Module 1

(Basic Concepts and Demand and Supply Analysis)

Introduction

The earlier term for 'Economics' was political economy. The term 'Economics' was derived from the Greek word 'Oikonomia" which means managing a household or household management. Simply, Economics is the art of making of Living. **Economics is the study of how societies use scarce resources to produce valuable commodities and distribute them among different people.** The subject matter of economics is generally divided into four parts. They are Production, Consumption, Exchange and Distribution. Economics is a social science concerned with the production, distribution, and consumption of goods and services. Adam Smith is the Father of Economics.

Definitions

Different Economists have tried to define economics in different manner:

1. **Wealth Definition -- Adam Smith**
2. **Welfare Definition – Alfred Marshall**
3. **Scarcity Definition - Lord Robbins**
4. **Growth Definition – Paul A Samuelson**

1. Adam Smith's Wealth Definition:

The formal definition of economics can be traced back to the days of Adam Smith (1723-90) - the great Scottish economist. Adam Smith and his followers regarded economics as a science of wealth which studies the process of production, consumption and accumulation of wealth. His emphasis on wealth as a subject matter of economics is implicit in his great book '**An Inquiry into the Nature and Causes of the Wealth of Nations'** or, more popularly known as 'Wealth of Nations' published in 1776.

2. Marshall's Welfare Definition:

Alfred Marshall in his book 'Principles of Economics published in 1890 placed emphasis on human activities or human welfare rather than on wealth. Marshall defines economics as "a study of men as they live and move and think in the ordinary business of life." He argued that economics, on one side, is a study of wealth and, on the other, is a study of man.

3. Robbins' Scarcity Definition:

The most accepted definition of economics was given by Lord Robbins in 1932 in his book 'An Essay on the Nature and Significance of Economic Science'. According to Robbins, neither wealth nor human welfare should be considered as the subject-matter of economics. His definition runs in terms of scarcity: "Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses."

4 Samuelson's Growth Definition:

Growth definition is also known as the Modern Definition of Economics. This definition was given by Prof. Paul A Samuelson. Prof. Samuelson define "economics as a science which studies how people and society choosing with or without the use money to employ scarce productive resources that could have alternative uses, to produce various commodities and distribution them for consumption. it also analysis the cost and benefits if improving resource allocation'.

The subject of Economics can be generally classified into two branches:

1. **Micro Economics**
2. **Macro Economics**

MICRO Economics:

The term 'micro' is derived from the Greek word 'Mikros' which means 'small'. It was, for the first time, used in economic literature by Ragnar Frisch of in 1933. Microeconomics as a specialized branch of economics is developed largely by the efforts of Adam Smith. Microeconomics is the branch of economics based on the economic behavior of small economic units.

MACRO Economics:

It is a branch of Economics which deals with aggregates. The word 'Micro Economics and Macro Economics' were first coined by Ragnar Frisch in 1933. John Maynard Keynes is considered as the father of Macro Economics. The term "MACRO" derived from the Greek word "Makros" which means "Large". Macroeconomics is the branch of economics that studies the

behavior and performance of an economy as a whole. It focuses on the aggregate changes in the economy such as unemployment, growth rate, gross domestic product and inflation.

Comparison Chart

BASIS FOR COMPARISON	MICROECONOMICS	MACROECONOMICS
Meaning	The branch of economics that studies the behavior of an individual consumer, firm, family is known as Microeconomics.	The branch of economics that studies the behavior of the whole economy, (both national and international) is known as Macroeconomics.
Deals with	Individual economic variables	Aggregate economic variables
Business Application	Applied to operational or internal issues	Environment and external issues
Scope	Covers various issues like demand, supply, product pricing, factor pricing, production, consumption, economic welfare, etc.	Covers various issues like, national income, general price level, distribution, employment, money etc.
Importance	Helpful in determining the prices of a product along with the prices of factors of production (land, labor, capital, entrepreneur etc.) within the economy.	Maintains stability in the general price level and resolves the major problems of the economy like inflation, deflation, reflation, unemployment and poverty as a whole.
Limitations	It is based on unrealistic assumptions, i.e. In microeconomics it is assumed that there is a full employment in the society which is not at all possible.	It has been analyzed that 'Fallacy of Composition' involves, which sometimes doesn't proves true because it is possible that what is true for aggregate may not be true for individuals too.

Basic Economic Problems (Scarcity & Choice)

An economy exists because of two basic facts. First human wants for goods and services are unlimited, and secondly, productive resources with which to produce goods are services are scarce. With our wants being virtually unlimited and resources being the scarce, a scarcity has to decide how to use its scarce resources to obtain the maximum possible satisfaction of its members.

Scarcity means limitation of the availability of resources in relation to their wants. That means the available resources are not enough to completely satisfy all the wants. By now, you must have already learnt that human beings have unlimited wants. And as the resources with which these wants must be satisfied are limited, we can understand that ‘scarcity’ is the central economic problem of everyone including individuals, firms and the government, and even the whole world. That is the problem of scarcity exists in all dimensions that are in terms of individual, society as well as countries. These facts explain scarcity as the principal problem of every society and suggest the **Law of Scarcity**, the law states that human wants are virtually unlimited and the resources available to satisfy these wants are limited.

Since are live in a world of scarcity, a society can produce only a small portion of goods and services that its people want. Therefore, scarcity of resources gives rise to the fundamental economic problem of **choice**. As a society cannot produce enough goods and services to satisfy all the wants of its people, it has to make choices. A decision to produce one good requires a decision to produce less of some other good. So choice involves sacrifice. Thus every society is faced with the basic problem of deciding what it is willing to sacrifice to produce the goods it wants the most.

For instance, the more roads a country decided to construct the fever resources will there be for building schools. So the problem of choice arises when there are alternative ways of producing other goods. The sacrifice of the alternative (school buildings) in the production of a good (roads) is called the opportunity cost. There are a number of problems that can arise from choices that are made by people, whether they are individuals, firms or government. Choices or alternatives (or opportunity cost) are illustrated in terms of a production possibility curve and it is explained in the later section.

Basic Problems of an Economy or Central Problems of an Economy

Scarcity of resources creates a few basic problems in every economy. Every economy faces some basic problems. Economic problem is the problem of choice. The problem of choice has to be faced by every economy of the world, whether developed or under developed. Human beings have wants which are unlimited. When these wants get satisfied, new wants crop up. Human wants multiply at a fast rate. The economic resources to satisfy these unlimited wants are limited.

In other words, resources or factors of production (they are defined as goods and services needed to carry out production i.e., land, labour, capital and entrepreneurship) are scarce. They are available in limited quantities in relation to the demand. Resources are not only scarce but they also have alternative uses. All this necessitates a choice between which goods and services to produce first. The economy comprising of individuals, business firms, and societies must make this choice.

All economies face 3 central problems:

1. **What to produce?**
2. **How to Produce?**
3. **For Whom to produce?**

1. What to Produce

Due to limited resources, every economy has to decide what goods to produce and in what quantities. If the means were unlimited, then it would lead to a stage of salvation. But the means are limited and the economy must decide the efficient allocation of scarce resources so that both

output and output-mix are optimum. An economy has to make a choice of the wants which are important for the economy as a whole.

2. **How to Produce**

The second question deals with the production technique. A particular good can be produced by different techniques mostly labour and capital intensive techniques. We generally consider two types of techniques of production: labor-intensive and capital-intensive techniques. In labour intensive technique, more labour and less capital is used. In capital-intensive technique, more capital and less labour is used.

3. **For Whom to Produce?**

This is the question of how to distribute the product among the various sections of the society. National product is the total output generated by the firms. Goods and services are produced in the economy for those who have the ability (i.e. capacity) to buy them. Ability or capacity or purchasing power of people depends on their income. More income means more capacity to buy.

Solutions of Central Problems

Different economic systems try to solve these problems differently. These problems are solved by the market mechanism in a capitalist economy. Central problems in a socialist economy are solved by a central planning or mechanism of planning. In a mixed economy all problems are solved jointly responsibility of market mechanism and planning process.

Causes of Economic Problems

The three main causes of economic problems are:

1. Human Wants Are Unlimited.
2. Resources are limited
3. Resources have alternative uses

Production Possibility Curve/ PPC/ Frontier

These Fundamental economic problems can be solved with the help of an economic tool namely, Production Possibility Curve/Frontier or Production Transformation Curve.

Production possibility curve or frontier (PPF) shows the various alternative combinations of goods and services that an economy can produce when the resources are all fully and efficiently employed.

Assumptions

1. Economy produces only two goods, X and Y.

2. Amount of resources available in an economy are given and fixed.
3. Resources are not specific, i.e., they can be shifted from the production of one good to the other good.
4. Resources are fully employed, i.e., there is no wastage of resources.
5. State of technology in an economy is given and remains unchanged.
6. Resources are efficiently employed

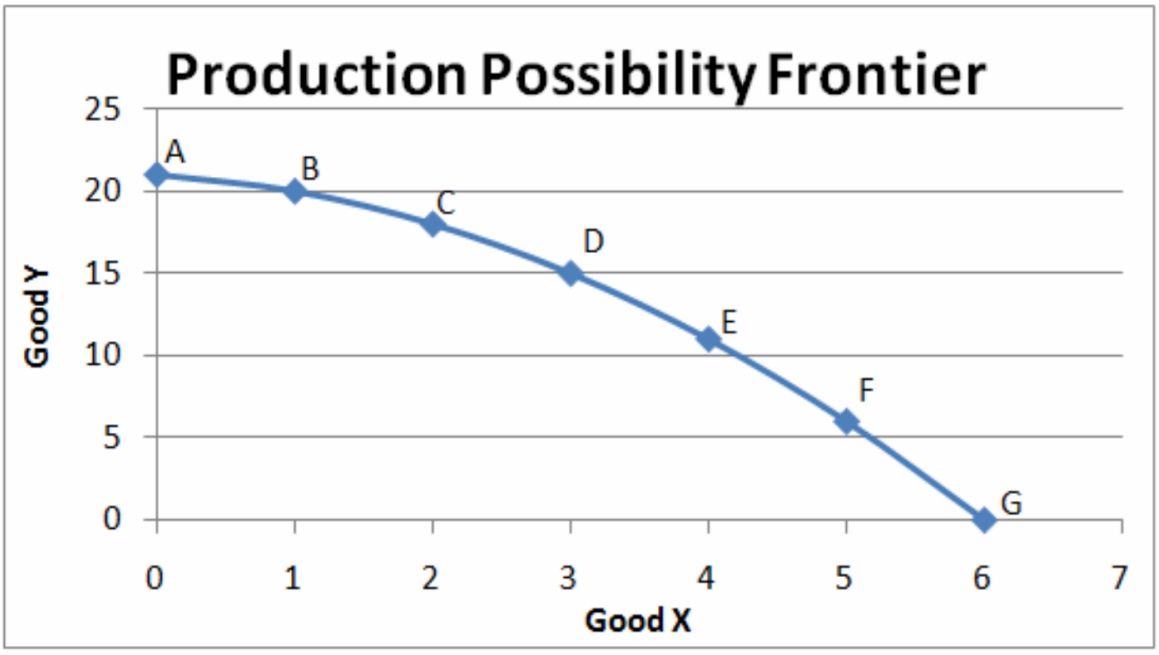
Production Possibility Schedule and Curve

PP schedule refers to tabular presentation of different possible combinations of two goods that an economy can produce with given resources and available technology.

Example: an economy can produce either zero unit of X and 21 units of Y or 1 of X and 20 of Y or 2 units of X 18 units of Y or 3 units of X and 15 units of Y or 4 of X and 11 of Y or 5 of X and 6 of Y or 6 units of X and zero units of Y.

Production Possibility	Good X	Good Y
A	0	21
B	1	20
C	2	18
D	3	15
E	4	11
F	5	6
G	6	0

Fig. 1.1 Production Possibility Curve



In the above figure X axis represents Good x and Y axis is Good Y. figure shows that the possible combinations of two commodities. Each alternative possibility, i.e., (0, 21), (1, 20), (2, 18), (3, 15), etc., are plotted and points A, B, C, D, E, F, G are joined by line segments. A smooth PPC is drawn which is based on the assumption that in reality infinite production possibilities exist. The economy can either produce OA of good Y or OG of good X or any other combination shown by points A, B, C, D, E, F or G. All points on the curve are attainable. The problem is that of choice, i.e., to choose among the attainable points on the curve. It depends upon tastes and preferences of an individual. This is the basic problem of an economy. Any point inside the curve, indicates unemployment of resources or inefficient use of resources. Any point outside the curve is unattainable given the scarcity of resources. An economy always produces on a PPC.

Two features of production possibility curve are:

(a) PPC slopes downward. A production possibility curve slopes downward from left to right because under the condition of full employment of resources, production of one good can be increased only after sacrificing production of some quantity of the other good. It is so because resources are scarce..

(b) PPC is concave to the origin. A production possibility curve is concave to the point of origin because of increasing marginal rate of transformation (MRT) or increasing marginal opportunity cost (MOC). Slope of PPC is defined as the quantity of good Y given up in exchange for additional unit of good X.

Slope of Production Possibility Curve = MRT

Shifts in Production Possibility Curve

With discovery of new stock of resources or an advancement in technology, the productive capacity of an economy increases.

1. PPC will shift to the right when:

(a) New stock of resources is discovered.

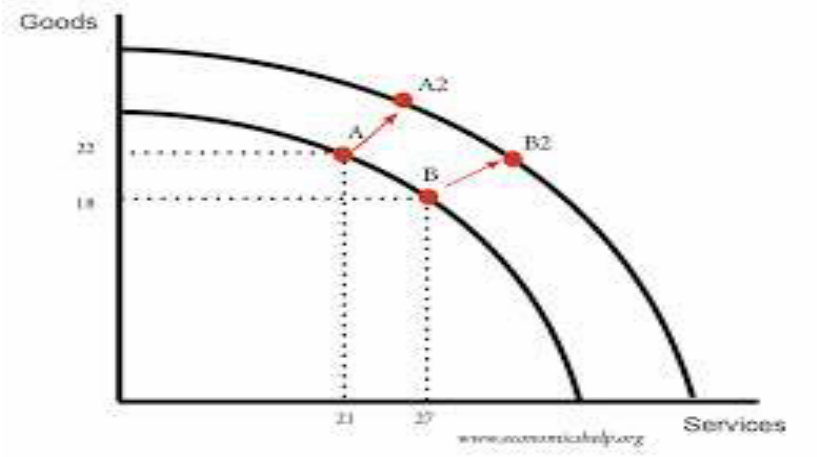
(b) There is advancement in technology

2. PPC will shift to the left when:

(a) Resources are destroyed because of national calamity like earthquake, fire, war, etc.

(b) There is use of outdated technology.

Shifts in PPC



Firm and its Objectives and Types

In simple terms, firms are companies. They are legally recognized bodies that provide goods and/or services to their consumers, government bodies, and other businesses. **A Firm can be defined as a production unit which produces a particular commodity or service for profit.** Firms include industrial units, farming enterprises as well as professional, technical and service activities. Profit maximization as the sole objective of a firm.

All business firms have undoubtedly some organizational goals to pursue. The traditional Economic theory assumed profit maximization as the sole objective of a firm. But the modern economist defines the other **objectives of Firms.**

1) **Profit Maximization**
2) **Sales or revenue maximization**
3) **Growth Maximization**
4) **Social/environmental concerns**
5) **Cooperatives**
6) **Increased market share/market dominance**
7) **Profit Satisfying**
8) **Entry prevention & risk avoidance**

1) Profit Maximization

The sole objective of a firm in the traditional theory of firm has been profit maximization. Conditions for maximizing profit –

(1) MC = MR and (2) MC should cut MR from below

2. Sales maximization

The firms may pursue the objective of sales maximization which can also be referred to as growth maximization. A firm achieves sales maximization when the average cost (AC) is equal to the average revenue (AR) which is also a point at which a firm breaks even (makes zero profit.)

3) Growth Maximization

The main goal of firm is the balanced rate of growth of the firm. Ability of managers judge by growth of firm. Managers try to maximize firm's balanced growth rate subject to Managerial and financial constraints.

4. Social/environmental concerns

A firm may incur extra expense to choose products which don't harm the environment or products not tested on animals. Alternatively, firms may be concerned about local community / charitable concerns. Some firms may adopt social/environmental concerns as part of their branding. This can ultimately help profitability as the brand becomes more attractive to

consumers. Some firms may adopt social/environmental concerns on principal alone – even if it does little to improve sales/brand image.

5. Co-operatives

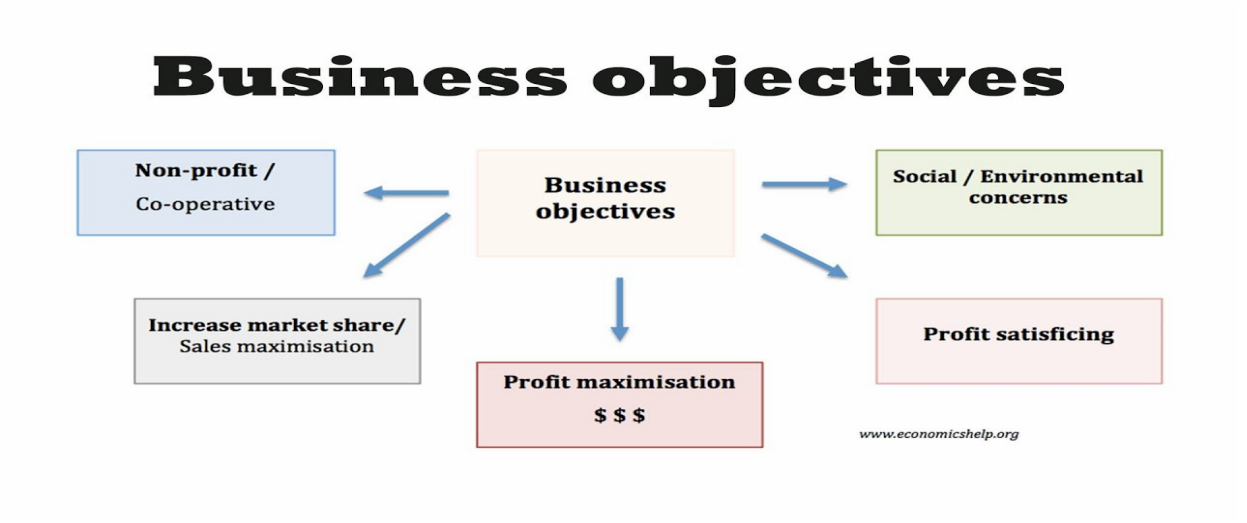
Co-operatives may have completely different objectives to a typical PLC. A co-operative is run to maximize the welfare of all stakeholders – especially workers. Any profit the co-operative makes will be shared amongst all members.

6.Increased market share/market dominance

Increased market share increases monopoly power and may enable the firm to put up prices and make more profit in the long run.

7. Profit Satisfying

Profit satisficing occurs when there is a separation between ownership and control in a business and where managers may make decisions that take a firm away from the orthodox assumption of pure profit maximization.



Types of Firms:

Firms can be divided on the basis of their legality, nature of work, number of owners, size, and need for its resources. Firms can be broadly classified into three main categories:

1. **Public Sector**
2. **Private Sector**
3. **Joint Sector**

The above categories are then divided into subcategories:

1. Private sector
    - Proprietary firms
    - Partnerships
    - Companies
    - Cooperatives
2. Public sector
    - Companies
    - Corporations
    - Departments
3. Joint Sector

Firms may have classified in a variety of ways depending on their ownership structures:

1. **Sole proprietorship or sole trader**
2. **Corporation**
3. **Partnership**
4. **Financial cooperative**

1. Sole proprietorship or sole trader

This type of firm controlled by a single individual responsible for all expenses and responsibilities and owns all assets. Although it is uncommon for single proprietorship companies to function as firms, it does occur.

2. Corporation

The financial statements of the companies are kept separate from those of the proprietors. The company owners are not responsible for the business's expenses, litigation, or other responsibilities. Individuals or governments may own corporations.

3. Partnership

This type of firm is a partnership owned by two or more individuals; the number of partners is unlimited. Each partner is personally responsible for all company responsibilities, and collectively they control the firm's assets.

4. Financial cooperative

This type of firm is comparable to a corporation in that its owners have limited liability. Still, investors have a voice in how the business operates.

Utility (Theory of Consumer Behavior)

Utility

The word utility denotes the want satisfying power of a commodity or service. Utility is a Subjective concept. The utility can be measuring a particular unit is called Utils.

1. **Total Utility**

Total utility is the overall satisfaction that a consumer derives from the consumption of particular goods and services. Total utility is the sum of marginal utilities of all such individual items.

$$TUn= U1+U2+U3+\ldots\ldots\ldots\ldots+Un$$

2. **Marginal Utility:**

Marginal utility refers to the satisfaction gained from an extra unit consumed. Marginal utility is a measure that defines the additional satisfaction a customer receives from one more unit of a product or service.

$$MU= \Delta TU/\Delta Q$$

or

$$MU=TUn - TU\ n\text{-}1$$

Utility Analysis

There are two important Approaches in the measurement of Utility:

- **Cardinal Utility Approach**
- **Ordinal Utility Approach**

1. Cardinal Utility Approach:

Cardinal utility means that utility can be measured and can be expressed in terms of numbers. Example: 1,2,3,4, This approach is associated with eminent economist ALFRED MARSHALL. The cardinalist school postulated that utility can be measured. It means that an individual consumer attaches specific values or number of utils from consuming each quantity of good or combination of goods.

Assumptions

1. The consumer is rational
2. Utility is measurable in terms of money
3. Constant Marginal Utility of Money
4. Diminishing Marginal Utility
5. Consumer has full knowledge of the availability of commodities and their technical qualities.

Cardinal utility analysis explains two basic laws of consumption.

1. Law of Diminishing Marginal Utility and

2. Law of Equi-Marginal Utility

2. Ordinal Utility Analysis:

In the case of Ordinal utility approach , utility can not be measured in the terms of numbers. In the ordinal approach utilities are measured in the terms of ranking or ordering. Example: I,II,III,IV ……. J.R.Hicks and R.G.D Allen are the main proponents of ordinal utility approach. The major ordinal theories are Indifference curve approach and Revealed Preference hypothesis.

The Law of Diminishing Marginal Utility

This is one of the laws related to consumer satisfaction and refers to common experience of every consumer. Law developed by German Economist Herman Gossen. This law is known as Gossen's first law (due to Jevons). The law of diminishing marginal utility describes a familiar and fundamental tendency of human behavior.

The law of diminishing marginal utility states that, **"as a consumer consumes more and more units of a specific commodity, utility from the successive units goes on diminishing".**

Example: If we drink tea, the first one will give a high level of satisfaction. But, if we drink one more tea, the satisfaction from the second one will be less when compared to the first one".

Marshall states the law thus**, "the additional benefit which a person derives from a given increase of his stock of a thing diminishes with every increase in stock that he already has".**

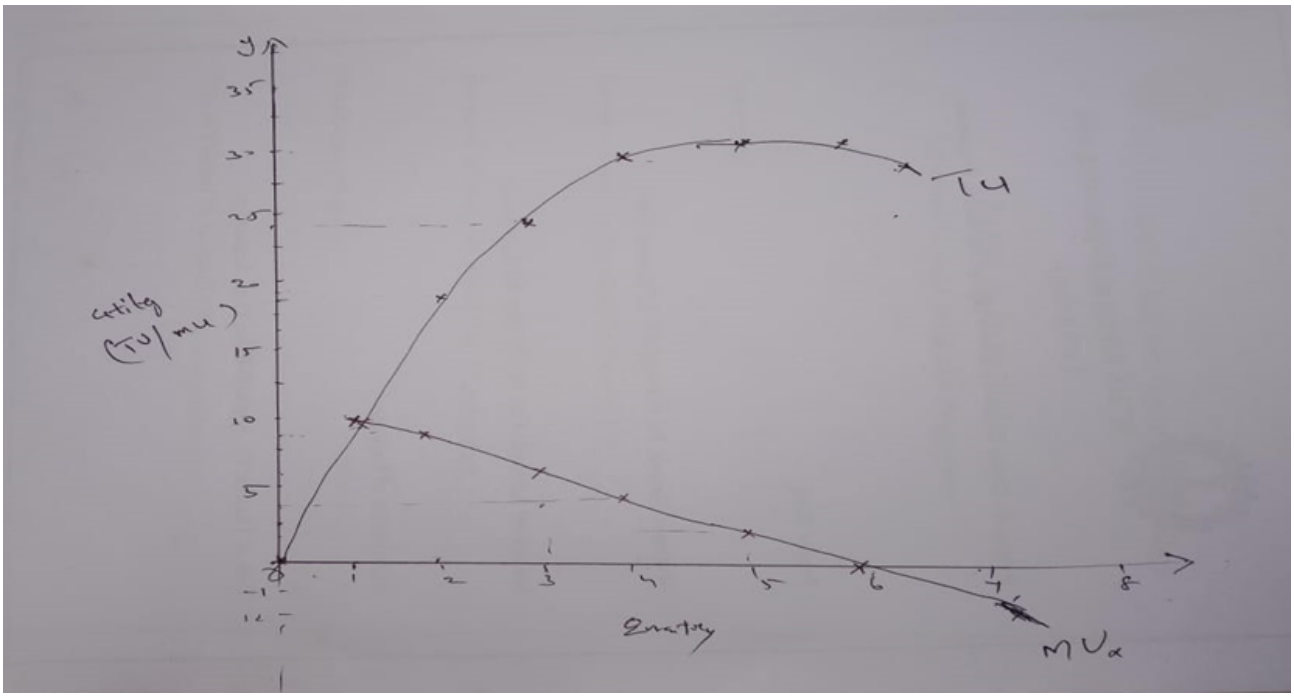
It means that, under certain conditions, the additional satisfaction which a person derives from successive units of a thing goes on diminishing.

Assumptions:

1. Various units of goods are homogenous.
2. There is no time gap between consumption of the different units.
3. Consumer is rational (So aims at maximization of utility of the product)
4. Tastes, preferences, and fashion remain unchanged.
5. Consumers possess perfect knowledge of the price in the market
6. No price change
7. It assumes Law of marginal diminishing Utility
8. Utilities of different commodities are independent of each other

Example: Suppose a boy consumes more and more ice creams. The changes in his marginal utility and total utility is shown in the following schedule.

No of Ice creams Consumed	TU	MU
0	0	-
1	10	10
2	18	18-10= 8
3	24	6
4	28	4
5	30	2
6 7	30 28	0 -2



In the above figure shows that a boy consumes more and more ice creams TU increases but at diminishing rate. This is because MU is decreasing with each additional unit of consumption. That is the consumption of second ice cream will give less satisfaction as compared to the satisfaction from the first one. When consumption is 6 units MU is zero. This is the point of Saturation.

Relationship between MU and TU

1. When MU is positive, TU increases
2. When MU = 0, TU is maximum
3. When MU is negative, TU decreases

Importance / Uses/ Applications of the Law

1. **Basis of economic laws:**

The important laws of economics are based on the Law of DMU. Examples: Law of DD, Consumers Surplus.

2. **Basis of the theory of taxation:**

The theory of progressive taxation is based on this law. A persons income increases his MU of money decreases.

3. The famous “diamond-water paradox” of Smith can be explained with the help of this law.

4. The law helps to explain the phenomenon in value theory that the price of a commodity falls when its supply increases.

Limitations / Criticisms

The law of diminishing marginal utility forms the basis for various other economic laws. Moreover, it is helpful for consumers to decide their expenditure. However, the law of diminishing marginal utility suffers from limitations.

i. Unrealistic assumptions:

Include homogeneity, continuity, and constancy conditions. All these assumptions are impossible to find at once.

ii. Inapplicability to certain goods:

Implies that the law of diminishing marginal utility cannot be applied to goods, such as television and refrigerator. This is because the consumption of these goods is not continuous in nature.

iii. Constant marginal utility of money:

Assumes that MU of money remains constant, which is unrealistic. There is also a gradual decline in the MU of money.

iv. Change in other people’s stock:

Implies that the utility of consumers is also dependent on what other people have in their stock. Thus, the utility depends on social needs.

v. Other possessions:

Assumes that utility of consumers also depends on possessions already owned by them. For example, a consumer is suffering from diabetes, thus, he is not allowed to consume sugar that he/she already possesses. In such a case, the utility of coffee derived by him/her would be less.

Demand Analysis

In the ordinary language people use the term demand as a "want or need". Ordinarily, by demand is meant the desire or want for something. In economics, "**Demand refers to the various quantities of a good or service that people will be and able to purchase at various prices during a period of time."**

Demand = Desire + Ability to pay + Willingness to spend

Types of Demand

1. Direct Demand

Demand for goods that are used for final consumption are Direct Demand. Example: Food, Dress etc.

2. Derived Demand

Derived Demand is demand for a good or service that arises as a result of demand for another related good or service. Ex; Smart Phone cases

3. Joint Demand

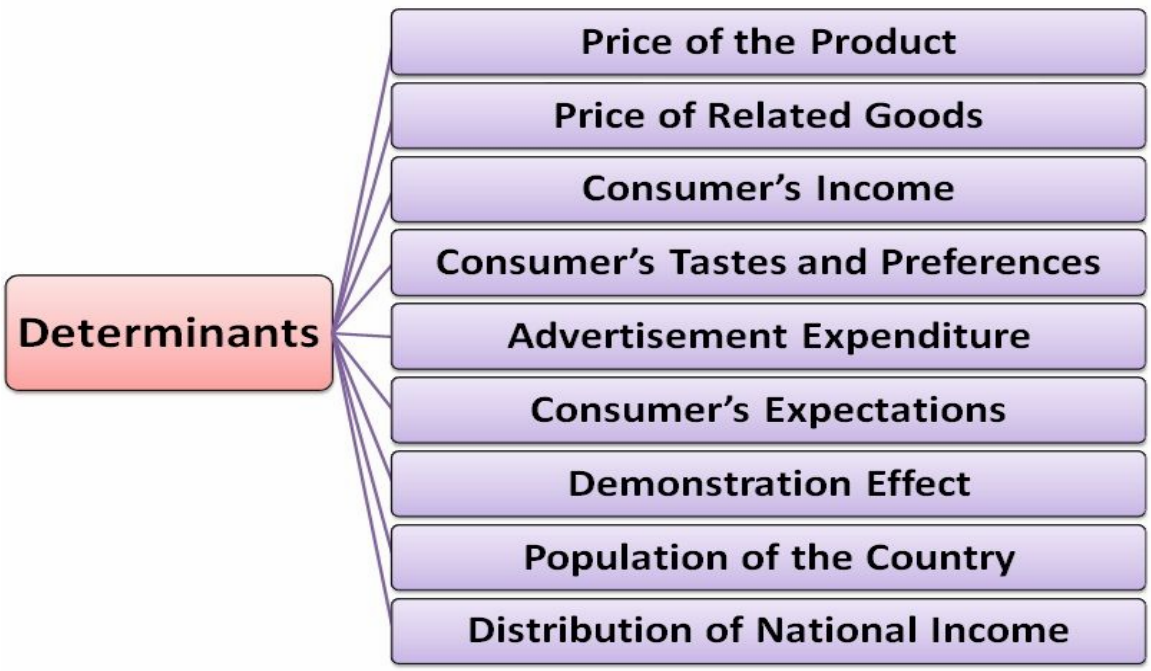
Joint demand is when the demand for one product is directly and positively related to market demand for a related good or service. Ex: Car and Car tyres

4. Individual and Market Demand

Individual Demand means that quantity demand by a single buyer or household. Market Demand is the quantity demand by all the buyers of a product.

Determinants of Demand or Factors determining Demand

Income, prices of related goods, taste and preferences of the consumer, expectations, number of buyers in the market, distribution of income etc are likely to affect the demand for the product. These factors are called "non-price determinants" and are assumed to be constant while deriving the demand schedule and demand curve.



1. **Price of the product**

The price of a product is one of the most important determinants of its demand in the long run and the only determinant in the short run. The quantity of the product demanded by the consumer inversely depends upon the price of the product. If the price rise demand falls and vice versa. The relation between price and demand is called Law of demand. It is not only the existing price but also the expected changes in price which affect demand.

2. **Income of the Consumer**

The demand depends up on income of the people. The greater the income of the people, the greater will be their demand for goods and services. If their income increases, people will tend to buy more goods and services than they did before the increase in income. This is the case of most goods and services.

3. **Prices of related goods:**

Goods and services may be related to each other in two ways; they may be substitutes or they may be complements. One good is said to be substitute for a second good if it can be used in the place of second good. Example: tea and coffee, beef and chicken. Two goods are said to be complementary if they are used together. Complementary goods are demanded jointly. Example: scooter and petrol, computer and computer software. In general, if the price of a substitute commodity increases, consumers tend to increase their purchases of the substitute in question.

4. **Taste and Preferences:**

The quantity of a commodity that people will buy will be affected by the taste and preferences. Companies spend millions of Rupees in advertisement in an attempt to influence consumer's tastes in favour of their products. Consumer's taste and preferences often change and as a result, there is a change in the demand for products. A good for which consumer's tastes are greater, its demand would be larger.

5. **Expectations:**

The expectations of the consumers regarding the price in the future will affect present purchases of goods and services. If consumers expect the price of the product to increase in the future, they are likely to increase their present purchases to stock up on the good and thus postpone paying the ensuing higher price for as long as possible.

6. **Distribution of income:**

Distribution of income in the society also affects demand for goods. If the distribution of income is more equal, then the propensity to consume of the society as a whole will be higher which results in greater demand for goods. On the other hand, if the distribution of income is more unequal, then the propensity to consume of the society will be relatively less because propensity to consume of rich people is less than that of poor people.

7. **Climate and weather conditions.**

Demand for certain products is determined by climatic and weather conditions for example, in summers there is a great demand for cold drinks, fans, air conditioners etc.

8. **Advertisement**

In the modern market, advertisement greatly influence the demand for a commodity. In fact, the demand for many products like to toothpaste, Cosmetics etc. is greatly affected by advertisement.

9. **Population**

Generally, the demand for a commodity increases with increase in size of population, other things being equal, it is not merely the change in the size of population but the changes in the composition of population also affect the demand for certain commodities.

10. **Government Policy**

Demand Function

Demand for a commodity is determined by several factors. An individual's demand for a commodity depends on the own price of the commodity, his income, prices of related commodities, his tastes and preferences, advertisement expenditure made by the produces of the commodity, expectations etc. Thus, individual's demand for a commodity can be expressed in the following general functional form,

$$\mathbf{Qx\ d = f\ (Px, I, Pr, T, A, E)}$$

where,

Qxd = Quantity demanded of commodity "x"; Px= Price of commodity x; I = Income of the individual consumer; Pr= Price of related commodities; T = Tastes and preferences of individual consumer; A = Advertisement expenditure; E = Expectations.

Law of Demand

Law of demand expresses the functional relationship between price and quantity demanded. According to the law of demand, **other things being equal, if the price of the commodity falls the quantity demanded of it will rise and if the price of the commodity rises, its quantity demanded will decline.**

According to law of demand, there is an inverse/ indirect/negative relationship between price and quantity demanded, other things remaining the same. The other things which are assumed to be constant are tastes and preferences of the consumer, the income of the consumer, prices of related commodities etc. Thus, the law of demand assumes that all things other than price remain constant.

The law of demand can be illustrated through a demand schedule and through demand curve.

Demand Schedule

It is a table which shows different quantities of a commodity demanded at different prices.

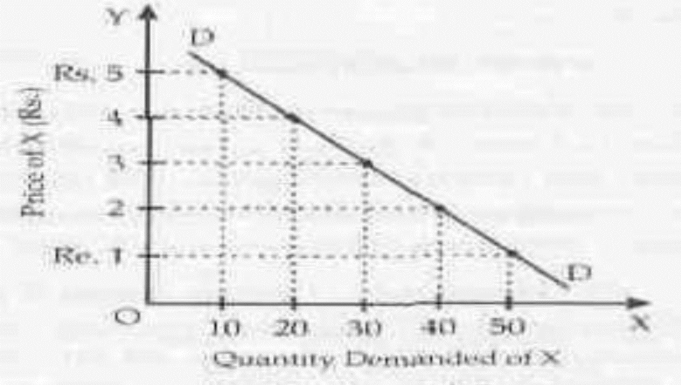
Price of X (In Rs)	Demand for X (Units)
5	10

4	**20**
3	**30**
2	**40**
1	**50**

Demand Curve

It is the graphical representation of a demand schedule.

Demand Curve



In the figure DD is the demand curve which slopes **downward from left to right** indicating the negative relation between price and quantity demanded.

WHY Does the Demand Curve slopes downwards or Why does a Consumer purchase a Larger quantity at a lesser Price?

1. **INCOME EFFECT**
2. **SUBSTITUTION EFFECT**
3. **LAW OF DIMINISHING MARGINAL UTILITY**

1. Income Effect:

When the price of the commodity falls, the consumer can buy more quantity of the commodity with his given income**.**

2. Substitution Effect:

When a commodity becomes cheaper a consumer will substitute the cheaper good for other goods.

3. Law of DMU:

A consumer purchases a larger quantity only at a lesser price because the Marginal utility of additional units purchased are less.

Exceptions to Law of Demand

The law of demand is not applicable to all types of goods. Some of these important exceptions are as under:

1. Giffen Goods:

Some special varieties of inferior goods are termed as Giffen goods. Cheaper varieties millets like bajra, cheaper vegetables like potato etc come under this category. Sir Robert Giffen of Ireland first observed that people used to spend more of their income on inferior goods like potato and less of their income on meat. After purchasing potato the staple food, they did not have staple food potato surplus to buy meat. So the rise in price of potato compelled people to buy more potato and thus raised the demand for potato. This is against the law of demand. This is also known as **Giffen paradox.**

2. Conspicuous Consumption / Veblen Effect:

This exception to the law of demand is associated with the doctrine propounded by Thorsten Veblen. A few goods like diamonds etc are purchased by the rich and wealthy sections of society. The prices of these goods are so high that they are beyond the reach of the common man. The higher the price of the diamond, the higher its prestige value.

3. Conspicuous Necessities:

Certain things become the necessities of modern life. So we have to purchase them despite their high price. The demand for T.V. sets, automobiles and refrigerators etc. has not gone down in spite of the increase in their price.

4. Ignorance:

A consumer's ignorance is another factor that at times induces him to purchase more of the commodity at a higher price.

5. Emergencies:

During emergencies like war, famine etc, households behave in an abnormal way. Households accentuate scarcities and induce further price rise by making increased purchases even at higher prices because of the apprehension that they may not be available.

6. Future Changes In Prices:

Households also act as speculators. When the prices are rising households tend to purchase large quantities of the commodity out of the apprehension that prices may still go up.

7. Changes in fashion

8. Demonstration effect

Elasticity of Demand

Elasticity of demand means degree of responsiveness of demand. ***Elasticity of Demand may be defined as the degree of responsiveness of demand due to change in its price, income and prices of related goods.*** Accordingly, there are three kinds of elasticity of demand. They are

1. Price elasticity of demand

2. Income elasticity of demand

3. Cross elasticity of demand

Determinants of Elasticity of Demand

1. Availability of Close Substitute for the Commodity:
2. Uses of the Commodity
3. Total expenditure on the Commodity
4. Level of Price
5. Level of income of the Household
6. The Nature of Commodities
7. Changes in fashion
8. Time

1. **Price Elasticity of Demand:**

Price Elasticity of Demand may be defined as the ***degree of responsiveness of the demand for a commodity due to change in its price.*** Price Elasticity of Demand can be Expressed in the form of a formula as follows.

$$e_P = -\frac{Percentage\ change\ in\ quantity\ demanded}{Percentage\ change\ in\ price}$$

$$= -\frac{\%\Delta\ Qd}{\%\Delta\ P}$$

$$= -\frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Where,

e_P = Price elasticity of demand

Q = Original quantity demanded

ΔQ= Change in quantity demanded (Q_1 -Q)

P = Original price

ΔP = Change in price (P_1 -P)

Five Degrees of Price Elasticity of Demand

The value of Price elasticity of demand ranges from zero to infinity and classified into five categories. They are:

1. Perfectly Elastic Demand
2. Perfectly Inelastic Demand
3. Unitary Elastic Demand
4. Less than Unitary Elastic Demand
5. More than Unitary Elastic Demand

1. Perfectly Elastic Demand

When there is no change in price of a product causes a major change in its demand, it is said to be perfectly elastic demand. In perfectly elastic demand, a small rise in price results in fall in demand to zero, while a small fall in price causes increase in demand to infinity.

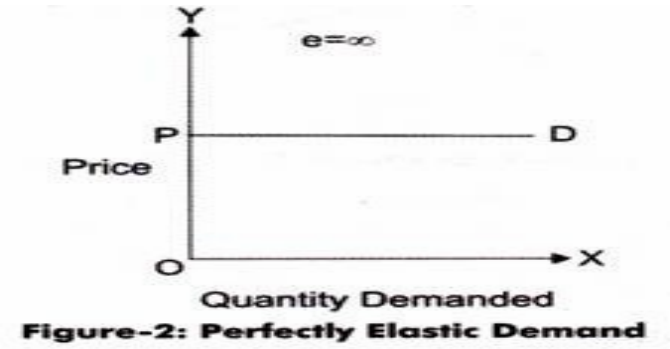


Figure-2: Perfectly Elastic Demand

Ed = α

2. Perfectly Inelastic Demand

A perfectly inelastic demand is one when there is no change in the demand of a product with change in its price. In case of perfectly inelastic demand, demand curve is represented as a straight vertical line.

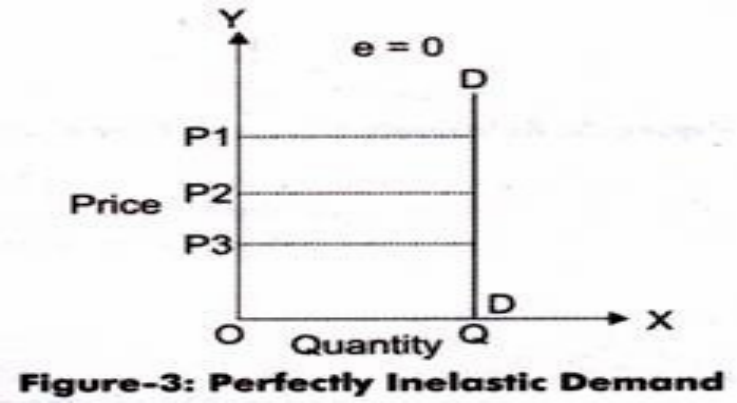


Figure-3: Perfectly Inelastic Demand

Ed = 0

3. Unitary Elastic Demand

When proportionate change in quantity demand equals the proportionate change in price. It is called Unitary Elastic Demand.

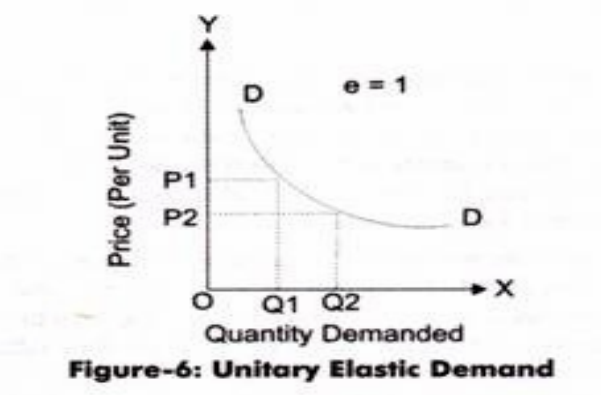


Figure-6: Unitary Elastic Demand

Ed =1

4. **Less than Unitary Elastic Demand**

When change in the quantity demand is less than proportionate to the change in price. It is called Less than Unitary Elastic Demand.

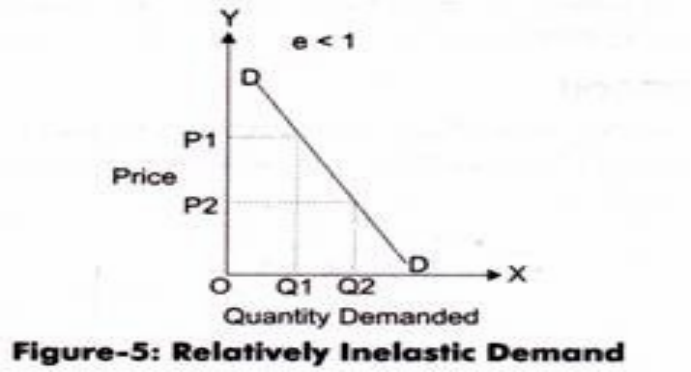


Figure-5: Relatively Inelastic Demand

Ed = <1

5. More than Unitary Elastic Demand

When change in quantity demand is more than proportionate change in price are called More than Unitary Elastic Demand.

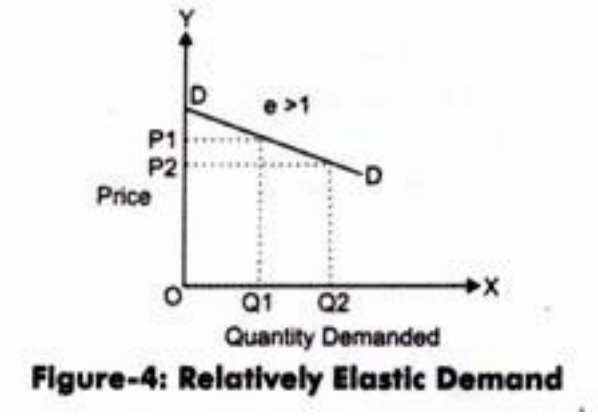


Figure-4: Relatively Elastic Demand

Ed =>1

Methods for Calculating Price Elasticity of Demand

Important methods for calculating Price Elasticity of Demand are:

1. **Total Outlay Method**
2. **Point Method**
3. **Arc Method**

1. **Total Outlay Method**

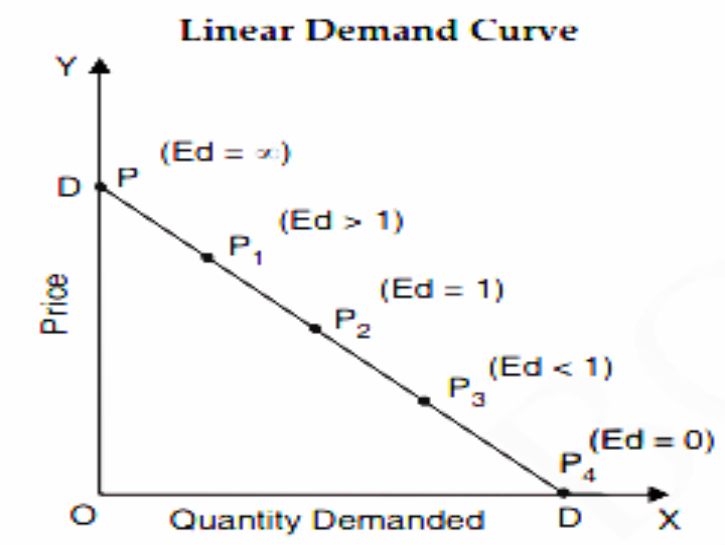
Total Outlay Method was suggested by Alfred Marshall. According to this method, the Price Elasticity of demand can be measured on the basis of change in total outlay or total expenditure in response to a change in price of a commodity.

2. **Point Method /Geometrical Method**

The Point Method was developed by Alfred Marshall. Elasticity measured at a point on a demand curve is known as Point Elasticity of Demand.

Point Elasticity on a straight line demand curve can be calculated by the following formula.

Ep = Lower Segment /Upper Segment



3. **Arc Method**

The concept of Arc Elasticity was introduced by Dalton. Arc elasticity is also defined as the elasticity between two points on a curve. In this case, the elasticity of demand that is obtained over the arc of the demand curve between the two points is called the arc-elasticity of demand.

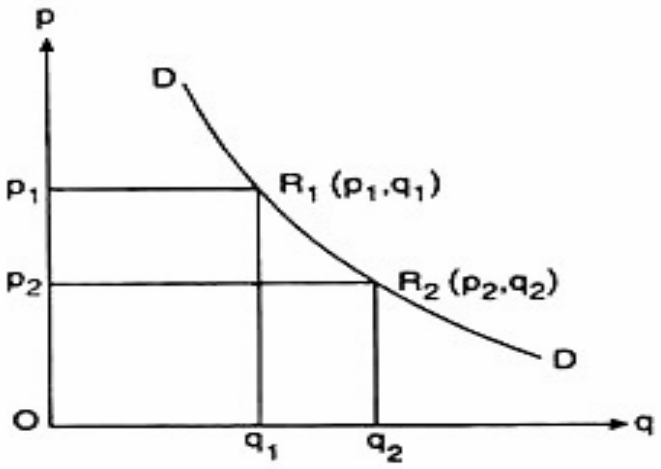


Fig. 2.1 Arc-elasticity of demand

2. Income elasticity of demand

Income Elasticity of Demand may be defined as the degree responsiveness of demand to the change in income.

Mathematically, it is expressed as:

Income elasticity of demand= $\frac{\%change\ in\ quantity\ demanded}{\%change\ in\ income}$

Symbolically, it is expressed as:

$E_Y = \frac{\Delta q}{\Delta y} \times \frac{y}{q}$

3. Cross Elasticity of Demand

Cross Elasticity of Demand may be defined as the degree of responsiveness of demand to a change in the price of a related good. The cross ED is important case of commodities substitute and complementary goods.

Mathematically, it is expressed as:

$$Cross\ elasticity\ of\ demand = \frac{\%\ change\ in\ quantity\ demanded\ for\ good\ x}{\%\ change\ in\ price\ of\ good\ y}$$

Symbolically, it is expressed as:

$$E_C = \frac{\Delta q_x}{\Delta p_y} \times \frac{p_y}{q_x}$$

Where, E_C= Cross elasticity of demand

q_x= initial quantity demanded for good x

Δq_x= change in quantity demanded of good x

p_y= initial price of good y

Δp_y= change in price of good y

Applications /Importance of Elasticity of Demand

1. Importance in Price fixation under Imperfect Competition and Monopoly.
2. Importance in Fiscal policy
3. Helps to measure terms of trade

4. Use in the determination of Foreign exchange rate

Changes In Demand and Quantity Demand

In economics the terms change in quantity demanded and change in demand are two different concepts.

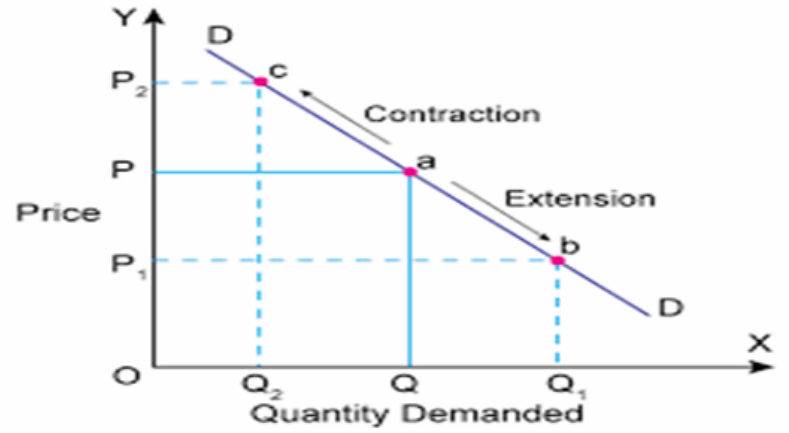
1. Extension and Contraction of Demand(Price)

2. Increase and Decreasing Demand (non-price factors)

Change in quantity demanded refers to change in the quantity purchased due to increase or decrease in the price of a product is called Extension and Contraction of Demand. On the other hand, change in demand refers to increase or decrease in demand of a product due to various determinants of demand, while keeping price at constant is called Increase and Decreasing Demand.

Extension and Contraction of Demand

Expansion/Extension of demand refers to the period when quantity demanded is more because of the fall in prices of a product. However, contraction of demand takes place when the quantity demanded is less due to rise in the price of a product.



Increase and Decrease in Demand

Increase and decrease in demand are referred to change in demand due to changes in various other factors such as change in income, change in consumer's tastes and preferences, change in the price of related goods, while Price factor is kept constant Increase in demand refers to the rise in demand of a product at a given price.

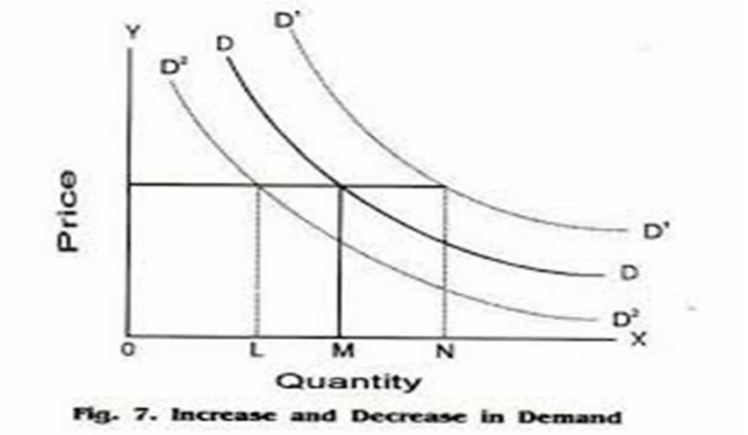


Fig. 7. Increase and Decrease in Demand

SUPPLY ANALYSIS

Supply

Demand Explains buyers side and Supply Explains the Sellers Side. Supply refers to the various quantities of a good or service that sellers will be able to offer for sale at various prices during a period of time. Supply is a fundamental economic concept that describes the total amount of a specific good or service that is available to consumers.

Determinants of Supply

(1) Prices of related products

(2) Prices of inputs

(3) Technology

(4) Expectations

(5) Number of Producers

Law of Supply

The functional relationship between price and quantity supplied is called the law of supply. In other words, Law of Supply is the Direct/Positive relationship between Price and Quantity Supply. Law of Supply States that, ***"as the price of the commodity falls, the quantity supplied decreases and as the price of the commodity rises the quantity supplied increases, other things being equal.***

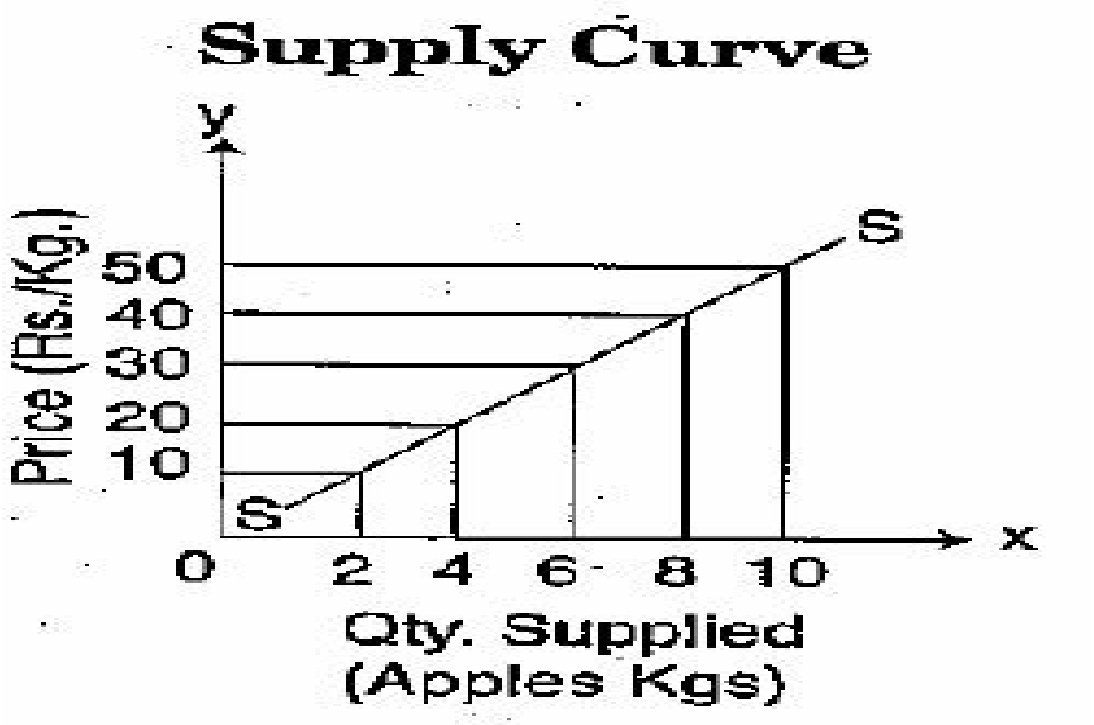
Individual Supply

It may be defined as a quantity of a commodity supplied in the market by an individual or household at a price for a period of time.

Individual Supply Schedule

Price	Qty Supply
10	2
20	4
30	6
40	8
50	10

Supply Curve



Supply Curve is sloping from Upward from left to Right

Supply Function

In general, quantity supplied of a product is expected to depend on own price, prices of related products, prices of inputs, state of technology, expectations, number of producers (sellers) in the market etc. This list can be summarised in a supply function.

$$Q_{xS} = f(Px, Pr, Pi, T, E, N)$$

Where.,

Qx S = Quantity supplied of commodity x

Px= Price of the commodity x

Pr= Prices of related products

Pi = Prices of inputs

T = State of technology , E = Expectations ,N = Number of producers in the market

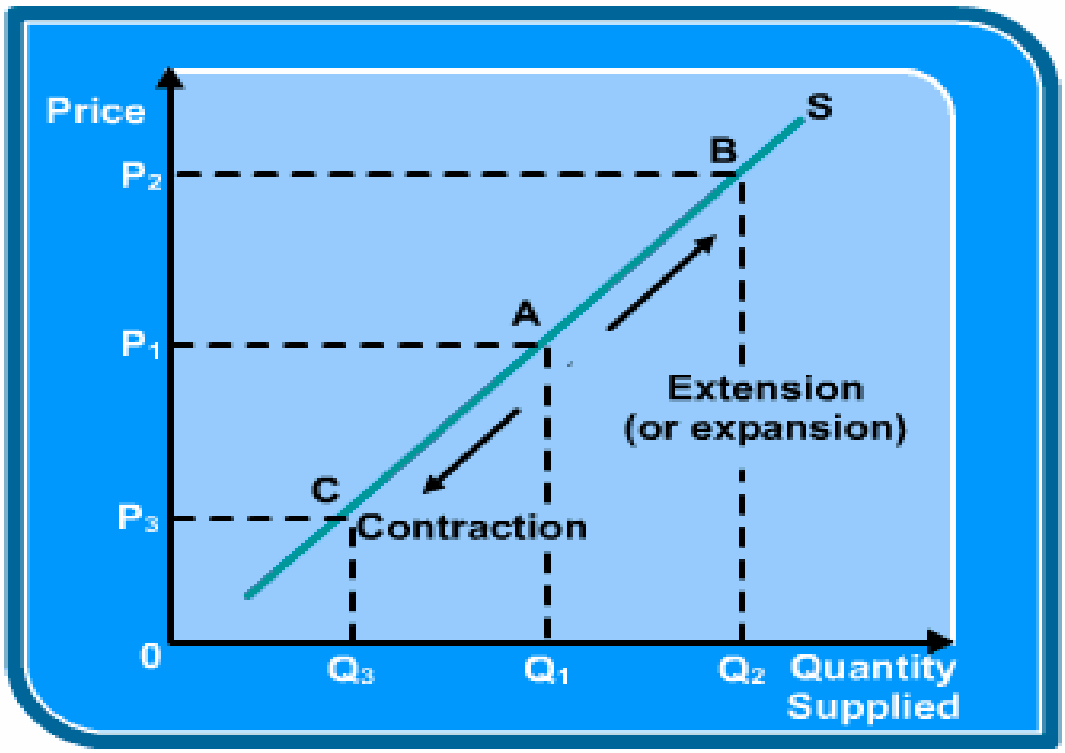
Changes in Supply Curve

There are two types of changes in Supply curve

1. **Extension and Contraction of Supply**
2. **Increase and Decrease in Supply**

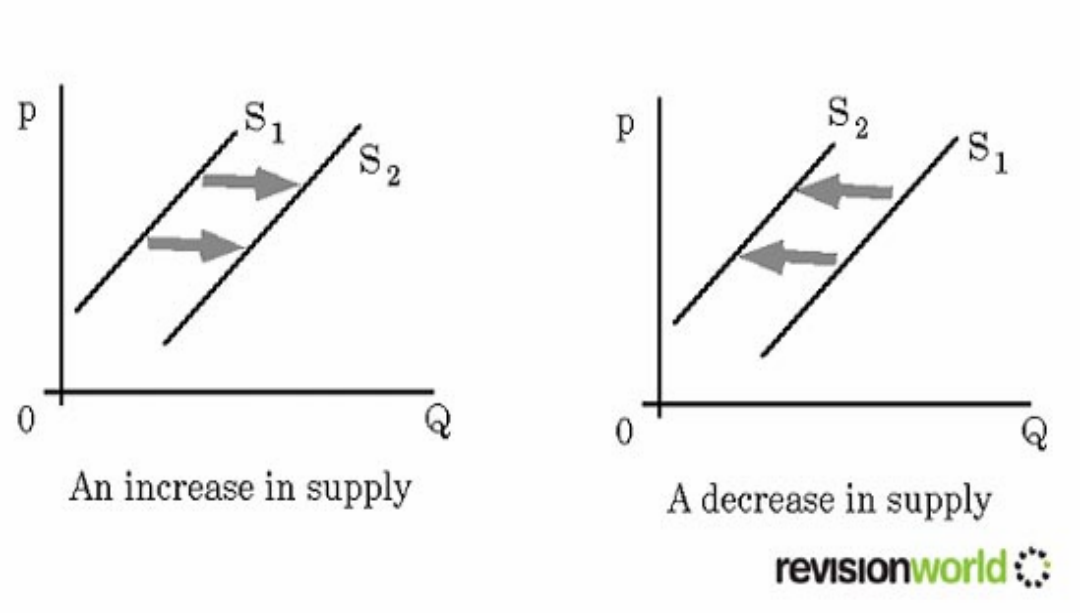
1. Extension and Contraction of Supply

The changes in Quantity supply due to change in price alone is called Extension and Contraction of Supply. Rise in supply due to rise in price of a commodity is called Extension of Supply. Fall in supply due to fall in price of a commodity is called Contraction of Supply.



2. Increase and Decrease in Supply

The change in supply due to change in non-price factors are called Increase and Decrease in Supply.



Elasticity of Supply/Price Elasticity of Supply

Elasticity of Supply may be defined as a degree of responsiveness of supply of a commodity to change in its price.

$$\text{Price Elasticity Of Supply} = \frac{\text{\% change in quantity supplied}}{\text{\% change in price}}$$

$$= \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Degrees of Price Elasticity of Supply

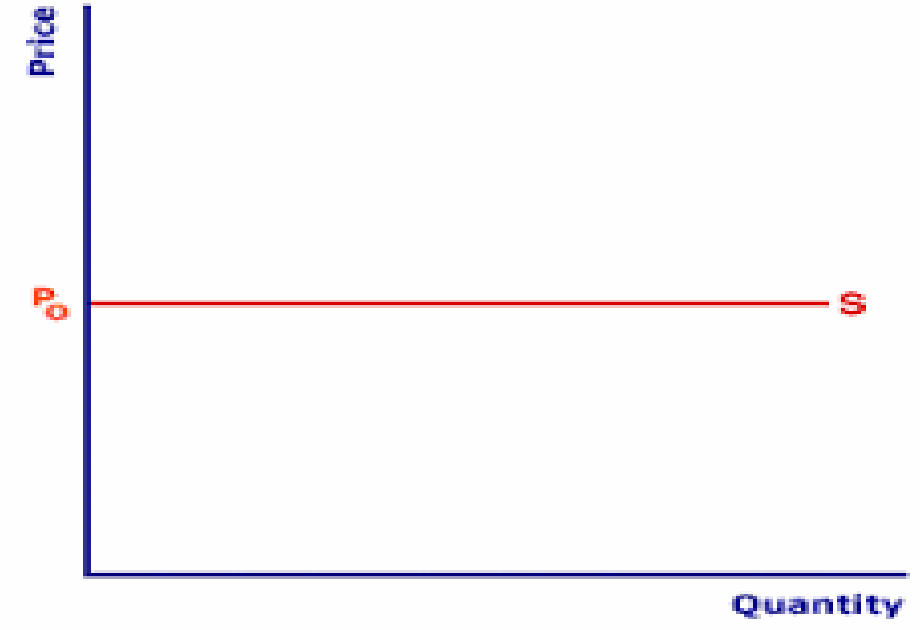
There are Five kinds of Price elasticity of Supply:

1. **Perfectly Elastic Supply**

2. **Perfectly Inelastic Supply**
3. **Unitary Elastic Supply**
4. **Less than unitary Elastic Supply**
5. **More than unitary Elastic Supply**

1. **<u>Perfectly Elastic Supply</u>**

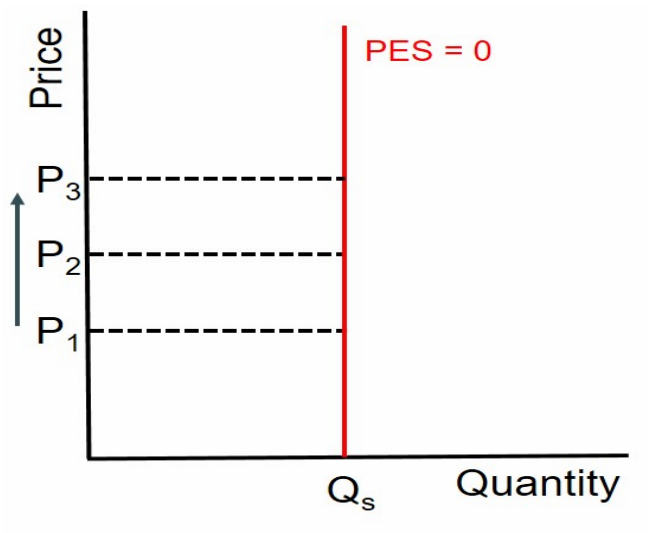
When there is no change in price and quantity supply rises. This situation known as Perfectly Elastic Supply. Perfectly elastic supply curve is depicted by a horizontal supply curve parallel to quantity axis.



ES =α

2. **<u>Perfectly Inelastic Supply</u>**

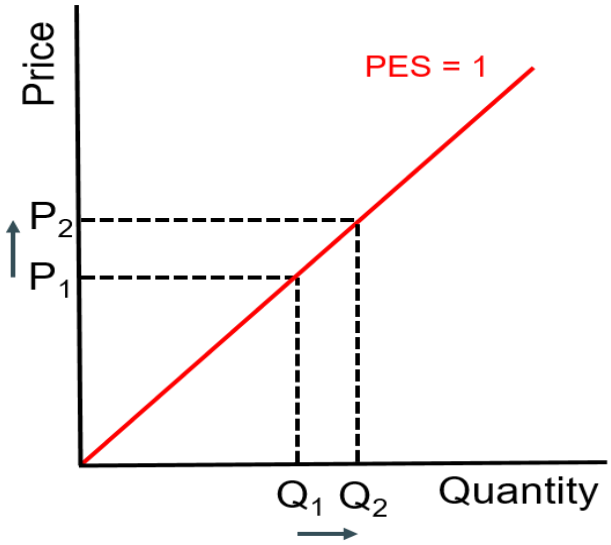
When there is no change in quantity supplied in responsiveness to change in price is known as <u>Perfectly Elastic Supply.</u>



ES =0

3. Unitary Elastic Supply

When proportionate change in quantity supply equals the proportionate change in price. It is called Unitary Elastic Supply.



ES =1

4. Less than Unitary Elastic Supply

When change in the quantity supply is less than proportionate to the change in price. It is called Less than Unitary Elastic Supply.

ES = <1

5. More than Unitary Elastic Demand

When change in quantity supply is more than proportionate change in price are called More than Unitary Elastic Supply

ES =>1

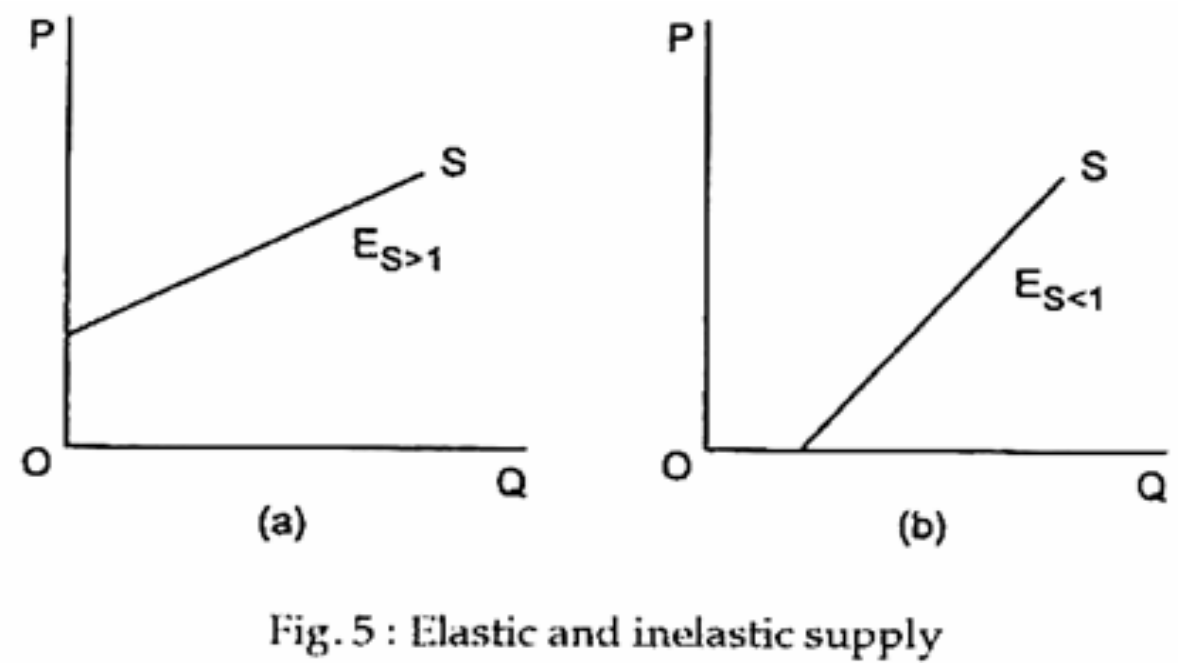


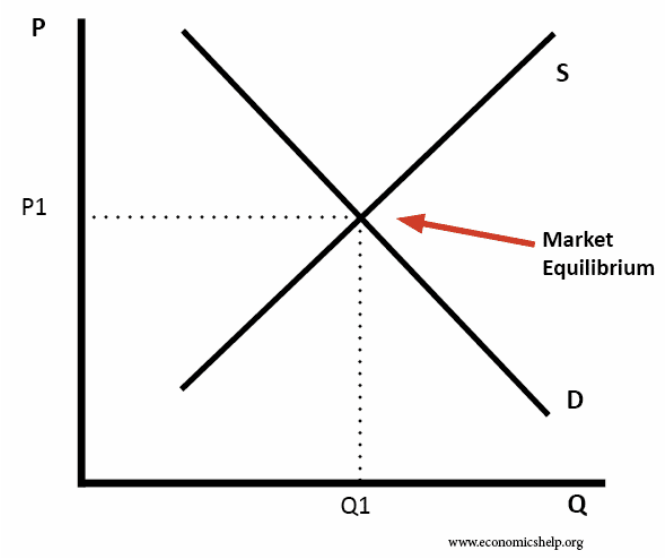
Fig. 5 : Elastic and inelastic supply

Equilibrium

The term "Equilibrium" is derived from the latin words "acqus" and "Libera" which means Equal balance. So the term equilibrium means a state of balance or rest. When two opposite forces balance each other on a particular object, the object is said to be in a state of equilibrium. The opposite forces in Economics are demand and supply.

A market is in equilibrium when the market demand and the market supply of a commodity are equal at a particular price. A situation where for a particular good supply = demand. When the market is in equilibrium, there is no tendency for prices to change. We say the market-clearing price has been achieved.

Market equilibrium can be shown using supply and demand diagrams In the diagram below, the equilibrium price is P1. The equilibrium quantity is Q1.



Diagrammatic representation of the idea of market equilibrium is given above. DD is the market demand curve and SS is the Market supply curve. They intersect at point P.

Changes in Supply Curve

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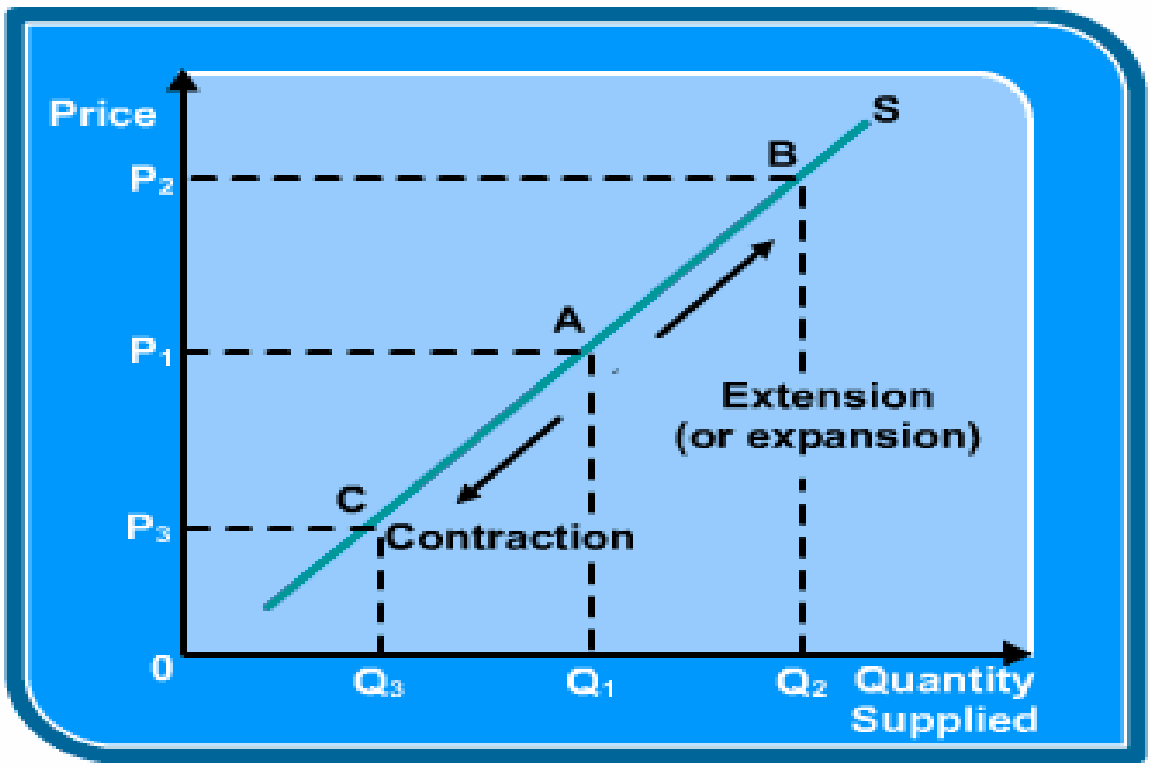
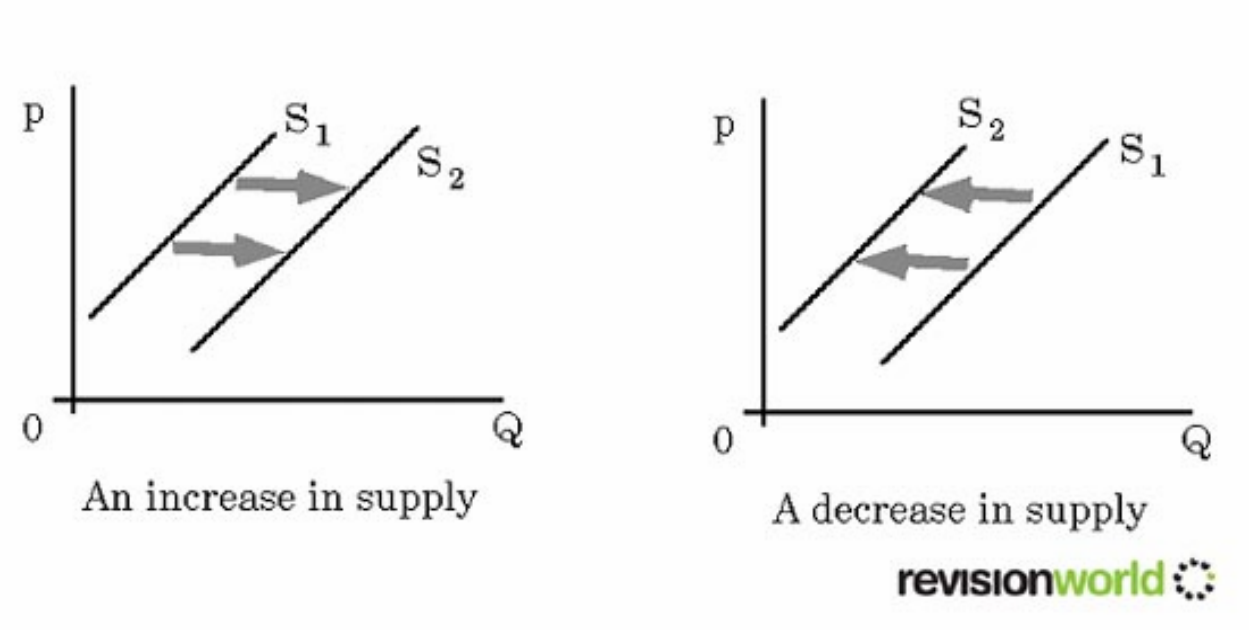


2. Increase and Decrease in Supply

The change in supply due to change in non-price factors are called Increase and Decrease in Supply.



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5. More than unitary Elastic Supply

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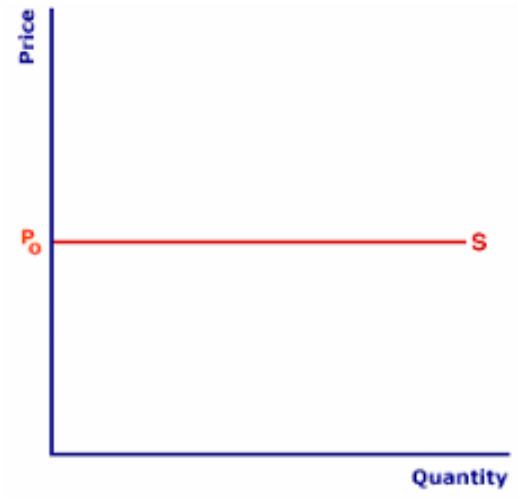
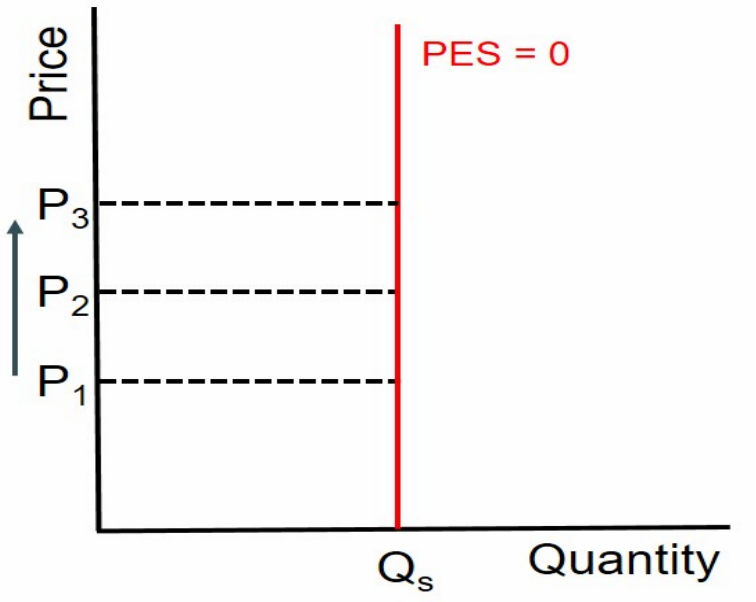


Es = α

2 . Perfectly Inelastic Supply

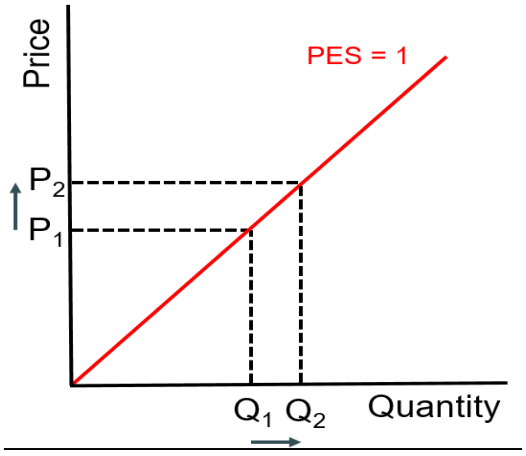
When there is no change in quantity supplied in responsiveness to change in price is known as Perfectly Elastic Supply.



Es =0

3.Unitary Elastic Supply

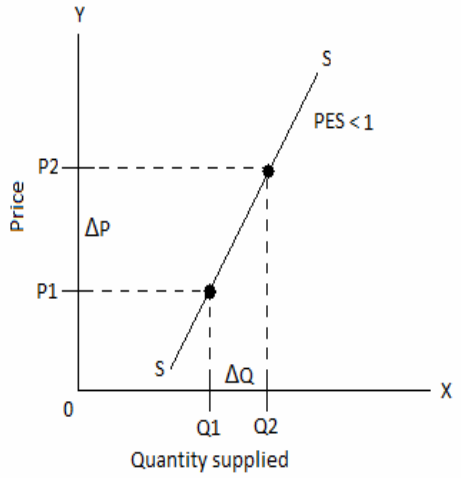
When proportionate change in quantity supply equals the proportionate change in price. It is called Unitary Elastic Supply.



Es = 1

4. **Less than Unitary Elastic Supply**

When change in the quantity supply is less than proportionate to the change in price. It is called Less than Unitary Elastic supply.



Es = <1

5. More than Unitary Elastic Supply

When change in quantity supply is more than proportionate change in price are called More than Unitary Elastic Supply.

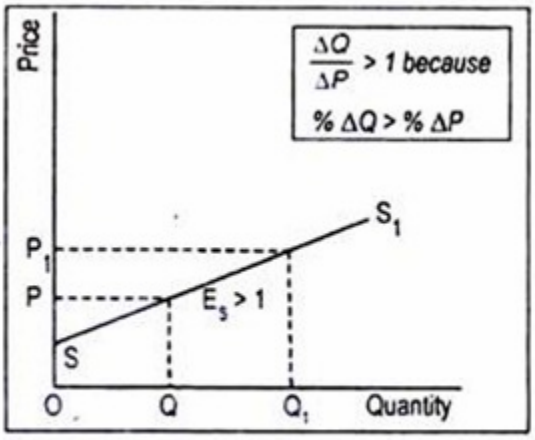


Fig. 4.17: $E_s > 1$

Es =>1

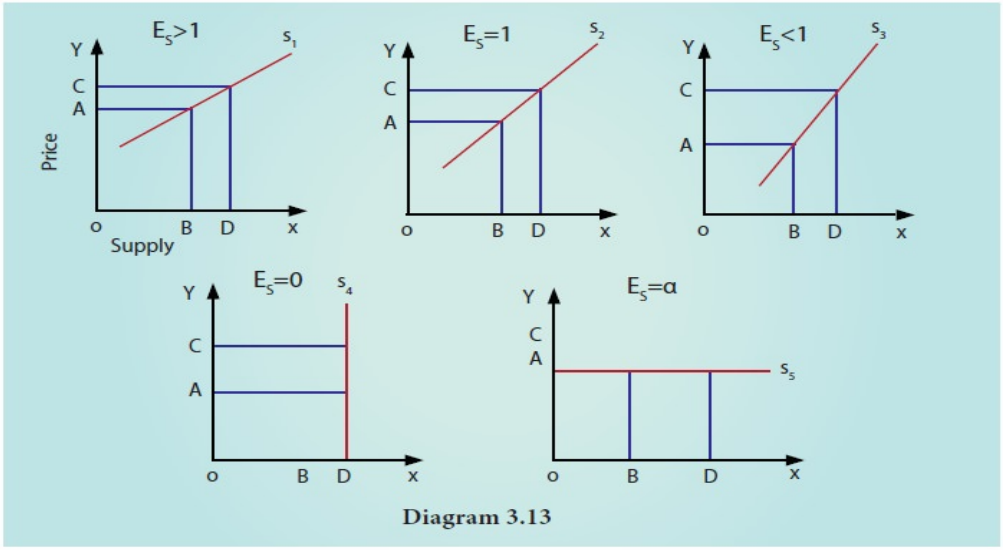


Diagram 3.13