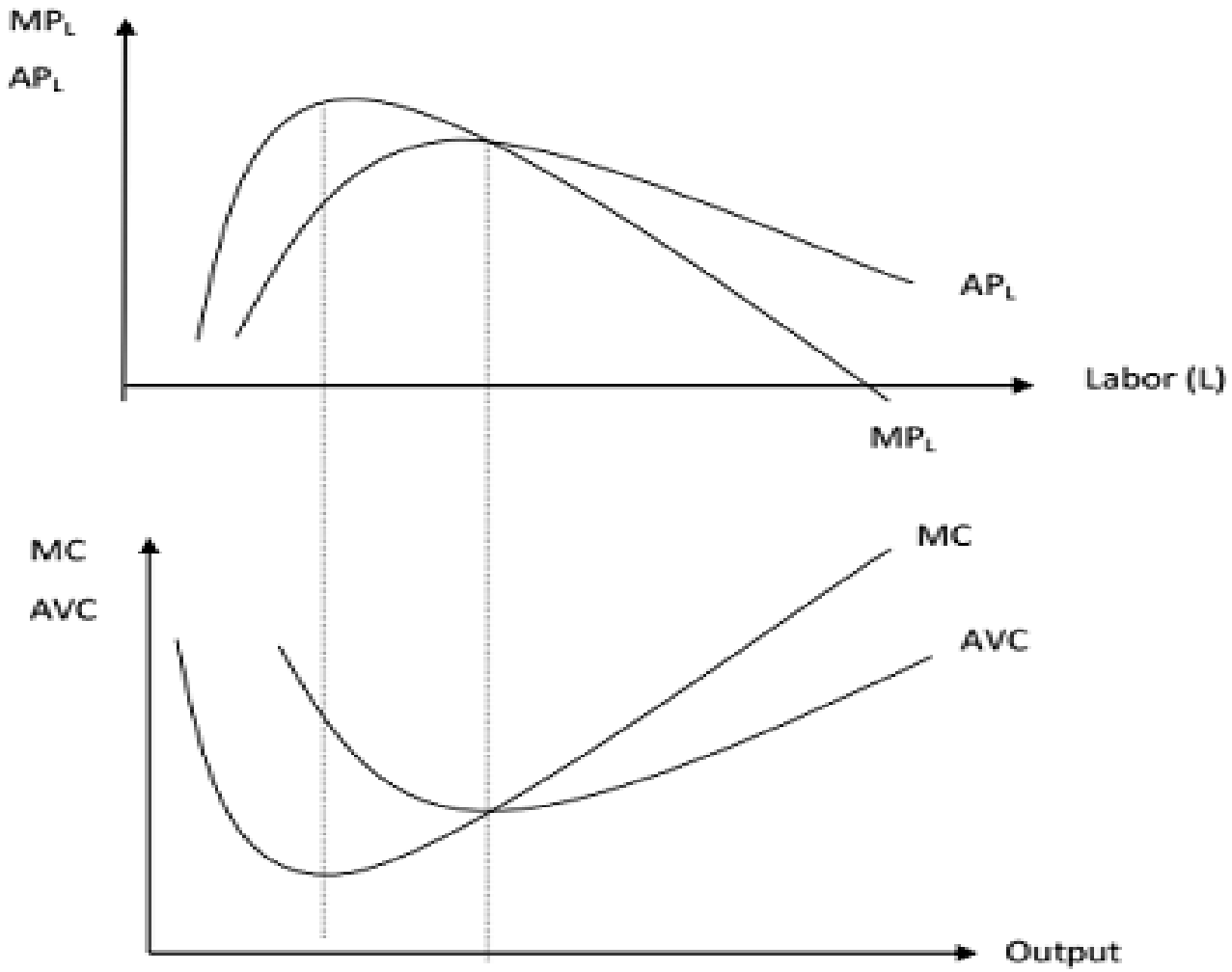


Figure 4.4: relationship between short run production and cost curves

From the above figure, we can conclude that the MC curve is the mirror image of MP_L curve and AVC curve is the mirror image of AP_L curve.

End of chapter four

Chapter Five

Market Structure

Introduction

- This chapter discusses how a particular firm makes a decision to achieve its profit maximization objective.
- A firm‘s decision to achieve this goal is dependent on the type of market in which it operates.
- To this effect we distinguish between four major types of markets:

Chapter objectives

At the end of this chapter you will be able to:

✓ differentiate market in physical and digital space

✓ explain the characteristics and equilibrium condition of perfectly competitive market

✓ differentiate between different types of imperfect market structures

5.1. The concept of market in physical and digital space

- Market is the process of planning and executing the conception, pricing, promotion, and distribution of goods, services and ideas to create exchanges that satisfy individual and organizational objectives.

- Is a group of buyers and sellers whereby the buyers determine the demand and the sellers determine the supply.

- describes place or digital space by which goods, services and ideas are exchanged to satisfy consumer need.

- Digital marketing is the marketing of products or services using digital technologies, mainly on the internet but also including mobile phones, display advertising, and any other digital media.

- Digital marketing channels are systems on the internet that can create, accelerate and transmit product value from producer to the terminal consumer by digital networks.

➢ Physical market is a set up where buyers can physically meet their sellers and purchase the desired merchandise from them in exchange of money.

- In physical marketing, marketers will effortlessly reach their target local customers and thus they have more personal approach to show about their brands.

❑ Markets take many forms.

- The choice of the marketing mainly depends on the nature of the products and services.

?

What differs the market for

- ✓ Electricity and other basic utilities
- ✓ Clothes and shoes
- ✓ Cement products
- ✓ Agricultural products

5.2. Perfectly competitive market

- is a market structure characterized by a complete absence of rivalry among the individual firms.

❑ Assumptions

i. Large number of sellers and buyers

- The number of sellers is assumed to be too large that the share of each seller in the total supply of a product is very small.

- Therefore, no single seller can influence the market price by changing the quantity supply.

- Similarly, the number of buyers is so large that the share of each buyer in the total demand is very small and that no single buyer or a group of buyers can influence the market price by changing their individual or group demand for a product.

ii. Homogeneous product

- buyers do not distinguish between products supplied by the various firms of an industry.

- Product of each firm is regarded as a perfect substitute for the products of other firms.

- Therefore, no firm can gain any competitive advantage over the other firm.

❖ Therefore sellers and buyers are not price makers rather they are price takers, i.e., the price is determined by the interaction of the market supply and demand forces.

iii. Perfect mobility of factors of production

- Factors of production(labour, capital, raw materials etc) are free to move from one firm to another throughout the economy
- factors are not monopolized and labour is not unionized.

iv. Free entry and exit

- There is no restriction or market barrier on entry of new firms to the industry, and exit of firms from the industry.

v. Perfect knowledge about market conditions

- All the buyers and sellers have full information regarding the prevailing and future prices and availability of the commodity.

vi. No government interference

- Government does not interfere in any way with the functioning of the market.

- There are no discriminator taxes or subsidies, no allocation of inputs by the procurement, or any kind of direct or indirect control.

- Where there is intervention by the government, it is intended to correct the market imperfection.

vii. Profit maximization is the goal of all firms.

- From these assumptions, a single producer under perfectly competitive market is a price-taker.
- That is, at the market price, the firm can supply whatever quantity it would like to sell.
- Once the price of the product is determined in the market, the producer takes the price as given.
- Hence, the demand curve that the firm faces in this market situation is a horizontal line drawn at the equilibrium price, Pm.

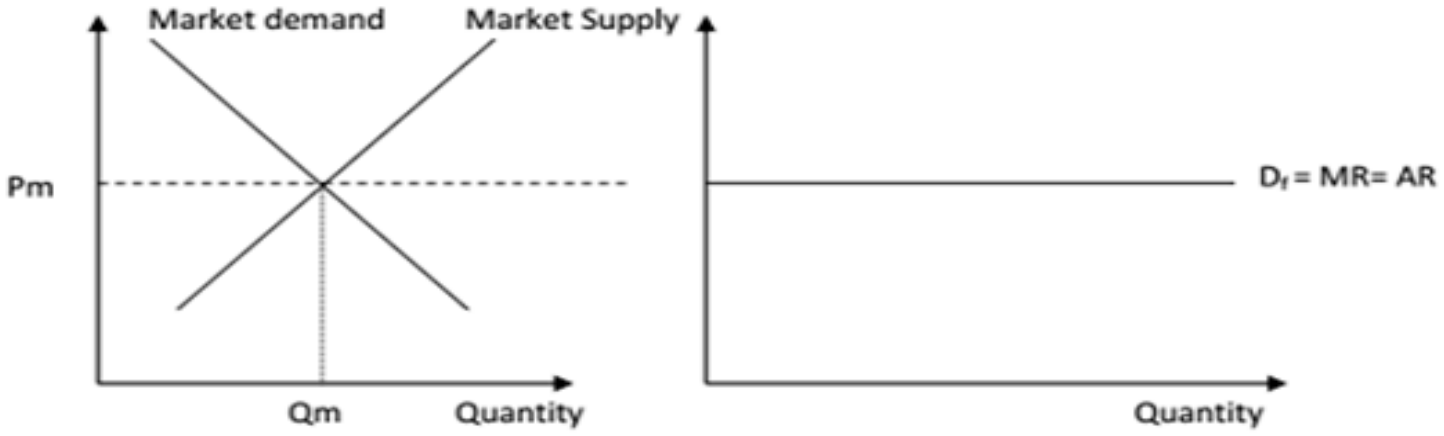


Figure 5.1: Individual and market demand curve

Short run equilibrium of the firm

- The main objective of a firm is profit maximization.
- Profit is the difference between total revenue and total cost.

❑ *Total Revenue (TR)*

- is the total amount of money a firm receives from a given quantity of its product sold.

TR=P X Q where P = price Q = quantity sold.

❑ *Average revenue (AR)*

- is the revenue per unit of item sold.

$$AR = \frac{TR}{Q} = \frac{PxQ}{Q} \Rightarrow AR = P$$

- Therefore, the firm‘s demand curve is also the AR curve.

❑ *Marginal Revenue*

- is the additional amount of money/ revenue the firm receives by selling one more unit of the product.
- is the change in total revenue resulting from the sale of an extra unit of the product.

$$\text{MR}=\{\Delta TR/\Delta Q\} = \Delta(\frac{\text{P}xQ}{Q}) = P\ (\Delta\text{Q}/\Delta\text{Q}) \Longrightarrow \text{MR}=\text{P}$$

- Thus, in a perfectly competitive market, AR = MR = P =Df
- Since the purely competitive firm is a price taker, it will maximize its economic profit only by adjusting its output.

❖ There are two ways to determine the level of output at which a competitive firm will realize maximum profit or minimum loss.

a) to compare TR and TC

b) to compare MR and MC.

a) Total Approach (TR-TC approach)

- A firm maximizes total profits in the short run when the (positive) difference between TR and TC is greatest.

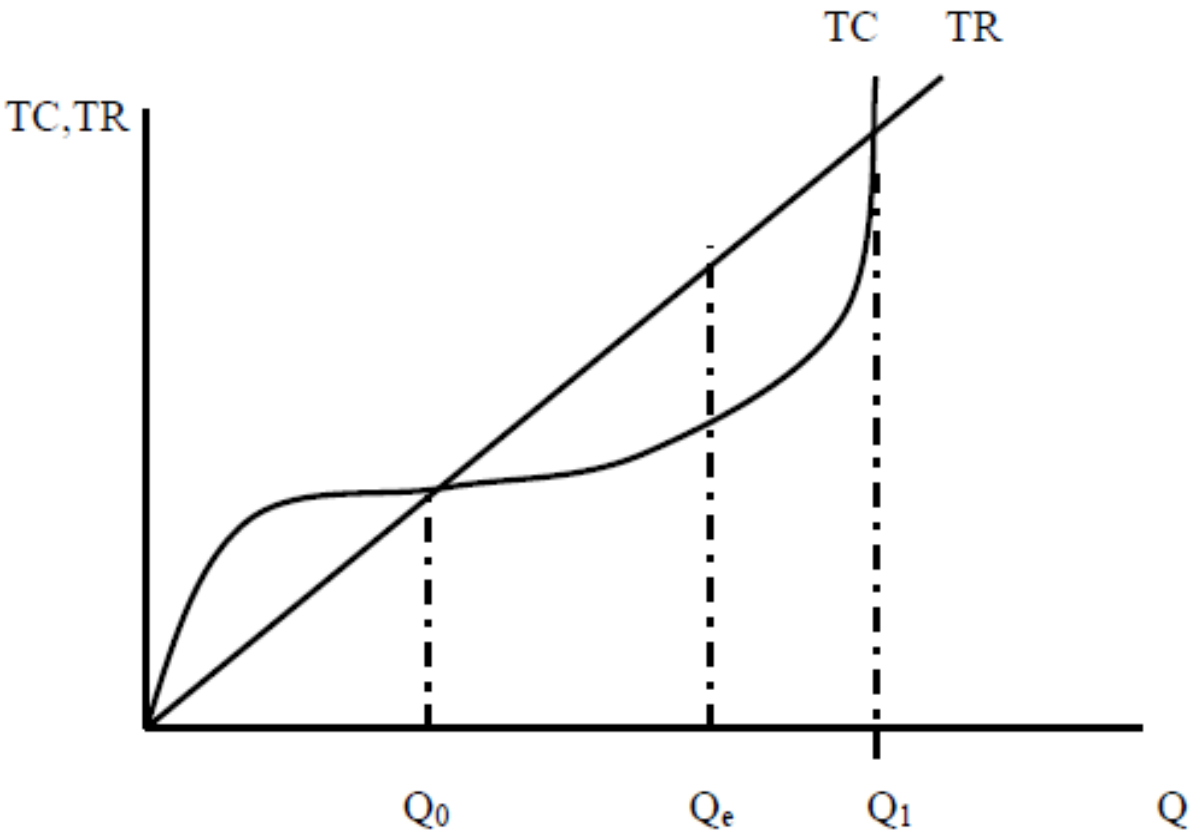


Figure 5.2: Total revenue and total cost approach of profit maximization

b) Marginal Approach (MR-MC)

- The perfectly competitive firm maximizes its short-run total profits or minimize loss at the output when the following two conditions are met:
  - ✓ MR-MC- the FO(N) condition
  - ✓ The slope of MC > slope of MR; or MC is rising). (that is, slope of MC > 0)-the SOC.

❑ Mathematically, $\prod = TR - TC$

$\prod$ is maximized when $\frac{d\pi}{dQ} = 0$

That is, $\frac{d\pi}{dQ} = \frac{dTR}{dQ} - \frac{dTC}{dQ} = 0$

- MR – MC = 0
- **MR = MC** …… **First order condition (FOC)**

$$\frac{d^2\pi}{dQ^2} \prec 0$$

The $\frac{d^2\pi}{dQ^2} = \frac{d^2TR}{dQ^2} - \frac{d^2TC}{dQ^2} \prec 0$ **second order condition** of profit maximization is

That is,

$$\Rightarrow \frac{dMR}{dQ} - \frac{dMC}{dQ} \prec 0$$

$$\Rightarrow \frac{dMR}{dQ} \prec \frac{dMC}{dQ}$$

- $\frac{dMC}{dQ} \succ \frac{dMR}{dQ}$ where $\frac{dMR}{dQ}$=slope of MR and $\frac{dMC}{dQ}$=slope of MC

Therefore, **Slope of MC > slope of MR ------- Second order condition (SOC)**

⇨ **Slope of MC > 0** (because the slope of MR is zero)

Graphically, the marginal approach can be shown as follows.

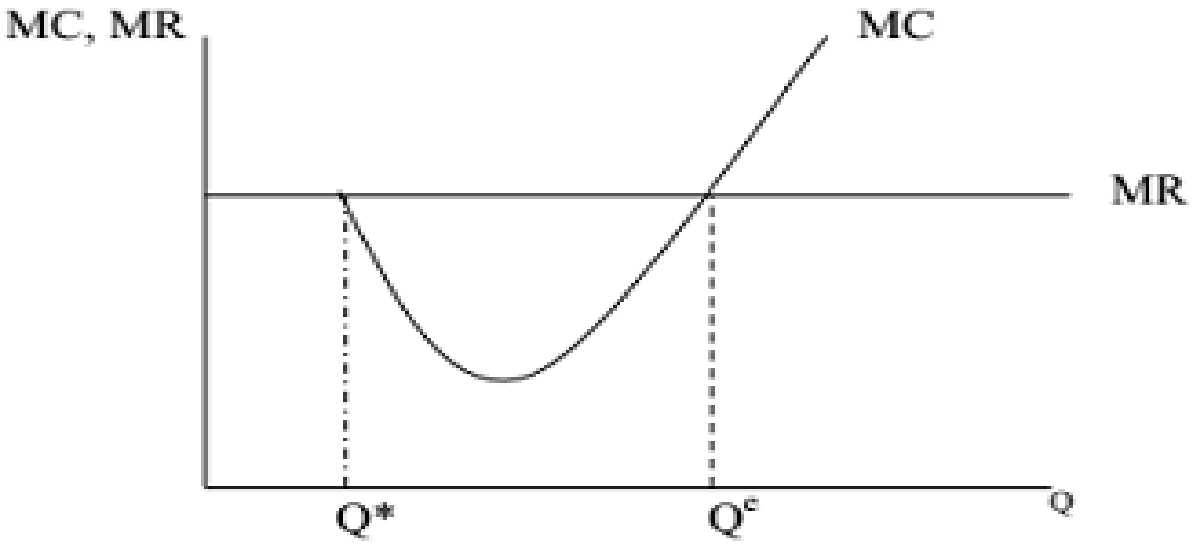


Figure 5.3: ***Marginal approach of profit maximization***

The profit maximizing output is Q^c, where MC=MR and MC curve is increasing. At Q^*, MC=MR, but since MC is falling at this output level, it is not equilibrium output.

- Whether the firm in the short- run gets positive or zero or negative profit depends on the level of ATC at equilibrium.

- Thus, depending on the relationship between price and ATC, the firm in the short-run may earn economic profit, normal profit or incur loss and decide to shut-down business.

i) Economic/positive profit

- If the AC is below the market price at equilibrium, the firm earns a positive profit equal to the area between the ATC curve and the price line up to the profit maximizing output.

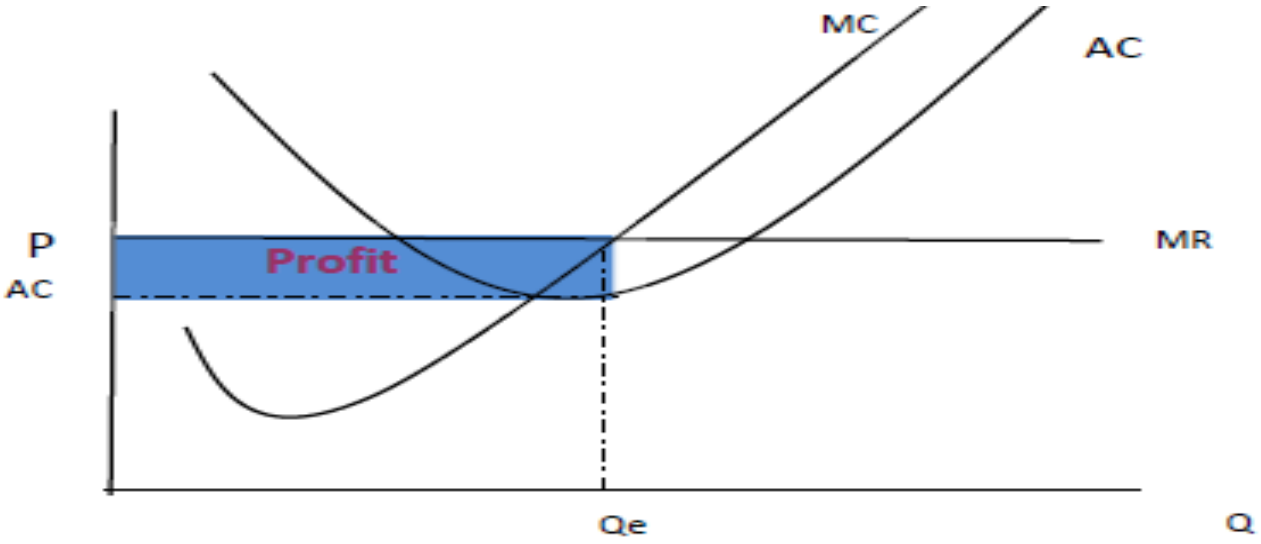


Figure 5.4: Economic profit a firm

i) Loss (negative profit)

- If the AC is above the market price at equilibrium, the firm earns a negative profit (incurs a loss) equal to the area between the AC curve and the price line.

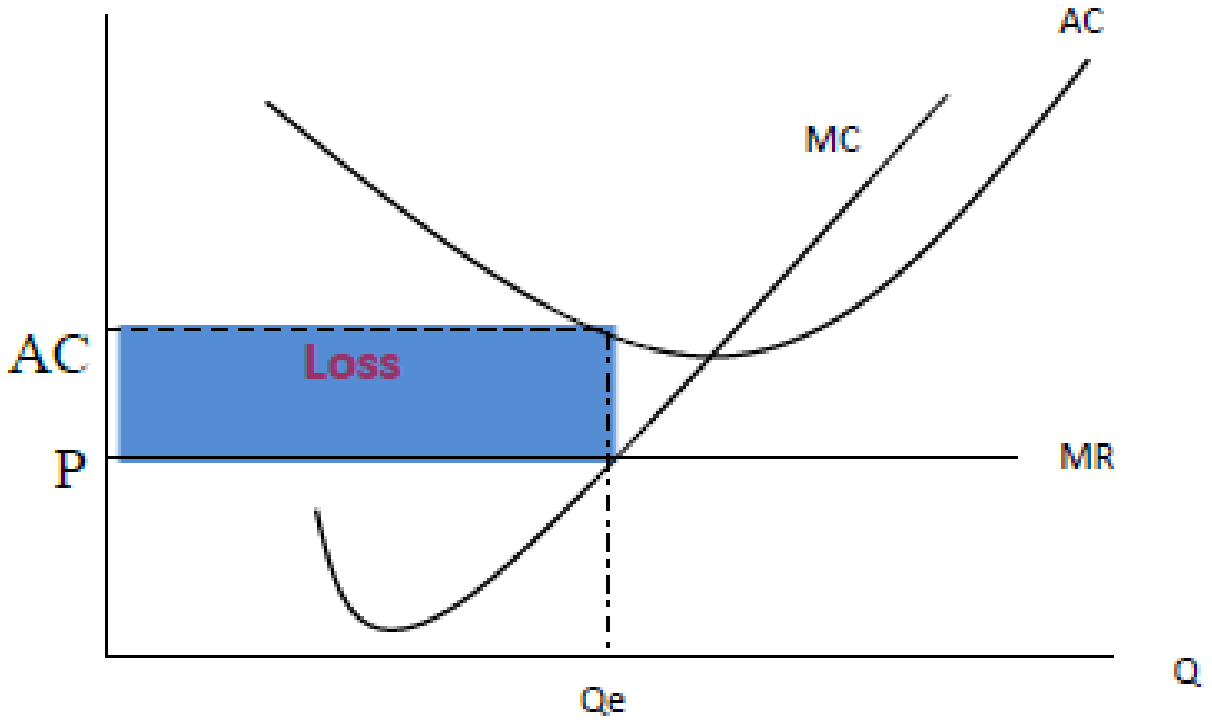


Figure 5.6: *A firm incurring a loss*

iii) Normal Profit (zero profit) or break- even point

- If the AC is equal to the market price at equilibrium.

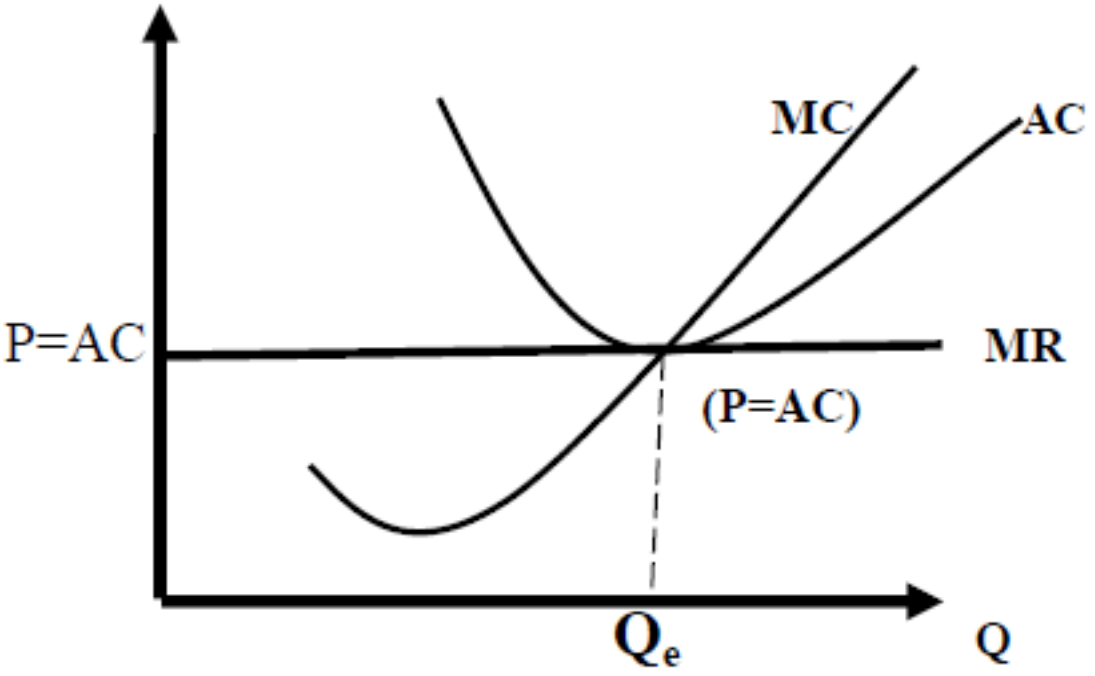


Figure 5.7: A firm earning a normal profit

iv) Shutdown point

- The firm will not stop production simply because AC exceeds price in the short-run. The firm will continue to produce irrespective of the existing loss as far as the price is sufficient to cover the average variable costs.
- This means, if P is larger than AVC but smaller than AC, the firm minimizes total losses.
- But if P is smaller than AVC, the firm minimizes total losses by shutting down. Thus, P = AVC is the shutdown point for the firm.

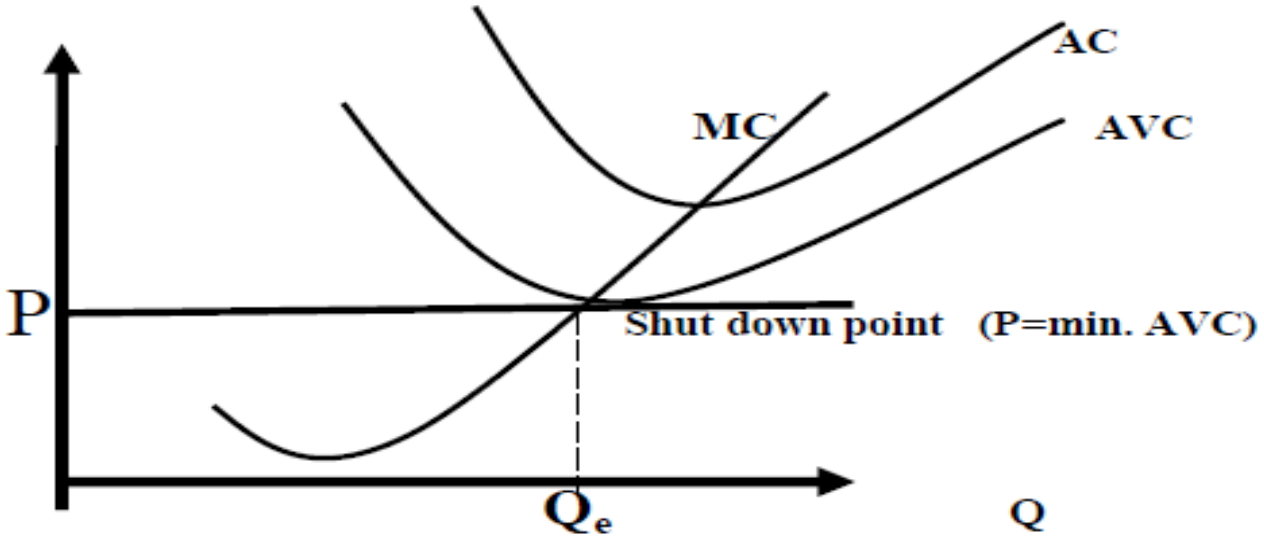


Figure 5.8: *A shut down point*

❑ ***Example:***

Suppose that the firm operates in a perfectly competitive market. The market price of its product is $10. The firm estimates its cost of production with the following cost function: TC=2+10q-4q2 +q3.

A) What level of output should the firm produce to maximize its profit?

B) Determine the level of profit at equilibrium.

C) What minimum price is required by the firm to stay in the market?

Short run equilibrium of the industry

- Since the perfectly competitive firm always produces where P=MR=MC (as long as P exceeds AVC), the firm‘s short-run supply curve is given by the rising portion of its MC curve above its AVC, or shutdown point.

- The industry/market supply curve is a horizontal summation of the supply curves of the individual firms. Industry supply curve can be obtained by multiplying the individual supply at various prices by the number of firms, if firms have identical supply curve.

- An industry is in equilibrium in the short-run when market is cleared at a given price i.e. when the total supply of the industry equals the total demand for its product, the prices at which market is cleared is equilibrium price.

5.3. Monopoly market

- Pure monopoly exists when a single firm is the only producer sole supplier of a product for which there are no close substitutes.

Main characteristics

✓ Single seller:

- A pure or absolute monopoly is a one firm industry.
- the firm and the industry are synonymous.

✓ No close substitutes:

- the monopolist‘s product is unique in that there are no good or close substitutes.

✓ Price maker:

- the individual firm exercises a considerable control over price because it is responsible for, and therefore controls, the total quantity supplied.

- Confronted with the usual down ward sloping demand curve for its product, the monopolist can change product price by changing the quantity of the product supplied.

✓ Blocked entry:

- A pure monopolist has no immediate competitors because there are barriers, which keep potential competitors from entering in to the industry.
- These barriers may be economic, legal, technological etc.

Sources of monopoly

- The emergence and survival of monopoly is attributed to the factors which prevent the entry of other firms in to the industry.
- The barriers to entry are therefore the sources of monopoly power.

- The major sources of barriers to entry are-

i) Legal restriction

- Some monopolies are created by law in public interest.
- Such monopoly may be created in both public and private sectors.
- Most of the state monopolies in the public utility sector, including postal service, telegraph, telephone services, radio and TV services, generation and distribution of electricity, rail ways, airlines etc.

ii Control over key raw materials

- traditional control over certain scarce and key raw materials that are essential for the production of certain other goods.
- Example, Aluminum Company of America had monopolized the aluminum industry because it had acquired control over almost all sources of bauxite supply;
- such monopolies are often called raw material monopolies.

iii) Efficiency(economies of scale)

- a primary and technical reason for growth of monopolies is economies of scale.
- The most efficient plant (probably large size firm,) which produces at minimum cost, can eliminate the competitors by curbing down its price for a short period and can acquire monopoly power.
- Monopolies created through efficiency are known as natural monopolies.

iv) Patent rights

- are granted by the government to a firm to produce commodity of specified quality and character or to use specified rights to produce the specified commodity or to use the specified technique of production.
- Such monopolies are called to patent monopolies.

5.4. Monopolistically competitive market

- there are relatively many firms selling differentiated products.
- It is the blend of competition and monopoly.
- The competitive element arises from the existence of large number of firms and no barrier to entry or exit.
- The monopoly element results from differentiated products, i.e. similar but not identical products.

- A seller of a differentiated product has limited monopoly power over customers who prefer his product to others because the difference between his product and others are small enough that they are close substitutes for one another.

Characteristics

i) Differentiated product-

- similar but not identical in the eyes of the buyers.
- There is a variety of the same product.
- The difference could be in style, brand name, in quality, or others.
- Hence, the differentiation of the product could be real (eg. quality) or fancied (e.g. difference in packing).

ii) Many sellers and buyers:

- not as large as that of the perfectly competitive market.

iii) Easy entry and exit:

- Like the PCM, there is no barrier on new firms that are willing and able to produce and supply the product in the market.
- On the other hand, if any firm believes that it is not worth to stay in the business, it may exit.

iv) Existence of non-price competition

- Economic rivals take the form of non-price competition in terms of product quality, advertisement, brand name, service to customers, etc.
- A firm spends money in advertisement to reach the consumers about the relatively unique character of its product and thereby get new buyers and develop brand loyalty.
- Many retail trade activities such as clothing, shoes, soap, etc are in this type of market structure

5.5. Oligopoly market

✓ Few dominant firms:

- there are few firms although the exact number of firms is undefined.
- Each firm produces a significant portion of the total output.

✓ Interdependence:

- since few firms hold a significant share in the total output of the industry, each firm is affected by the price and output decisions of rival firms.
- the distinguishing characteristic of oligopoly.

✓ Entry barrier:

- there are considerable obstacles that hinder a new firm from producing and supplying the product.
- The barriers may include economies of scale, legal, control of strategic inputs, etc

✓ Products may be homogenous or differentiated

- If the product is homogeneous, we have a pure oligopoly.
- If the product is differentiated, it will be a differentiated oligopoly.

✓ Lack of uniformity in the size of firms:

- Firms differ considerably in size. Some may be small, others very large. Such a situation is asymmetrical.

✓ Non-price competition:

- firms try to avoid price competition due to the fear of price wars and hence depend on non-price methods like advertising, after sales services, warranties, etc.
- This ensures that firms can influence demand and build brand recognition.

- A special type of oligopoly in which there are only two firms in the market is known as **duopoly**.

Characteristics	Market models			
	Pure Competition	Monopolistic Competition	Oligopoly	Pure Monopoly
Number of firms	Large	Many	Few	One or Single
Type of product	Homogeneous	Differentiated	Homogeneous or differentiated	Unique, no close substitutes
Control over price	None	Some, but within rather narrow limits	Limited by mutual interdependence and collusion	Significant
Condition of entry	Very easy	Relatively easy	Considerable barriers/obstacles	Blocked
Examples	Agricultural products	Clothes, Shoes	Steel, Automobiles	Local utilities

THANK YOU !!!!

Chapter Six

Fundamental Concepts of Macroeconomics

Introduction

- Conventionally, economics is divided into microeconomics and macroeconomics.

❑ Macroeconomics, studies about overall or aggregate behaviour of the economy, such as economic growth, employment, inflation, distribution of income, macroeconomic policies and international trade.

- So in this chapter we will discuss major macroeconomic issues such as measurement of a country‘s economic performance, macroeconomic problems (fluctuations in economic system mainly reflected by inflation and unemployment), how budgetary deficit and trade deficit occur and macroeconomic policies applied to cure the macroeconomic problems

Chapter objectives

After completing this chapter, you will be able to:

- define GNP and GDP and able to measure national income
- differentiate between nominal GDP and real GDP and decide which is better to measure economic performance;
- explain the concept of business cycle;
- briefly discuss the types of unemployment;
- understand about inflation, causes of inflation and its impact on the economy and
- explain budgetary deficit and its ways of financing;

6.1. Goals of Macroeconomics

- Macroeconomics aimed at how
  - ✓ To achieve high economic growth
  - ✓To reduce unemployment
  - ✓To attain stable prices
  - ✓To reduce budget deficit and balance of payment (BoP) deficit
  - ✓To ensure fair distribution of income.

- In general, the goals of macroeconomics can be given as ways towards full employment, price stability, economic growth and fair distribution of income among citizens of a country.

6.2. The National Income Accounting(NIA)

- is an accounting record of the level of economic activities of an economy.
- It is a measure of an aggregate output, income and expenditure in an economy.
- It enables us to measure the level of total output and explain the causes for such performance thereby providing information to formulate policies and design plans.

Measures of economic performance

- **Gross Domestic Product (GDP):** it is the total value of currently produced final goods and services that are produced within a country's boundary during a given period of time, usually one year.

From these definition we can infer that-

- ✓ It measures the current production only.
- ✓ It takes in to account final goods and services or do not include the intermediate products.
- Intermediate goods are goods that are completely used up in the production of other products in the same period that they themselves are produced.
- ✓ It measures the values of final goods and services produced within the boundary/territory of a country irrespective of who owns that output.
- ✓ In measuring GDP, we take the market values of goods and services (GDP =$\sum$PiQi)

where: Pi = series of prices of outputs produced in different sectors of an economy in certain period and Qi = the quantity of various final goods and services produced in an economy.

- **Gross National Product (GNP):** is the total value of final goods and services currently produced by domestically owned factors of production in a given period of time, usually one year, irrespective of their geographical locations.

GNP=GDP + NFI

- NFI denotes Net Factor Income received from abroad which is equal to factor income received from abroad by a country's citizens less factor income paid for foreigners to abroad.

  - If NFI >0, then GNP > GDP
  - If NFI<0, then GNP < GDP
  - If NFI =0, then GNP =GDP

Approaches to measure national income (GDP/GNP)

❖ Basically, there are three approaches to measure GDP/GNP.

I. Product/value added approach,

II. Expenditure approach and

III. Income approach

I. Product Approach

GDP is calculated by adding the market value of goods and services currently produced by each sector of the economy.

- In this case, GDP includes only the values of final goods and services in order to avoid double counting.

- Double counting will arise when the output of some firms are used as intermediate inputs of other firms.

- For example, we would not include the full price of an automobile in GDP and then also include as part of GDP the value of the tires that were sold to the automobile producer.
- The components of the car that are sold to the manufacturers are called intermediate goods, and their value is not included in GDP.
- There are two possible ways of avoiding double counting.
  - ✓ Taking only the value of final goods and services
  - ✓ Taking the sum of the valued added by all firms at each stage of production.

❑ We can illustrate the two scenarios using some hypothetical examples as follows.

I. **Taking only the value of final goods and services.**

Example:

Sectors	**Value of Output (in million birr)**
Agriculture and allied activities	**9309**
- Agriculture	7000
- Forestry	1000
- Fishing	1309
Industry	**147413**
- Mining & quarrying	9842
- Large & medium scale manufacturing	91852
- Electricity & water	13717
- Construction	32002
Service	**357 872**
- Banking insurance and real estate	121704
- Public administration & defense	36605
- Health	20000
- Education	32509
- Domestic & other services	147054
4. Net factor income from abroad	87348

GDP = 9,309+147,413+357,872 = 514,594

GNP = GDP + NFI = 514,594 +87,348 = 601,942

II. **Taking the sum of the valued added by all firms at each stage of production**

Example:

Stages of production	Values of output (in birr)	Cost of intermediate inputs	Value added
Farmer	500	0	500
Oil factory	2000	500	1500
Retailers	2500	2000	500

Note: If all values in the economy were added, GDP would be 5000= (2500+2500). The problem of double counting is 2500, because of considering intermediate input in the calculation.

II. Expenditure Approach

- GDP is measured by adding all expenditures on final goods and services produced in the country by all sectors of the economy.

Thus GDP =C+G+I+NE

- **C**-Personal consumption expenditure- includes expenditures by households on durable consumer goods (automobiles, refrigerators, video recorders, etc), non-durable consumer goods (clothes, shoes, pens, etc) and services.
- I-Gross private domestic investment- is the sum of all spending of firms on plants, equipment, and inventories, and the spending of households on new houses.

- Investment is broken down into three categories:

✓ residential investment (the spending of households on the construction of new houses),

- ✓ business fixed investment (the spending of firms on buildings and equipment for business use), and
- ✓ inventory investment (the change in inventories of firms).
- ○ Note that gross private domestic investment differs from net private domestic investment

Net private domestic investment = gross private domestic investment- depreciation.

- **G-**Government purchases of goods and services- include all government spending on finished products and direct purchases of resources less government transfer payments because transfer payments do not reflect current production although they are part of government expenditure.
- **NX**-Net exports refer to total value of exports less total value of imports.

Example: GDP at current market price measured using expenditure approach for a hypothetical economy.

Types of expenditure	Amount (in million Birr)
1. Personal consumption expenditure	**4500**
Durable consumer goods	1500
Non-durable consumer goods	2000
Services	1000
2. Gross private domestic investment	**600**
Business fixed investment	250
Construction Expenditure	300
Increases in inventories	50
3. Government expenditure on goods and services	**250**
Federal government	100
State government	150
4. Net export	**-50**
Exports	150
Imports	200
GDP at current market price	**5300**

III. Income approach:

- GDP is calculated by adding all the incomes accruing to all factors of production used in producing the national output.
- Note that: some forms of personal incomes are not incorporated in the national income.
- For instance, transfer payments-payments which are made to the recipients who have not contributed to the production of current goods and services in exchange for these payments- are excluded from national income, as these are mere redistribution of income from taxpayers to the recipients of transfer payments.
- Transfer payments may take the form of old age pension, unemployment benefit, subsidies, etc.

- Thus GDP is the sum incomes to owners of factors of production plus some other claims on the value of output (depreciation and indirect business tax) less subsidies and transfer payments.

GDP = Compensation of employees (wages & salaries)
+ Rental income
+ Interest income
+ Profits (proprietors' profit plus corporate profit)
+ Indirect business taxes
+ Depreciation
- Subsidies
- Transfer payments.

Example:

Items	**Value (in million Birr)**
1) Compensation of Employees	**45623.71**
2) Rental Income	**1249.32**
3) Proprietor's Income	10561.21
4) Corporate Profits	16960.33
Subtotal (corporate and proprietor's)	**27521.54**
5) Net interest	**5189.73**
6) Depreciation	**503.84**
7) Indirect Business Taxes	**476.51**
8) Subsidy	**(11368.95)**
Gross Domestic Product	***69195.70***
9) Income from abroad	2036.20
10) Payments to abroad	(11231.90)
NFI	**(9195.70)**
Gross National Income	***60000.00***

Limitation of GDP measurement:

➢ Definition of a nation:

- while calculating national income, nation does not mean only the political or geographical boundaries of a country for calculating the value of final goods and services produced in the country.
- It includes income earned by the nationals abroad.

➢ Stages of economic activities:

- it is also difficult to determine the stages of economic activity at which the national income is determined.
- i.e. whether the income should be calculated at the stage of production or distribution or consumption.

➢ Transfer payments:

- this also creates a great difficulty in calculating the national income.

➢ Underground economy:

- no imputation is made for the value of goods and services sold in the illegal market.
- The underground economy is the part of the economy that people hide from the government either because they wish to evade taxation or because the activity is illegal.
- Ex. The parallel exchange rate market.

➢ Non-monetized sector:

- this difficulty is special to developing countries where a substantial portion of the total produce is not brought to the market for sale.
- It is either retained for self-consumption or exchanged for other goods and services.

➢ Valuation of depreciation:

- But the valuation of depreciation is full of difficulties.

➢ Changes in price levels:

- since the national income is in terms of money whose value itself keeps on changing, it is difficult to make a stable calculation which is assessed in terms of prices of the base year.

➢ No focus on quality:

- it is difficult to account correctly for improvements in the quality of goods.

➢ Inadequate data:

- in almost all the countries, difficulty has been faced in the calculation of national income due to lack of adequate data.
- Sometimes, the data are not reliable.

Other income accounts

- Apart from GDP and GNP, there are also other social accounts which have equal importance in macroeconomic analysis.

These include:

- Net National product (NNP) :

- GNP as a measure of the economy‘s annual output may have defect because it fails to take into account capital consumption allowance, which is necessary to replace the capital goods used up in that year‘s production.

- Hence, net national product is a more accurate measure of economy‘s annual output than gross national product and it is given as:

$$\underset{(NNP)}{\text{Net National product}} = \underset{(GNP)}{\text{Gross National product}} - \underset{(D)}{\text{Capital consumption allowance}}$$

➢ National income (NI):

- is the income earned by economic resource (input) suppliers for their contributions of land, labour, capital and entrepreneurial ability, which are involved in the given year‘s production activity.
- However, from the components of NNP, indirect business tax, which is collected by the government, does not reflect the productive contributions of economic resources because government contributes nothing directly to the production in return to the IBT.
- Hence, to get the national income, we must subtract indirect business tax from net national product.

$$\underset{(NI)}{National\ Income} = \underset{(NNP)}{Net\ National\ Product} - \underset{(IBT)}{Indirect\ Business\ Tax}$$

➢ Personal Income (PI):

- refers to income earned by persons or households.
- Persons in the economy may not earn all the income earned as national income.

PI = NI – [social security contribution + corporate income tax + retained corporate profit]

+ [Public transfer payments (e.g. Subsidy) + net interest on government bond]

➢ Personal Disposable Income:

- It is personal income less personal tax payments.

DI = PI – Personal taxes

= C + S

where, C = personal consumption expenditure, S = Personal savings

6.3. Nominal versus Real GDP

I) Nominal GDP

- is the value of all final goods and services produced in a given year when valued at the prices of that year.

$$\mathbf{N}GDP = \sum P_i Q_i.$$

- Any change that can happen in the country's GDP is due to changes in price, quantity or both.
- Hence, GDP that is not adjusted for inflation is called Nominal GDP.

II) Real GDP

- is the value of final goods and services produced in a given year when valued at the prices of a reference base year.
- By comparing the value of production in the two years at the same prices, we reveal the change in output.
- Hence, to be able to make reasonable comparisons of GDP overtime we must adjust for inflation

Example: Consider an economy producing two goods, X and Y.

Year	Product	Quantity	Unit price ($)
2017 (base year)	X	20	5
	Y	8	50
2018	X	25	20
	Y	10	100

In 2017:	**In 2018:**
Nominal GDP = (20 x 5) + (8 x 50) = $500 Real GDP = (20 x 5) + (8 x 50) = $500 Note that both the real and nominal GDP values are exactly the same in the base year.	The outputs of 2018 valued at the prices of 2017(the base year). Nominal GDP= (25 x 20) + (10 x 100) = $1500 Real GDP = (25 x 5) + (10 x 50) = $625

6.4. The GDP Deflator and the Consumer Price Index(CPI)

- **The GDP Deflator**: is the ratio of nominal GDP in a given year to real GDP of that year.

- It reflects what's happening to the overall level of prices in the economy.

$$\text{GDP deflator} = \frac{Nominal\ GDP}{Real\ GDP} * 100$$

We can calculate the GDP deflator based on the example above.

$$\text{GDP } deflator\ (2017) = \frac{GDPn}{GDPr} \times 100 = \frac{500}{500} \times 100 = 100$$

As both the real and nominal GDP values are exactly the same, the GDP deflator in the base year is always 100.

$$\text{GDP } deflator\ (2018) = \frac{GDPn}{GDPr} \times 100 = \frac{1{,}500}{625} \times 100 = 240$$, which shows the price in 2018 was 140% higher than the price in base year.

➢ The Consumer Price Index(CPI)-

- Is the other useful measure of inflation.
- is an indicator that measures the average change in prices paid by consumers for a representative basket of goods and services.
- It compares the current and base year cost of a basket of goods of fixed composition.
- If we denote the base year quantities of the various goods by q'_0 and their base year prices by p'_0, the cost of the basket in the base year is $\Sigma p'_0 * q'_0$, where the summation is over all the goods in the basket.
- The cost of a basket of the same quantities but at today's prices is $\Sigma p'_t, q'_0$, where pt is today's price.
- The CPI is the ratio of today's cost to the base year cost.

$$CPI = \frac{\Sigma P_t^{'} * q_o^{'}}{\Sigma p_o^{'} * q_o^{'}}$$

The CPI versus the GDP Deflator

- Give somewhat different information about what's happening to the overall level of prices in the economy.

1. GDP deflator measures the prices of all goods and services produced, whereas the CPI measures the prices of only the goods and services bought by consumers.

- Thus, an increase in the price of goods bought by firms or the government will show up in the GDP deflator but not in the CPI. .

2. GDP deflator includes only those goods produced domestically. Imported goods are not part of GDP and do not show up in the GDP deflator.
3. The CPI assigns fixed weights to the prices of different goods, whereas the GDP deflator assigns changing weights.

- In other words, the CPI is computed using a fixed basket of goods, whereas the GDP deflator allows the basket of goods to change over time as the composition of GDP changes.

6.5. The Business Cycle

- refers to the recurrent ups and downs in the level of economic activity.
- is a fluctuation in overall economic activity, which is characterized by the simultaneous expansion or contraction of output in most sectors.

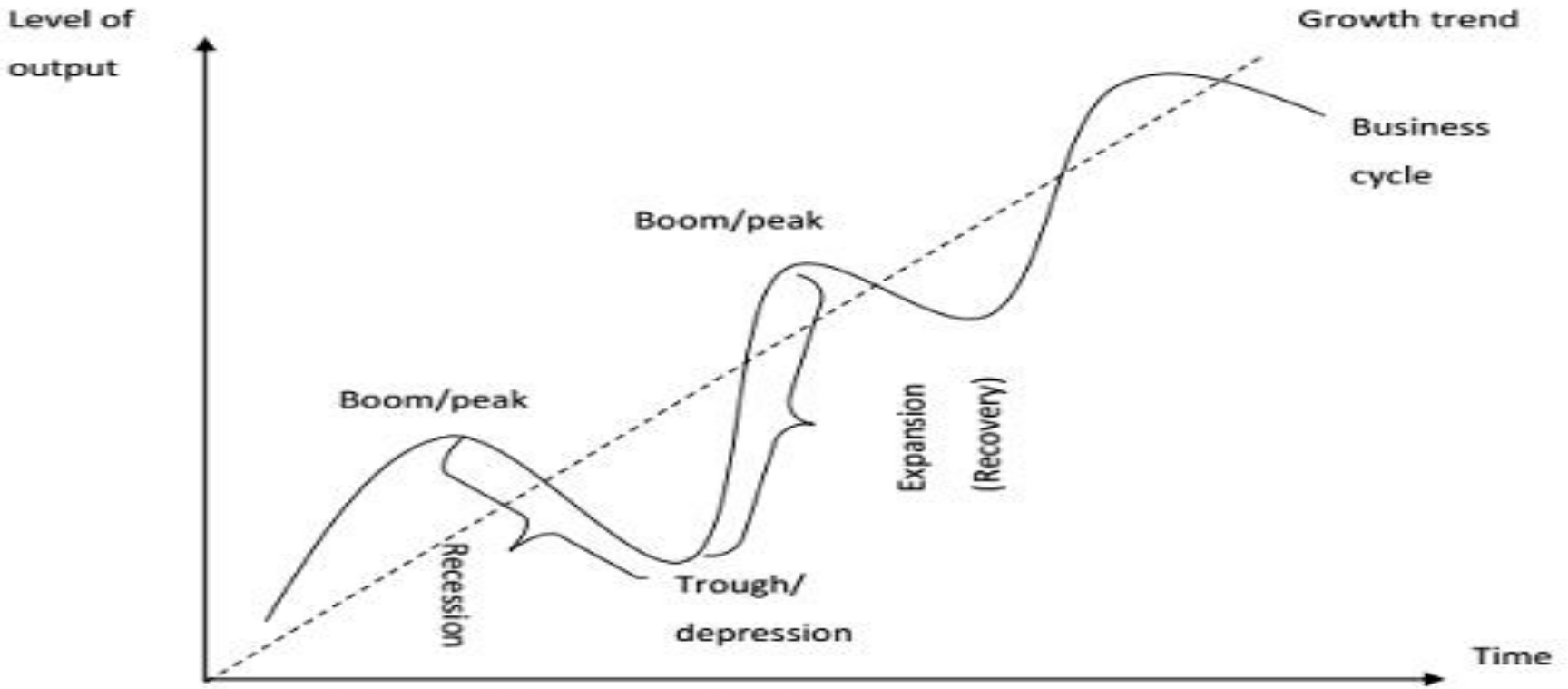


Figure 6.9: The business cycle

❑ We can identify four phases in the business cycle

i. Boom/peak: it is a phase in which the economy is producing the highest level of output in the business cycle. Due to very high degree of utilization of resources, unemployment level is low; business is good; and it is a period of prosperity.

- the economy‘s output is growing faster than its long-term (potential) trend and is therefore unsustainable.
- marks the end of economic expansion and the beginning of recession.

ii. Recession/contraction: the level of economic performance generally declines. Total output declines, national income falls, and business generally decline. As a result, unemployment problem rises.

- When the recession becomes particularly severe, we say the economy reaches depression or trough causing hardship on business and citizens.

iii. Trough/Depression: is the lowest point in a business cycle.

- It marks the end of a recession and the beginning of economic recovery/expansion.
- there is an excessive amount of unemployment and idle productive capacity.

iv. Recovery/Expansion**:** - the economy starts to grow or recover.

- , more and more resources are employed in the production process; output increases, unemployment level diminishes and national income rises.

❖ **Note that**:

✓ One business cycle includes the point from one peak to the next peak or from one trough to the next.

✓ A business cycle is a short-term fluctuation in economic activities.

✓ Business cycles may vary in duration and intensity.

6.6. Macroeconomic Problems

1. Unemployment

- refers to group of people who are in a specified age (labour force), who are without a job but are actively searching for a job.

❑ The whole population of a country is classified into two major groups: those in the labour force and those outside the labour force.

- Labor force –Productive population-includes group of people within a specified age (14-60) who are actually employed and those who are without a job but are actively searching for a job, according to the Ethiopian labour law.
- Therefore, the labour force does not include: Children <14 and retired people age >60, and also people in mental and correctional institutions, and very sick and disabled people etc.

- A person in the labour force is said to be unemployed if he/she is without a job but is actively searching for a job.

Labour force = Employed + Unemployed

❖ Types of unemployment

1. *Frictional unemployment*: refers to a brief period of unemployment experienced due to.

✓ Seasonality of work E.g. Construction workers

✓ Voluntary switching of jobs in search of better jobs

✓ Entrance to the labor force E.g. A student immediately after graduation

✓ Re-entering to the labor force

2. *Structural unemployment:* results from mismatch between the skills or locations of job seekers and the requirements or locations of the vacancies.

- E.g. An agricultural graduate looking for a job at —Piassa.
- The causes could be change in demand pattern or technological change

3. *Cyclical unemployment*: results due to absence of vacancies.

- usually happens due to deficiency in demand for commodities/ the low performance of the economy to create jobs.
- E.g. During recession

Note:

- Frictional and structural unemployment are more or less unavoidable; hence, they are known as natural level of unemployment.
- When the unemployment rate is equal to the natural rate of unemployment, we say the economy is at full employment.
- Therefore, full employment does not mean zero unemployment.

Measurement of rates of unemployment

Total unemployment = Frictional + Structural + Cyclical unemployment
Natural level of unemployment = Frictional unemployment + Structural unemployment = Total unemployment - Cyclical unemployment
Natural rate of unemployment = Natural unemployment /labor force
Unemployment rate = total unemployment / labor force

Ex. -Consider the following information for a particular economy.

Total population =60 million	Total Labor force=40 million
No of employed = 30 million	NR of employment = 12%

a) Find the total unemployment rate

b) Calculate the cyclical unemployment rate

2. Inflation

- is the sustainable increase in the general or average price levels of commodities.
- the increase price must be a sustained one, and it is not simply once time increase in prices.
- it must be the general level of prices, which is rising; increase in individual prices, which can be offset by fall in prices of other goods is not considered as inflation.

❑ Price index (CPI)serves to measure inflation.

$$\text{Rate of inflation} = \frac{P_t - P_{t-1}}{P_{t-1}} * 100$$

where, P_t is price index (eg. CPI) at time t and P_{t-1} is price index at time t-1.

Causes of inflation

A. Demand pull inflation:

- inflation results from a rapid increase in demand for goods and services than supply of goods and services.
- This is a situation where —*too much money chases too few goods*.

B. Cost push or supply side inflation:

- it arises due to continuous decline in aggregate supply.
- This may be due to bad weather, increase in wage, or the prices of other inputs.

Economic effects of inflation

1. Inflation reduces real money balance or purchasing power of money. This will in turn reduce the welfare of individuals.
2. Banks charge their customers nominal interest rate for their loans.

- Nominal interest rate however is determined based on inflation rate as it is represented by Fisher's equation. $I = r + \Pi$ where, I is nominal interest rate, r is real interest rate and Π is inflation rate.
- Increase in inflation rate will raise the nominal interest rate and the opportunity cost of holding money. If people are to hold lower money balances on average, they must make more frequent trips to the bank to withdraw money.
- This is called the shoe-leather cost of inflation.

3. Inflation reduces investment by increasing nominal interest rate and creating uncertainty about macroeconomic policies.

4. Inflation redistributes wealth among individuals.

- Most loan agreements specify a nominal interest rate, which is based on the rate of inflation expected at the time of the agreement.
- If inflation turns out to be higher than expected, the debtor wins and the creditor loses because the debtor repays the loan with less valuable dollars.
- If inflation turns out to be lower than expected, the creditor wins and the debtor loses because the repayment is worth more than the two parties anticipated.

5. Unanticipated inflation hurts individuals with fixed income and pension.

6. High inflation is always associated with variability of prices which induces firms to change their price list more frequently and requires printing and distributing new catalogue.

- This is known as menu cost of inflation.

3. Budget deficit

- The overriding objectives of the government‘s fiscal policy are building prudent public financial management, financing the required expenditure with available resource and refrain from possibility of unsustainable fiscal deficit.
- The government receives revenue from taxes and uses it to pay for government purchases.
- Any excess of tax revenue over government spending is called public saving, which can be either positive (a budget surplus) or negative (a budget deficit).
- When a government spends more than it collects in taxes, it faces a budget deficit, which it finances by borrowing from internal and external borrowing.
- The accumulation of past borrowing is the government debt.

- In Ethiopian , to augment available domestic financing options, the government opted to finance its fiscal deficit from external sources on concessional terms.
- As a rule of thumb, non-concessional loans cannot be used to finance the budgetary activities.
- On the other hand, external non-concessional loans are used to finance projects that are run by State Owned Enterprises.
- In recent years, the government accessed loans from international market on non-concessional terms to finance feasible and profitable projects managed by State Owned Enterprises (SOEs).
- The country‘s total public debt contains central government, government guaranteed and public enterprises.

4. Trade deficit

- The national income accounts identity shows that net capital outflow always equals the trade balance.

$$S - I = NX.$$

Net Capital Outflow = Trade Balance

Net cash out flow is Saving(S) – Investment (I)

Balance of Trade = Merchandize Exports – Merchandize Imports

✓ If S – I and NX are positive, we have a trade surplus.

- In this case, we are net lenders in world financial markets, and we are exporting more goods than we are importing.

✓ If the balance between S – I and NX is negative.

- we have a trade deficit then we say that there is a deficit in the current account.
- In this case, we are net borrowers in world financial markets, and we are importing more goods than we are exporting.

✓ If S – I and NX are exactly zero,

- balanced trade because the value of imports equals the value of exports.

❑ If domestic saving exceeds domestic investment, the surplus saving is used to make loans to foreigners.

- Foreigners require these loans because we are providing them with more goods and services than they are providing us.
- That is, we are running a trade surplus.

❑ If investment exceeds saving, the extra investment must be financed by borrowing from abroad.

- These foreign loans enable us to import more goods and services than we export.
- That is, we are running a trade deficit.

6.7. Macroeconomic policy instruments

- The ultimate policy objective of any country in general is to have sustainable economic growth and development.
- Policy measures are geared at achieving moderate inflation rate, keeping unemployment rate low, balancing foreign trade, stabilizing exchange and interest rates, etc and in general attaining stable and well-functioning macroeconomic environment.
- To achieve these objectives countries adopt-

1. Monetary policy

- refers to the adoption of suitable policy regarding the control of money supply and the management of credit .
- It is concerned with the money supply, lending rates and interest rates.

- Monetary policy is a highly flexible stabilization policy tool.
- During economic recession where output falls with a fall in AD, monetary policy aims at increasing demand and hence production as well as employment will follow the same pattern of demand.
- In contrast, at the time of economic boom where demand exceeds production and treat to create inflation, the monetary policy instruments are utilized that could offset the condition and achieve price stability by counter cyclical action upon money supply.
- Government monetary policy regulation is under responsibilities of Central Banks.
- CBs controls the money supply to control nominal interest rates.
- Investment and saving decisions are based on the real interest rate.
- When government lowers interest rate, firms borrow more and invest more.
- Higher interest rates mean less investment.

2. Fiscal policy

- involves the use of government spending, taxation and borrowing to influence both the pattern of economic activity and also the level and growth of aggregate demand, output and employment.
- affect both aggregate demand (AD) and aggregate supply (AS).
- Most governments use fiscal policy to promote stable and sustainable growth while pursuing its income redistribution effect to reduce poverty.
- The most important tools of implementing the government fiscal policy are taxes, expenditure and public debt.
- Traditionally fiscal policy has been seen as an instrument of demand management.
- This means that changes in government spending, direct and indirect taxation and the budget balance can be used to help smooth out some of the volatility of real national output particularly when the economy has experienced an external shock.

- Fiscal policy decisions have a widespread effect on the everyday decisions and behaviour of individual households and businesses.
- Thus, it is mainly used to achieve internal balance, by adjusting aggregate demand to available supply.
- It also promotes external balance by ensuring sustainable current account balance and by reducing risk of external crisis.
- In general, it helps promote economic growth through more and better education and health care.

❑ Major functions of fiscal policy

i. Allocation

- The national budget determines how funds are allocated.
- This means that a specific amount of funds is set aside for purposes specifically laid out by the government.

- The budget allocation is done on the basis of aggregated development objectives such as recurrent vs capital expenditures or sectoral allocation (economic and social developments).

ii. Distribution

- The distribution functions of the fiscal policy are implemented mainly through progressive taxation and targeted budget subsidy.
- The distribution function of fiscal policy is to determine more specifically how those funds will be distributed throughout each segment of the economy.
- For instance, the government might apportion a share of its budget toward social welfare programs, such as food security and asset building for the most vulnerable and disadvantaged in society.
- It might also allocate for low-cost housing construction and mass transportation.

iii. Stabilization

- the purpose of budgeting is to provide stable economic growth.
- Government expenditure needs particularly in developing countries such as Ethiopia are unlimited. But its source of financing is limited.
- Thus without some restraints on spending or limiting the level of expenditure with available financial resources the economic growth of the nation could become unstable, creating imbalances in external sector as well as resulting in high prices.

iv. Development

- True economic growth occurs when various projects are financed and carried out using budgetary finance.
- Without Government input and influence private sector cannot grow the economy by itself.
- The government is responsible for providing public goods, reduce externalities and correct market distortions in order to pave the way for private sector.

- The underlying principles of the tax policies in Ethiopia are as follows:

✓ To introduce taxes that enhance economic growth, broaden the tax base and increase government revenue;

✓ To introduce taxes that are helpful to implement social policies that discourage consumption of substances that are hazardous to health and social problems;

✓ To introduce tax system that accelerate industrial growth and achieve transformation of the country and to improve foreign exchange earnings, as well as create conducive environment for domestic products to become competitive in the international commodity markets;

- ✓ To ensure modern and efficient tax system that supports the economic development;
- ✓ To make the tax system fair and equitable;
- ✓ To minimize the damage that may be caused by avoidance and evasion of tax; and
- ✓ To promote a tax system that enhances saving and investment.

End of the chapter

End of the course !!

Thank you!!!