

# CA Foundation

## Part- 1

### Paper-4: Business Economics

#### Section B: Micro Economics

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## Chapter 1

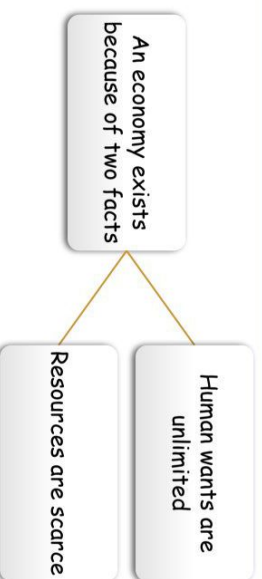
## Nature &amp; Scope of Business Economics

## Definition

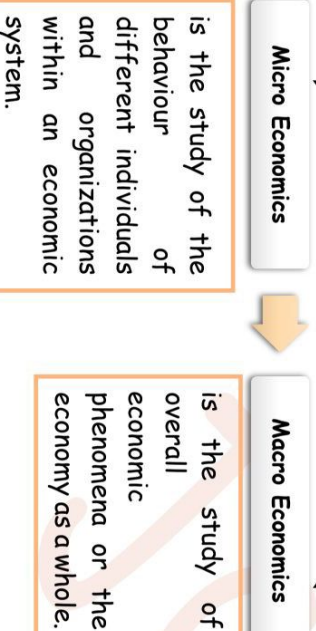
- Business Economics may be defined as the use of economic analysis to make business decisions involving the best use of an organizations scarce resources.

## Meaning of Economics

- Economics is the study of processes by which the relatively scarce resources are allocated to satisfy the competing unlimited wants of human beings in a society.



## Subject - matter of Economics

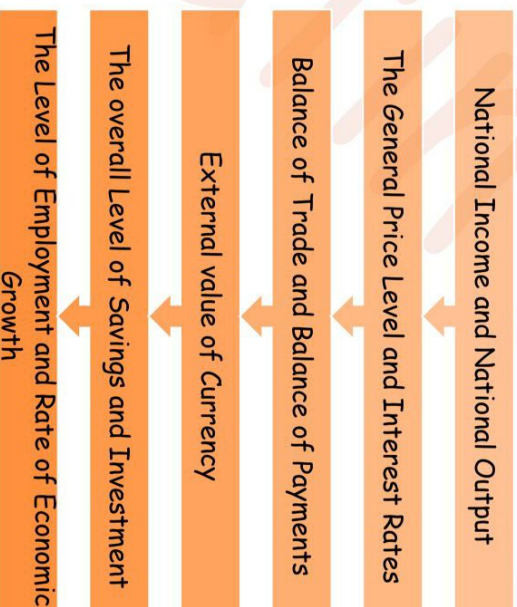


## Unit - 1: Introduction

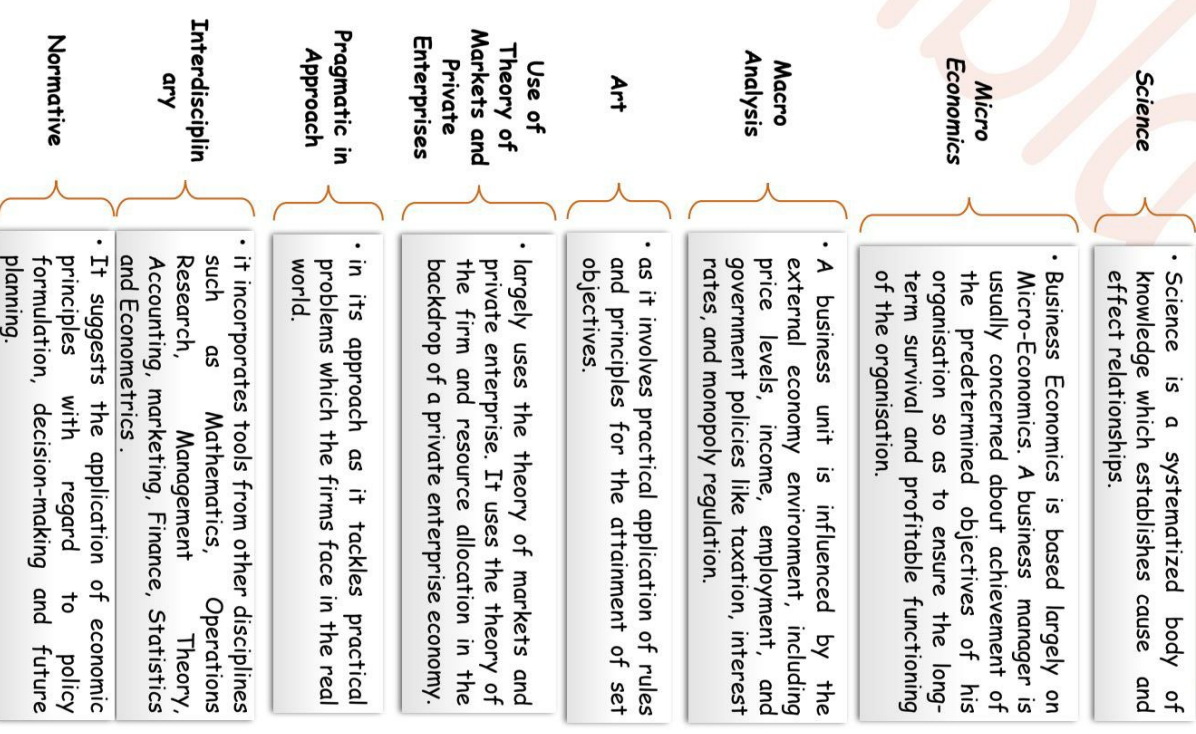
## In Micro Economics we study about-



## In Macro Economics we study about-



## Nature of Business Economics





## Scope Of Business Economics

### **Micro Economics applied to Operational or Internal Issues.**

- Business Economics makes use of microeconomic analysis such as, demand analysis and forecasting, production and cost analysis, inventory management, market structure and pricing policies, resource allocation, theory of capital and investment decisions, profit analysis and risk and uncertainty analysis.

### **Macro Economics applied to Environmental or External Issues.**

- Business Economics also considers macroeconomics related to economic systems, business cycles, national income, employment, prices, saving and investment, Government's economic policies and working of financial sector and capital market.



## Chapter 1

## Nature &amp; Scope of Business Economics

## Unit - 2: Basic Problems Of An Economy And Role Of Price Mechanism

Basic Problems Of An Economy

Every economic system, be it capitalist, socialist or mixed, has to deal with this central problem of scarcity of resources relative to the wants for them. This is generally called 'the central economic problem'. The central economic problem is further divided into four basic economic problems.

**What to Produce ?**

- Since the resources are limited, every society has to decide which goods and services should be produced and how many units of each good (or service) should be produced

**How to Produce ?**

- It has to decide whether to use labour intensive techniques or capital - intensive techniques. The choice would depend on the availability of different factors of production and their relative prices.

**For whom to Produce ?**

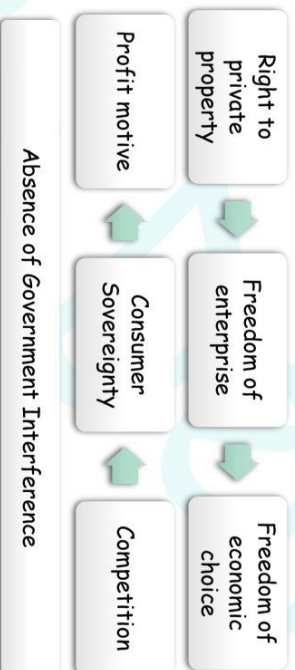
- How the goods (and services) should be distributed among the members of the society

**What Provisions are to be made for Economic Growth?**

- A society has to decide how much saving and investment (i.e. how much sacrifice of current consumption) should be made for future progress.

Capitalist Economy

Is an economic system in which all means of production are owned and controlled by private individuals for profit. An economy is called capitalist or a free market economy or laissez-faire economy.

CharacteristicsMerits

- ▶ There is usually high degree of operative efficiency under the capitalist system.
- ▶ Cost of production is minimized as every producer tries to maximize his profit by employing methods of production which are cost-effective.
- ▶ Capitalist system offers incentives for efficient economic decisions and their implementation.
- ▶ Consumers are benefitted as competition forces producers to bring in a large variety of good quality products at reasonable prices.

Demerits

- ▶ Economic inequalities lead to wide differences in economic opportunities and perpetuate unfairness in the society.
- ▶ The capitalist system ignores human welfare because, under a capitalist set up, the aim is profit and not the welfare of the people.
- ▶ Less of merit goods like education and health care will be produced.
- ▶ Due to unplanned production, economic instability in terms of over production, economic depression, unemployment etc., is very common under capitalism. These result in a lot of human misery.
- ▶ There is enormous waste of productive resources as firms spend huge amounts of money on advertisement and sales promotion activities.
- ▶ Excessive materialism as well as conspicuous and unethical consumption lead to environmental degradation.

Socialist Economy

The material means of production i.e. factories, capital, mines etc. are owned by the whole community represented by the State. A socialist economy is also called as "Command Economy" or a "Centrally Planned Economy".

### Characteristics



### Mixed Economy

System depends on both markets and governments for allocation of resources. In fact, every economy in the real world makes use of both markets and governments and therefore is mixed economy in its nature.

### Features Mixed Economy

Co-existence of private and public sector: The first important feature of a mixed economy is the co-existence of both private and public enterprise.

### Merits

- ▶ Economic freedom and existence of private property which ensures incentive to work and capital formation.
- ▶ Price mechanism and competition forces operating in the private sector promoting efficient decisions and better resource allocation.
- ▶ Consumers are benefitted through consumers' sovereignty and freedom of choice.
- ▶ Appropriate incentives for innovation and technological progress.
- ▶ Encourages enterprise and risk taking.
- ▶ Advantages of economic planning and rapid economic development on the basis of plan priorities.
- ▶ Comparatively greater economic and social equality and freedom from exploitation due to greater state participation and direction of economic activities.
- ▶ Disadvantages of cut-throat competition averted through government's legislative measures such as environment and labour regulations.



## Chapter 2

## Unit - 1: Law Of Demand And Elasticity Of Demand

## Theory of Demand and Supply

## Meaning Of Demand

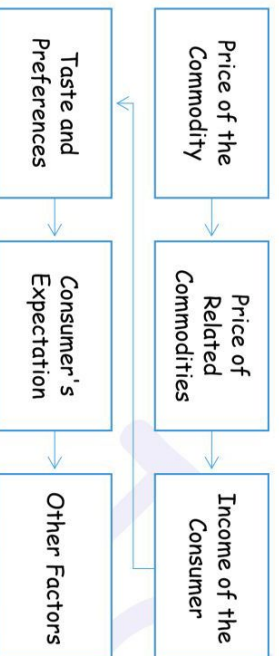
- Demand means desire or wish to buy and consume a commodity or service backed by adequate ability to pay and willingness to pay.

Effective demand for a thing depends on

- (i) desire
- (ii) means to purchase and
- (iii) willingness to use those means for that purchase

Determinants of Demand

- Demand for a product depends on a number of determinants / variables. The study of relationship between demand and its determinants is essential for a business firm. It helps in estimating market demand for its product.

Demand Function

It states the relationship between the demand for a product and its determinants. It may be expressed as follows-

$$D_x = f(P_x, M, P_y, P_c, T, A)$$

- $D_x$  is the quantity demanded of product X
- $P_x$  is the price of the commodity
- $M$  is the money income of the consumer
- $P_y$  is the price of its substitutes
- $P_c$  is the price of its complementary goods
- $T$  is consumer tastes, and preferences
- $A$  is advertisement expenditure.

Law Of Demand

- According to the law of demand, other things being equal, if the price of a commodity falls, the quantity demanded of it will rise and if the price of a commodity rises, its quantity demanded will decline. Thus, there is an inverse relationship between price and quantity demanded, ceteris paribus.

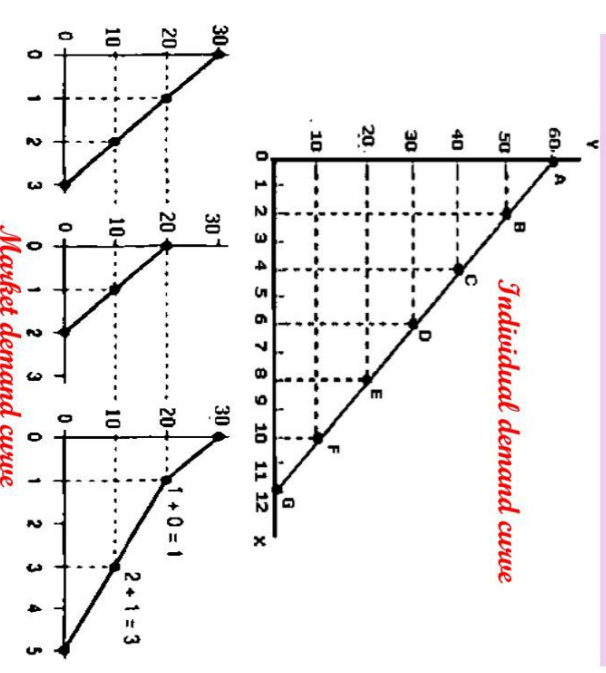
- **Prof. Alfred Marshall** defined the Law thus: "The greater the amount to be sold, the smaller must be the price at which it is offered in order that it may find purchasers or in other words the amount demanded increases with a fall in price and diminishes with a rise in price."

Demand Schedule

- A demand schedule is a table that shows various prices and the corresponding quantities demanded. The demand schedules are of two types: individual demand schedule and market demand schedule.

Demand Curve

- The slope of a demand curve is -  $\Delta P / \Delta Q$  (i.e. the change along the vertical axis divided by the change along the horizontal axis). The negative sign of this slope is consistent with the law of demand.





## Rationale of the Law of Demand

### Law of diminishing marginal utility

- According to **Marshall**, the consumer has diminishing utility for each additional unit of a commodity and therefore, he will be willing to pay only less for each additional unit.
- The operation of **diminishing marginal utility** and the act of the consumer to equalize the utility of the commodity with its price result in a downward sloping demand curve.

### Price effect

- The total fall in quantity demanded due to an increase in price is termed as Price effect. The law of demand can be dubbed as **"Negative Price Effect"** with some exceptions.



The substitution effect occurs when a commodity's price falls, causing consumers to substitute it for more expensive alternatives, resulting in an increase in total demand for the commodity.

### Substitution effect



The income effect occurs when a commodity's price falls, increasing a consumer's real income, leading to increased demand for the commodity.

### Income effect

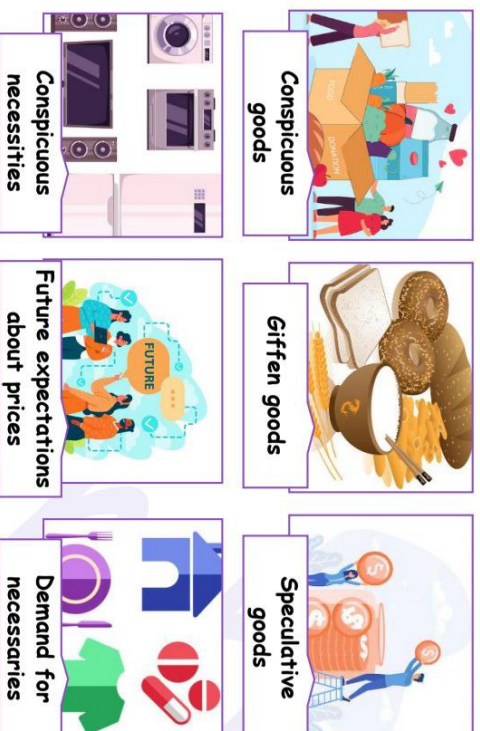
### Arrival of new consumers

- When the price of a commodity falls, more consumers start buying it because some of those who could not afford to buy it earlier may now be able to buy it.

### Different uses

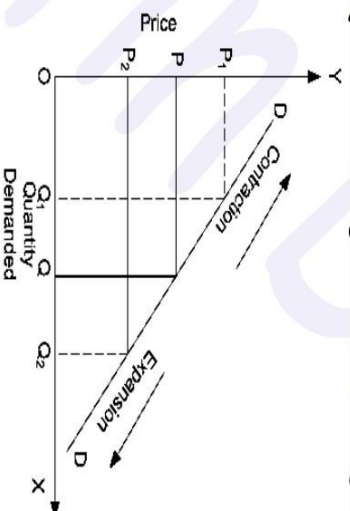
- Commodities with multiple uses experience a downward slope in demand curve, with decreased prices resulting in increased demand for varied purposes and increased demand for limited uses.

## Exceptions to the Law of Demand



The law has been derived assuming consumers to be rational and knowledgeable about market conditions.

### Movement along the Demand Curve



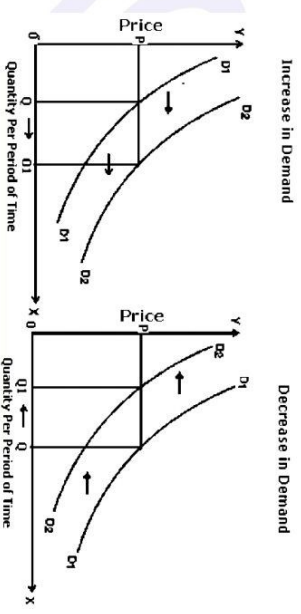
### Contraction of Demand

- Other things being equal, when the price rises and as a response, the quantity demanded decreases, it is a contraction of demand or an upward movement along the same demand curve.

### Expansion of Demand

- When the price falls and the quantity demanded increases, it is an extension of demand or a downward movement on the same demand curve.

## Movement along the Demand Curve



### rightward shift (Inc. in demand)

- demand curve (when more is demanded at each price) can be caused by a rise in income, a rise in the price of a substitute, a fall in the price of a complement, a change in tastes in favour of this commodity, an increase in population, and a redistribution of income to groups who favour this commodity.

### leftward shift (Dec. in demand)

- demand curve (when less is demanded at each price) can be caused by a fall in income, a fall in the price of a substitute, a rise in the price of a complement, a change in tastes against this commodity, a decrease in population, and a redistribution of income away from groups who favour this commodity.

## Elasticity of Demand

- Elasticity of demand is defined as the responsiveness of the quantity demanded of a good to changes in one of the variables on which demand depends. More precisely, elasticity of demand is the percentage change in quantity demanded divided by the percentage change in one of the variables on which demand depends.

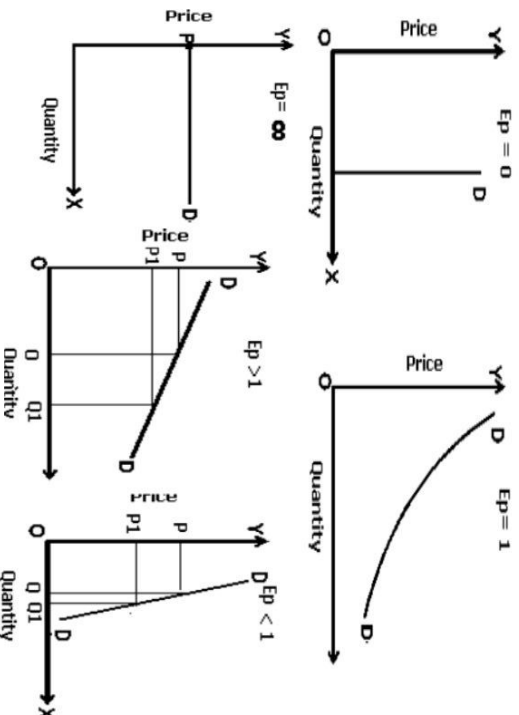


## Price Elasticity of Demand

► As demand curve slopes downwards to the right, the sign of price elasticity is negative.

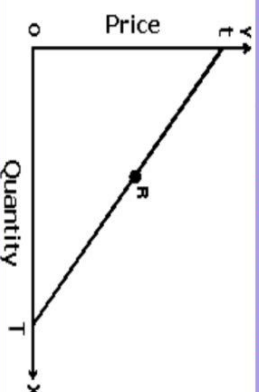
►  $E_p = \%$  change in quantity demanded /  $\%$  change in price.

$$E_p = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$



$e=0$ , <b>Perfectly Inelastic</b>	Quantity demanded does not change as price changes
$e<1$ , <b>Inelastic</b>	Quantity demanded changes by a smaller percentage than does price
$e=1$ , <b>Unit Elastic</b>	Quantity demanded changes by exactly the same percentage as does price
$e>1$ , <b>Elastic</b>	Quantity demanded changes by a larger percentage than does price
$e=\infty$ , <b>Perfectly Elastic</b>	Purchasers are prepared to buy all they can obtain at some price and none at all at an even slightly higher price

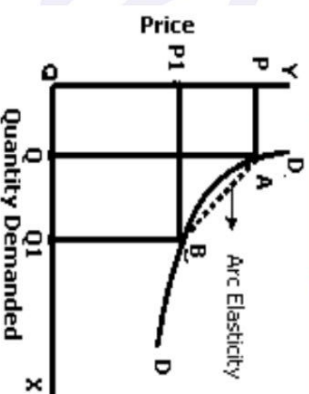
## Price Elasticity of Demand



► In point elasticity, we measure elasticity at a given point on a demand curve. When the price change is somewhat larger or when price elasticity is to be found between two prices or two points on the demand curve, we use arc elasticity.

$$E_p = \frac{-dq}{dp} \times \frac{p}{q}$$

## Arc-Elasticity



► The arc elasticity will always lie somewhere (but not necessarily in the middle) between the point elasticities calculated at the lower and the higher prices.

$$E_p = \frac{Q_2 - Q_1}{Q_2 + Q_1} \times \frac{P_2 + P_1}{P_2 - P_1}$$

## Total Revenue

► **Total revenue (TR) = Price × Quantity sold**

Except in the rare case of a good with perfectly elastic or perfectly inelastic demand, when a seller raises the price of a good, there are two effects which act in opposite directions on revenue.

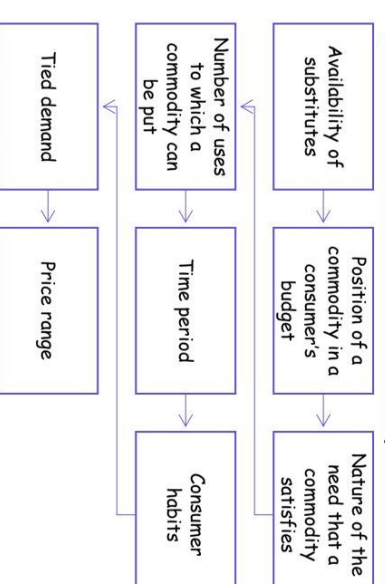
**Price effect:** After a price increase (decrease), each unit sold sells at a higher (lower) price, which tends to raise (lower) the revenue.

**Quantity effect:** After a price increase (decrease), fewer (more) units are sold, which tends to lower (increase) the revenue.

## The Relationship between Price elasticity & Total Revenue (TR)

	Demand		
	Elastic	Unitary Elastic	Inelastic
<b>Price increase</b>	TR Decreases	TR remains same	TR Increases
<b>Price decrease</b>	TR Increases	TR remains same	TR Decreases

## Determinants of Price Elasticity of Demand





## Income Elasticity of Demand

► Income elasticity of demand is the degree of responsiveness of quantity demanded of a good to changes in the income of consumers. In symbolic form, percentage change in demand / percentage change in income.

- For all normal goods, income elasticity is positive, on the other hand, goods having negative income elasticity are known as inferior goods
- If the income elasticity for a good is greater than one, such goods are called luxury goods. On the other hand, if the income elasticity is less than one, it is a necessity.

$$E_i = \frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q}$$

The relationship between the two is described in the following three propositions:

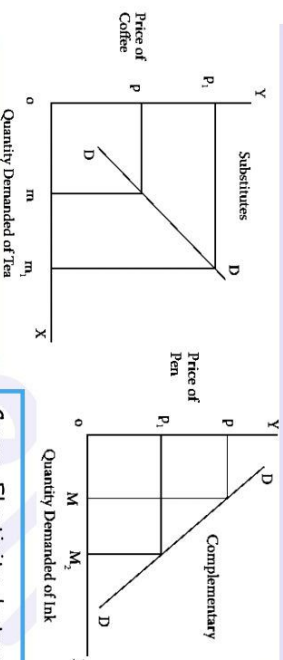
If the proportion of income spent on a good remains the same as income increases, then income elasticity for the good is equal to one

If the proportion of income spent on a good increase as income increases, then the income elasticity for the good is greater than one.

If the proportion of income spent on a good decrease as income rises, then income elasticity for the good is less than one.

## Cross Elasticity of Demand

► The cross elasticity of demand is the percentage change in the quantity demanded of commodity X as a result of a percentage change in the price of some related commodity Y.



Cross elasticity between two substitute goods is positive

Cross Elasticity between two complementary goods is negative.

$$E_c = \frac{\Delta Q_x}{Q_x} \div \frac{\Delta P_y}{P_y}$$

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

## Advertisement Elasticity

► Advertisement elasticity of sales or promotional elasticity of demand is the responsiveness of a good's demand to changes in firm's spending on advertising.

► The advertising elasticity of demand measures the percentage change in demand that occurs given a one percent change in advertising expenditure.

► Advertising elasticity measures the effectiveness of an advertisement campaign in bringing about new sales.

► Advertising elasticity of demand is typically positive. Higher the value of advertising elasticity greater will be the responsiveness of demand to change in advertisement.

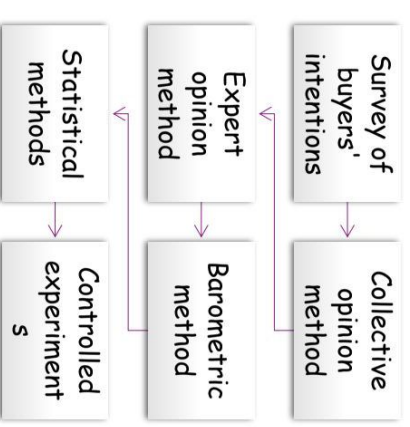
► Advertisement elasticity varies between zero and infinity.

► It is measured by **% change in demand divided by % change in spending on advertising.**

## Advertisement Elasticity

► Forecasting of demand is the art and science of predicting the product or a service at some future date on the basis of certain past behaviour patterns of some related events and the prevailing trends in the present.

### Various methods for Demand Forecasting





## Chapter 7

## Theory of Demand and Supply

## Unit - 2: Theory Of Consumer Behavior

## Meaning of Utility

► It refers to the want satisfying power of goods and services. It is not absolute but relative. It is a subjective concept and it depends upon the mental attitude of people.

Two types of market failure namely:

## Total Utility

the sum total of utilities derived from the consumption of all the units of a commodity consumed by a consumer at a given time.

$$TU = \sum MU$$

## Marginal Utility

the additional utility derived from the consumption of an additional unit of the commodity.

$$MU = TU_n - TU_{n-1}$$

Or

$$MU = \Delta TU / \Delta N$$

Relationship Between TU & MU

Total utility rises as long as MU is positive, but at a diminishing rate because MU is diminishing

Marginal utility diminishes throughout

When marginal utility is zero, total utility is maximum. It is a saturation point

When marginal utility is negative, total utility is diminishing

MU is the rate of change of TU or the slope of TU

MU can be positive, zero or negative.

Law Of Diminishing Marginal Utility

It states that as a consumer increases the consumption of a commodity, every successive unit of the commodity gives lesser and lesser satisfaction to the consumer.

**Marshall:** "The additional benefit which a person derives from a given increase in the stock of a thing diminishes with every increase in the stock that he already has."

The law states that the consumer is said to be at equilibrium, when the following condition is met:

$$(MU_x / P_x) = (MU_y / P_y)$$

or

$$(MU_x / MU_y) = (P_x / P_y)$$

Assumptions of Marginal Utility Analysis

The different units consumed should be identical in all respects. The habit, taste, treatment and income of the consumer also remain unchanged.

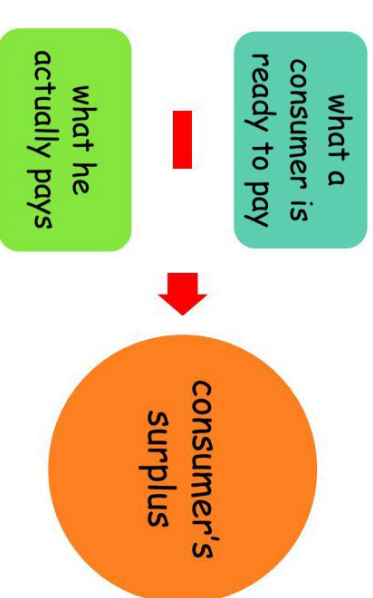
There should be no time gap or interval between the consumption of one unit and another unit i.e. there should be continuous consumption.

The law may not apply to articles like gold, cash where a greater quantity may increase the lust for it.

The shape of the utility curve may be affected by the presence or absence of articles which are substitutes or complements.

Law Of Diminishing Marginal Utility

► Marshall defined the concept of consumer's surplus as the "excess of the price which a consumer would be willing to pay rather than go without a thing over that which he actually does pay", is called consumer's surplus."

Limitations:

Consumer's surplus cannot be measured precisely - because it is difficult to measure the marginal utilities of different units of a commodity consumed by a person.

In the case of necessities, the marginal utilities of the earlier units are infinitely large. In such case the consumer's surplus is always infinite.

The consumer's surplus derived from a commodity is affected by the availability of substitutes.

There is no simple rule for deriving the utility scale of articles which are used for their prestige value.

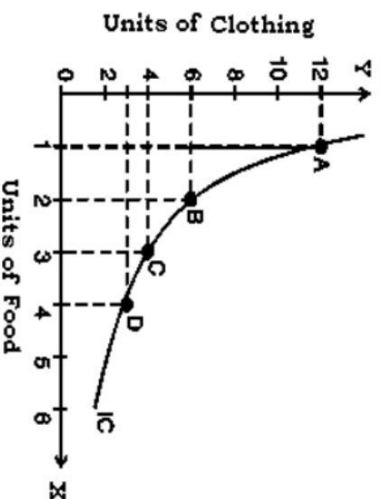


Consumer's surplus cannot be measured in terms of money because the marginal utility of money changes as purchases are made and the consumer's stock of money diminishes.

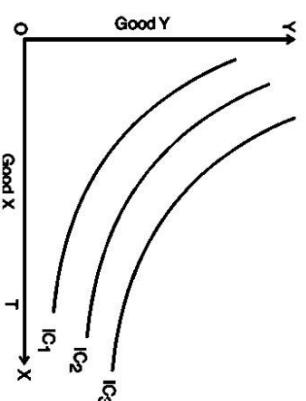
The concept can be accepted only if it is assumed that utility can be measured in terms of money or otherwise. Many modern economists believe that this cannot be done.

## Indifference Curve

► Is a curve which represents all those combinations of two goods which give same satisfaction to the consumer. Since all the combinations on an indifference curve give equal satisfaction to the consumer, the consumer is indifferent among them.



## Indifference Map



► represents a collection of many indifference curves where each curve represents a certain level of satisfaction.

### Properties of indifference curve

Indifference curve slopes downwards to the right

It is always convex to the origin

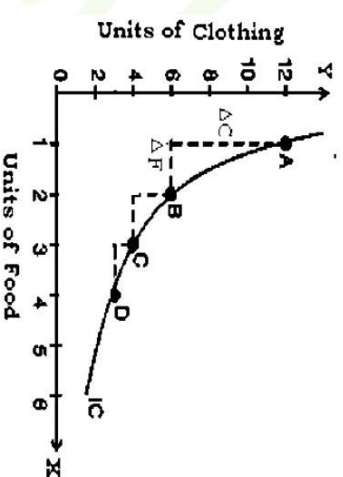
Two ICs never intersect each other

It will never touch the axes

Higher the indifference curve higher is the level of satisfaction.

### Marginal Rate of Substitution

► The marginal rate of substitution of X for Y ( $MRS_{xy}$ ) is equal to  $\frac{MU_x}{MU_y}$



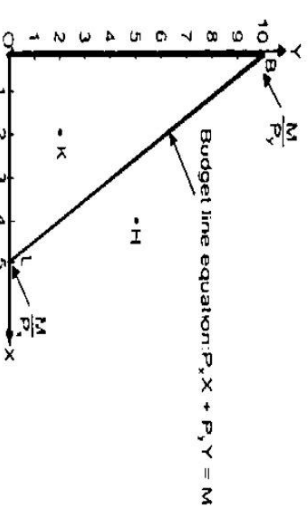
### There are two reasons for this

The want for a particular good is satiable so that when a consumer has more of it, his intensity of want for it decreases.

Most goods are imperfect substitutes of one another. MRS would remain constant if they could substitute one another perfectly

### Budget line/Price line

► Budget line or price line shows all those combinations of two goods which the consumer can buy spending his given money income on the two goods at their given prices.

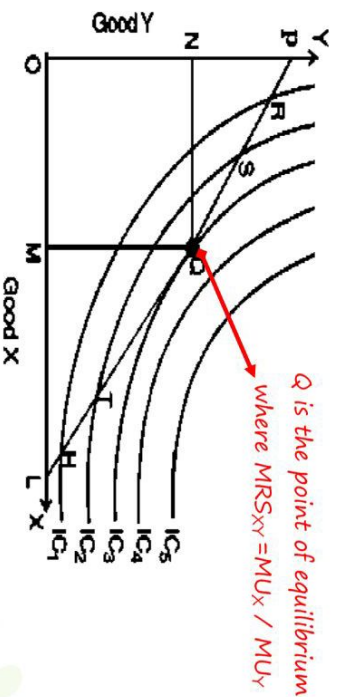


## Consumer's Equilibrium

► A consumer is said to be in equilibrium when he is deriving maximum possible satisfaction from the goods and is in no position to rearrange his purchase of goods.

The consumer attains equilibrium at the point where the budget line is tangent to the indifference curve and

$$MU_x / P_x = MU_y / P_y = MU_z / P_z$$



### Assumptions:

The consumer has a given indifference map which shows his scale of preferences for various combinations of two goods X and Y.

He has a fixed money income which he has to spend wholly on goods X and Y.

Prices of goods X and Y are given and are fixed.

All goods are homogeneous and divisible, and

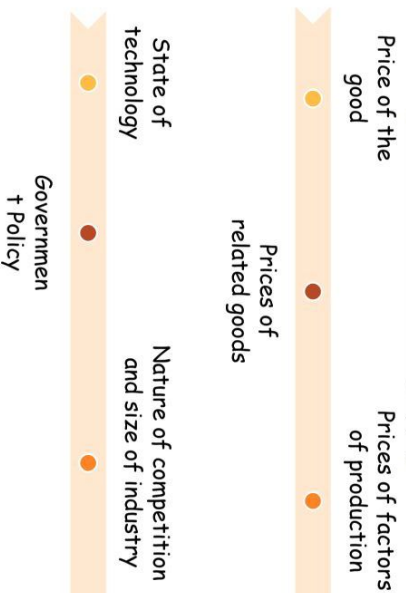
The consumer acts 'rationally' and maximizes his satisfaction.



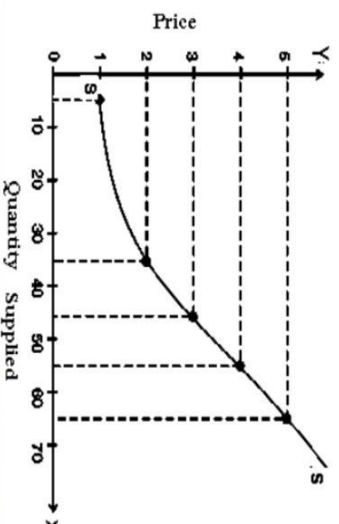
## Chapter 2

Definition

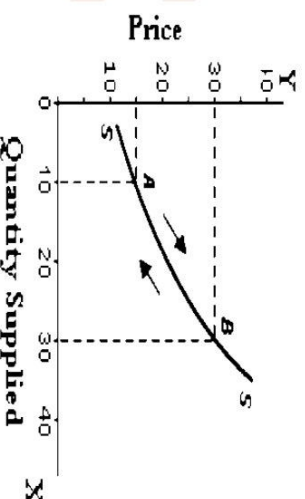
- The amount of a good or service that the producers are willing and able to offer to the market at various prices during a given period of time.

Determinants Of SupplyLaw Of Supply

- It states that when the price of the good rises, the corresponding quantity supplied increases and when the price reduces, the quantity supplied also reduces.
- There is a direct relationship between price and quantity supplied.

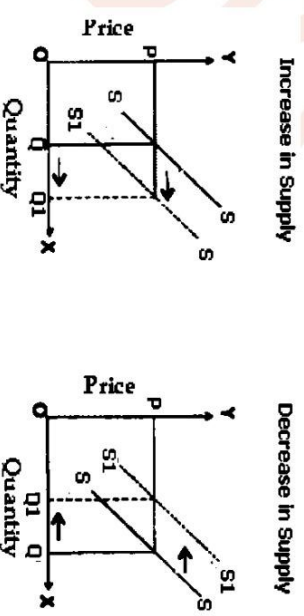
Unit - 3: Supply

It is an upward sloping curve showing a positive relationship between price and quantity supplied.

Movements on the Supply Curve

When the quantity supplied of a good increase as a result of an increase in its price then there is an upward movement on the supply curve. The reverse is the case when there is a fall in the price of the good.

## Theory of Demand and Supply

Shift in Supply Curve

- When the supply curve bodily shifts towards the right as a result of a change in one of the factors that influence the quantity supplied other than the commodity's own price, we say there is an increase in supply.

When these factors cause the supply curve to shift to the left, we call it decrease in supply

Elasticity Of Supply

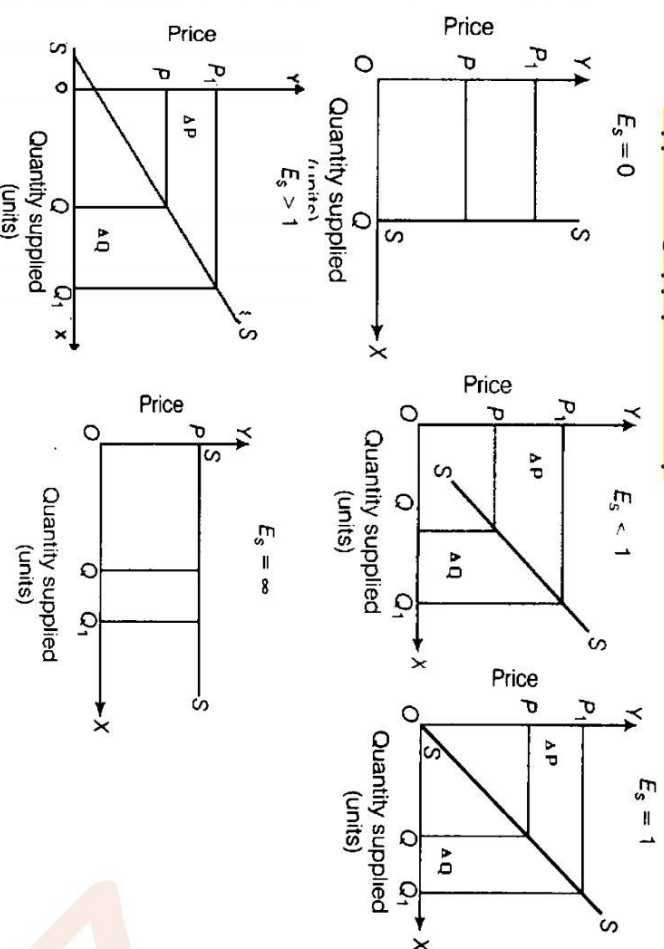
- The elasticity of supply is defined as the responsiveness of the quantity supplied of a good to a change in its price.

$$E_1 = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in Price}}$$

OR

$$\frac{\frac{\text{Change in quantity supplied}}{\text{quantity supplied}}}{\frac{\text{Change in price}}{\text{price}}} \quad \text{OR} \quad \frac{\frac{\Delta q}{q}}{\frac{\Delta p}{p}} = \frac{\Delta q}{\Delta p} = \frac{p}{q}$$

## Type of Supply Elasticity



$e=0$ , perfectly inelastic supply	Perfectly inelastic supply	a change in price, the quantity supplied of a good remains unchanged
$e<1$ , Relatively elastic supply	Relatively less-elastic supply	a change in the price of a good its supply changes less than proportionately,
$e=1$ , Unit-elastic	Unit-elastic supply	the relative change in the quantity supplied is exactly equal to the relative change in the price
$e>1$ , Relatively greater-elastic supply	Relatively greater-elastic supply	The quantity supplied of a good change substantially in response to a small change in the price of the good
$e=\infty$ , Perfectly elastic supply	Perfectly elastic supply	nothing is supplied at a lower price, but a small increase in price causes supply to rise from zero

## Measurement of supply-elasticity

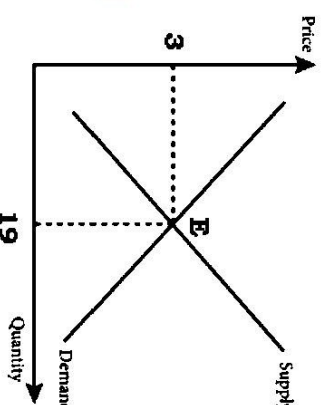
The elasticity of supply can be considered with reference to a given point on the supply curve or between two points on the supply curve. When elasticity is measured at a given point on the supply curve, it is called **point elasticity**.

$$E_s = \frac{dq}{dp} \times \frac{p}{q}$$

## Equilibrium Price

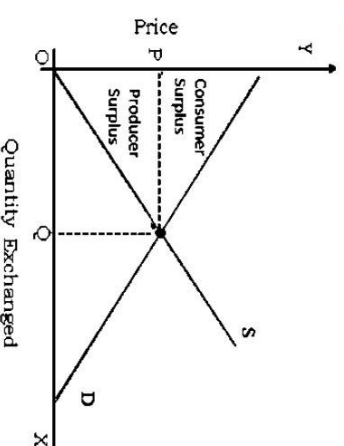
Equilibrium price is one at which the wishes of both the buyers and the sellers are satisfied. At this price, the amount that buyers want to buy and sellers want to sell will be equal.

$E$  is equilibrium point where quantity demanded is equal to quantity supplied



## Market Equilibrium and Social Efficiency

At equilibrium price, when the market is in equilibrium, social efficiency is achieved with maximum social surplus to both producers and consumers enjoying maximum possible surplus.





## Chapter 3

## Theory Of Production And Cost

Meaning of Production

Production is the outcome of the combined activity of the four factors of production viz, land, labour, capital and organization. In simple terms production, means 'creation of utility'. i.e. Utility of form, utility of place, utility of time and personal utility.

Factors Of ProductionLand

In Economics, 'land' refers to all natural resources, including soil fertility, water, air, light, and heat, not just soil or earth's surface.

Characteristics of land:

Land is a free gift of nature

Supply of land is fixed

Land is permanent and has indestructible powers

Land is a passive factor

Land is immobile

Land has multiple uses

Land is heterogeneous

Unit - 1: Theory Of ProductionLabour

Labor refers to mental or physical exertion for producing goods or services, aiming to secure income beyond pleasure directly derived from the work.

Characteristics of labour:

Land is a free gift of nature

Human Effort

Labour is perishable

Labour is an active factor

Labour is inseparable from the labourer

Labour power differs from labourer to labourer

All labour may not be productive

Labour has poor bargaining power

Labour is mobile

There is no rapid adjustment of supply of labour to the demand for it

Choice between hours of labour and hours of leisure

Capital

Capital has been rightly defined as 'produced means of production' or 'man-made instruments of production'.

Stages of capital formation:1. Savings

- Individual income significantly impacts their ability to save, with higher incomes often leading to increased savings due to decreased consumption propensity.

2. Mobilisation of savings

- Availability of appropriate financial products and institutions is a necessary precondition for mobilisation of savings.

3. Investment

- Capital formation is achieved when real savings are converted into real capital assets, and an economy should have an entrepreneurial class willing to invest in productive ventures.



## Entrepreneur:

An entrepreneur, also known as the organizer, manager, or risk taker, is responsible for mobilizing and combining factors, initiating production processes, and bearing associated risks.

## Functions of Entrepreneur

### Initiating business enterprise and resource co-ordination

- An entrepreneur initiates a business by identifying opportunities, conceiving project ideas, deciding on scale, products, and processes, and then owns and manages the enterprise.

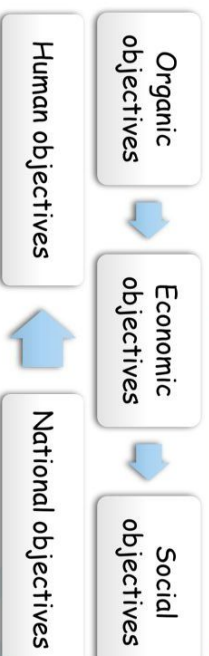
### Risk bearing or uncertainty bearing

- Entrepreneurs bear ultimate responsibility for business success and survival, as plans may not be realized due to the dynamic economy and daily changes.

### Innovations

- Schumpeter argues that entrepreneurs' primary role is to introduce innovations, which include improved products, processes, raw materials, technology, novel business models, and expansion into unexplored markets.

## Objectives of an enterprise



## Production Function

- The production function is a statement of the relationship between a firm's scarce resources (i.e. its inputs) and the output that results from the use of these resources.
- The production function can be algebraically expressed in the form of an equation in which the output is the dependent variable and inputs are the independent variables.
- The equation is:  

$$Q = f(a, b, c, d, \dots, n)$$
- Where 'Q' stands for the rate of output of given commodity and a, b, c, d, ..... n, are the different factors (inputs) and services used per unit of time.

### Short-Run Vs Long-Run Production Function

#### Short-Run

1. The short-run is a period of time in which at least one of the inputs used remains unchanged during that period.
2. In the short run, a firm cannot install a new capital equipment to increase production.
3. The behaviour of production is the subject matter of the law of variable proportion.

#### Long-Run

1. The long run is a period of time in which all factors of production are variable.
2. It is a time period when the firm will be able to install new machines and capital equipments apart from increasing the variable factors of production.
3. The behaviour of production is the subject matter of the law of returns to scale.

## Cobb-Douglas Production Function

Paul H. Douglas and C.W. Cobb of the U.S.A. studied the production function of the American manufacturing industries. It stated as  $Q = K^a C^{1-a}$  where Q is output, L the quantity of labour, C quantity of capital, K and a are positive constants.

## Law of Variable Proportions

The law of variable proportion or the law of diminishing returns is relevant when some factors are kept fixed and others are varied. It is applicable to the short-run.

### Total product

- is the total output resulting from the efforts of all the factors of production combined together at any time.

### Average product

- is the total product per unit of the variable factor.

$$AP = \frac{\text{Total Product}}{\text{No of units of Variable Factors}}$$

### Marginal product

- is the change in total product per unit change in the quantity of variable factor.

$$MP_n = TP_n - TP_{n-1}$$

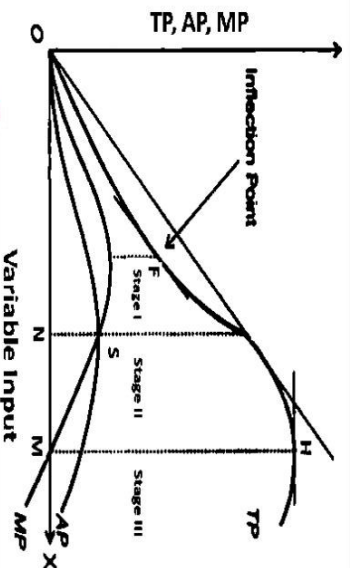


## Relationship between Average Product and Marginal Product

when average product rises as a result of an increase in the quantity of variable input, marginal product is more than the average product.

when average product is maximum, marginal product is equal to average product. In other words, the marginal product curve cuts the average product curve at its maximum.

when average product falls, marginal product is less than the average product.



**Stage 1** the total product increases at an increasing rate upto a point (in figure upto point F), marginal product also rises and is maximum at the point corresponding to the point of inflexion and average product goes on rising.

**Stage 2** the total product continues to increase at a diminishing rate until it reaches its maximum at point H, where the second stage ends. In this stage, both marginal product and average product of the variable factor are diminishing but are positive

**Stage 3** total product declines, MP is negative, average product is diminishing. This stage is called the stage of negative returns since the marginal product of the variable factor is negative during this stage.

It describes the relationship between inputs and output in the long run when all inputs are changed in the same proportion.

## Returns to Scale

### Constant Returns to Scale

It occurs when the inputs increase by some proportion and the output also increases by the same proportion. It is also called linear homogeneous production function

### Increasing Returns to Scale

It occurs when the inputs increase by some proportion and the output increases more than proportionately.

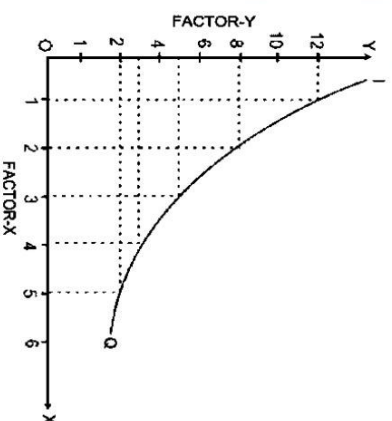
### Decreasing Returns to Scale

It occurs when the inputs increase by some proportion and the output increases less than proportionately.

## Isoquants

Isoquants or product indifference curves show all those combinations of different factors of production which give the same output to the producer.

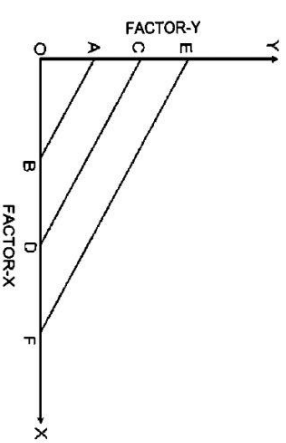
IQ is Isoquant curve.



It show various combinations of two factors which the firm can buy with given expenditure or outlay.

## Isoquants

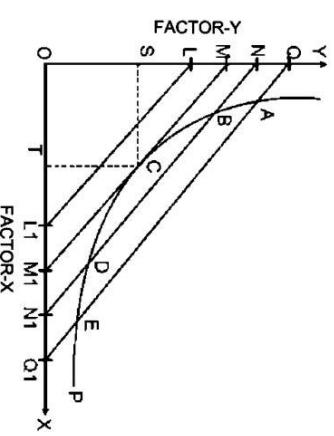
Figure shows various iso-cost lines representing different combinations of factors with different outlays. AB, CD and EF are Iso-cost lines.



## Least Cost Combination

For producing a given output, the tangency point of the relevant isoquant (representing the output) with an iso-cost line represents the least cost combination of factors.

C is the tangency point of the given isoquant with an iso-cost line represents the least cost combination of factors for producing a given output.





## Chapter 3

## Theory Of Production And Cost

**Cost Analysis**

- It refers to the study of behaviour of cost in relation to one or more production criteria. It is concerned with the financial aspects of production.

**Types of Cost****Outlay costs and Opportunity costs**

- Outlay costs involve actual expenditure of funds.
- Opportunity cost is concerned with the cost of the next best alternative opportunity which was foregone in order to pursue a certain action.

**Accounting costs**

- explicit costs and includes all the payments and charges made by the entrepreneur to the suppliers of various productive factors.

**Economic costs**

- take into account explicit costs as well as implicit costs. A firm has to cover its economic cost if it wants to earn normal profits.

**Direct costs**

- are those which have direct relationship with a component of operation. They are readily identified and are traceable to a particular product, operation or plant.

**Unit - 2: Theory Of Cost****Indirect costs**

- are those which cannot be easily and definitely identifiable in relation to a plant, product, process or department. They are not visibly traceable to any specific goods, services, processes, departments or operations.

**Incremental cost**

- refers to the additional cost incurred by a firm as a result of a business decision.

**Sunk costs**

- are already incurred once and for all, and cannot be recovered.

**Historical cost**

- refers to the cost incurred in the past on the acquisition of a productive asset.

**Replacement cost**

- is the money expenditure that has to be incurred for replacing an old asset.

**Private costs**

- are costs actually incurred or provided for by firms and are either explicit or implicit.

**Social cost**

- refers to the total cost borne by the society on account of a business activity and includes private cost and external cost.

**Cost Function**

- the mathematical relation between cost and the various determinants of cost. It expresses the relationship between cost and output. Economists are generally interested in two types of cost functions; the short run cost function and the long run cost function.

**Cost Function is divided into two-**

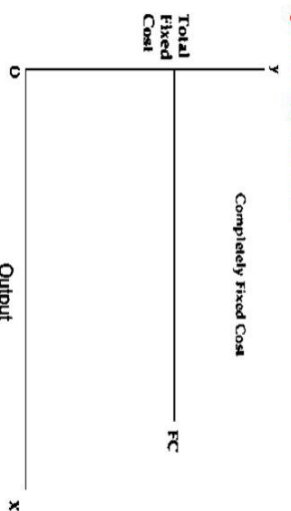
**Short-run cost function**

Fixed or constant costs which are not a function of output. These are inescapable or uncontrollable.



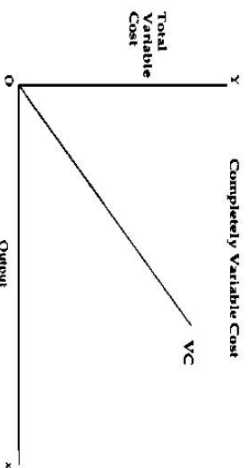
**Long-run cost function**

Long run cost of production is the least possible cost of producing any given level of output when all individual factors are variable.



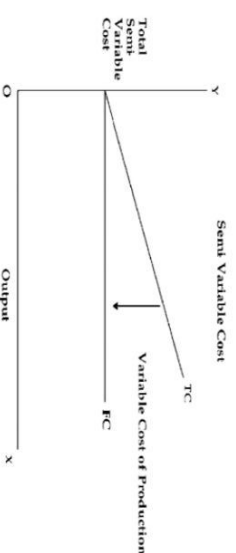
### Fixed Cost

- Fixed or constant costs which are not a function of output. These are inescapable or uncontrollable.



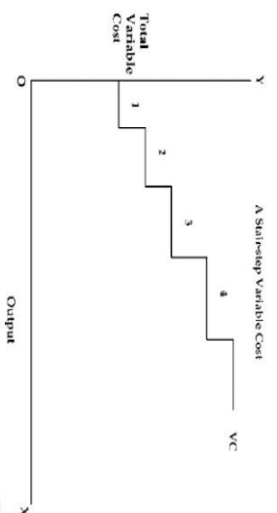
### Variable costs

- Variable costs are a function of output in the production period.



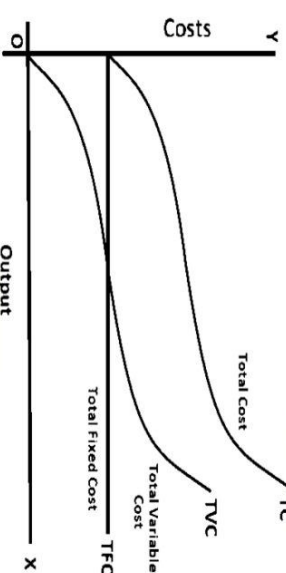
### Semi-variable costs

- are neither perfectly variable, nor absolutely fixed in relation to the changes in the size of output.



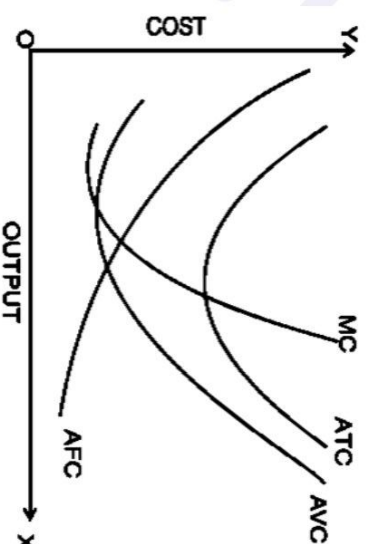
### Stair-step costs

- remain fixed over certain range of output; but suddenly jump to a new higher level when output goes beyond a given limit.



### Total cost

- a business is defined as the actual cost that must be incurred for producing a given quantity of output.



### Average Fixed cost

- AFC is obtained by dividing the total fixed cost by the number of units of output produced.

$$\bullet AFC = \frac{TFC}{Q}$$

### Average variable cost

- is found out by dividing the total variable cost by the number of units of output produced.

$$\bullet AVC = \frac{TVC}{Q}$$

### Average total cost

- is the sum of average fixed cost and average variable cost.

$$\bullet ATC = \frac{TC}{Q} \text{ or } ATC = AFC + AVC$$

### Marginal cost

- is the addition made to the total cost by the production of an additional unit of output.

$$\bullet MC = \frac{\Delta TC}{\Delta Q} \text{ or } MC_n = TC_n - TC_{n-1}$$

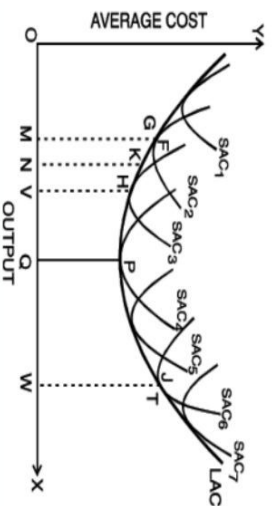
### Relationship between Average Cost and Marginal Cost

When average cost falls as a result of an increase in output, marginal cost is less than average cost.

When average cost rises as a result of an increase in output, marginal cost is more than average cost.

When average cost is minimum, marginal cost is equal to the average cost.





### Long run Average Cost Curve(LAC)

- The long run average cost curve, often called a planning curve, is so drawn as to be tangent to each of the short run average cost curves.
- The LAC curve is tangent to each of the short run average cost curves. Every point on the long run average cost curve will be a tangency point with some short run AC curve.

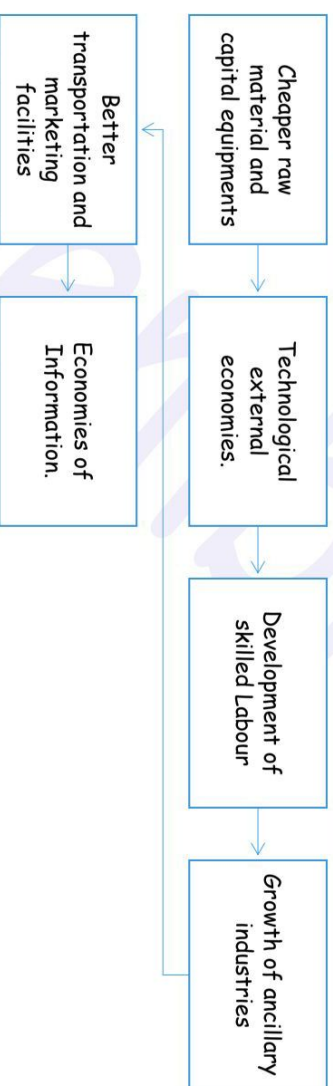
## Economies of Scale and Diseconomies of Scale

- When increase in scale is upto optimum level, then it is economies of scale. On the other hand, increase in scale beyond the optimum level, results in diseconomies of scale.
- Economies of scale is of two types-
  - Internal economies of scale which accrue to a firm when it engages in large scale production.
  - External economies of scale accrue to a firm due to factors which are external to a firm.

### Kinds of Internal Economies and Diseconomies



### Kinds of External Economies and Diseconomies



## Chapter 4

## Price Determination In Different Markets

### Unit - 1: Meaning & Types of Markets

#### Meaning of Market

- ▶ Market is the whole set of arrangements for buying and selling of a commodity or service. The elements of a market are:
  - Buyers and sellers;
  - A product or service;
  - Bargaining for a price;
  - Knowledge about market conditions; and
  - One price for a product or service at a given time.

#### Classification of Market

##### On the basis of geographical area

- Local Markets:** When buyers and sellers are limited to a local area or region, the market is called a local market.
- Regional Markets:** Regional markets cover a wider area such as a few adjacent cities, parts of states, or cluster of states.
- National Markets:** The trade policy of the government may restrict the trading of a commodity to within the country.

##### On the basis of time

- Very short period market:** a period of time in which supply is fixed and cannot be increased or decreased.
- Short-period Market:** the supply of output may be increased by increasing the employment of variable factors with the given fixed factors and state of technology.

**Long-period Market:** all factors become variable and the supply of commodities may be changed by altering the scale of production.

**Very long-period or secular period** is one when secular movements are recorded in certain factors over a period of time.

##### On the basis Nature of Transactions

- Spot or cash Market:** those markets where goods are exchanged for money payable either immediately or within a short span of time.
- Forward or Future Market:** transactions involve contracts with a promise to pay and deliver goods at some future date.

##### On the basis of Regulation

- Regulated Market:** In this market, transactions are statutorily regulated so as to put an end to unfair practices. Eg. Stock exchange.
- Unregulated Market:** It is also called a free market as there are no stipulations on the transactions.

##### On the basis of volume of Business

- Wholesale Market:** The wholesale market is the market where the commodities are bought and sold in bulk or large quantities.
- Retail Market:** When the commodities are sold in small quantities, it is called retail market.

##### On the basis of competition

- Perfectly competitive market and
- Imperfectly competitive market.



## Types of Market

### Perfect Competition

- Very large number of sellers.
- No product differentiation.
- Price elasticity of demand of a firm is infinite.
- No degree of control over price.

### Monopolistic Competition

- Large number of Sellers.
- Slight product differentiation.
- Price elasticity of a firm is large.
- Some degree of control over price.

### Oligopoly

- Small numbers of sellers.
- Price elasticity of demand of a firm is small.
- Some degree of control over price.
- Product differentiation is none to substantial.

### Monopoly

- Only single seller.
- Extreme product differentiation.
- Price elasticity of a firm is small.
- Degree of control over price is very considerable.

### Total Revenue

refers to the amount of money which a firm realizes by selling certain units of a commodity.

### Average Revenue

refers to the revenue earned per unit of output.

$$TR = P \times Q$$

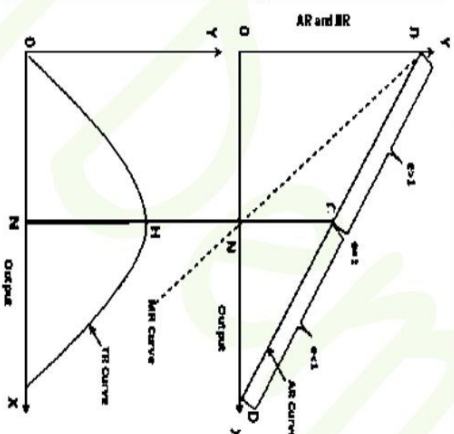
$$AR = TR/Q$$

### Marginal Revenue

refers to the change in total revenue resulting from the sale of an additional units of a commodity.

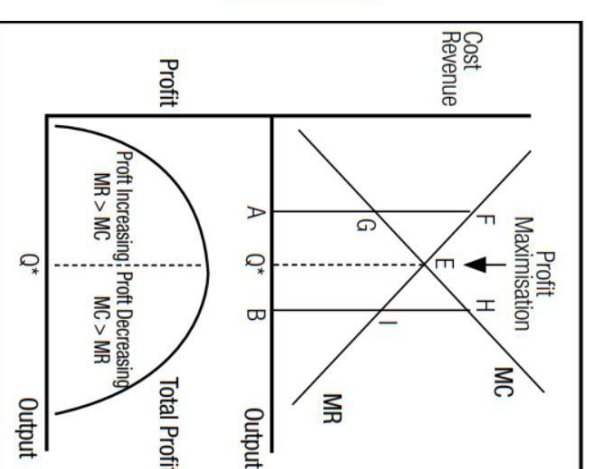
$$MR = \Delta TR / \Delta Q$$

## Relationship Between AR, MR, TR & Price Elasticity of Demand



$MR = AR \times \frac{e-1}{e}$ , Where  $e$  = price elasticity of demand  
 Thus if  $e = 1$ ,  $MR = AR \times \frac{1-1}{1} = 0$ .  
 and if  $e > 1$ , MR will be positive  
 and if  $e < 1$ , MR will be negative

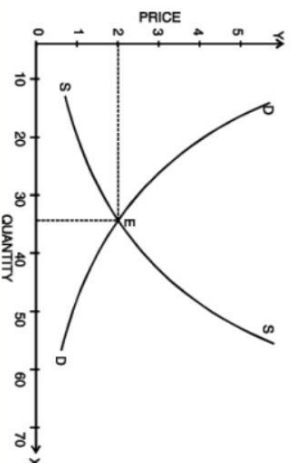
The firm will maximize profits at the point at which marginal revenue is equal to marginal cost



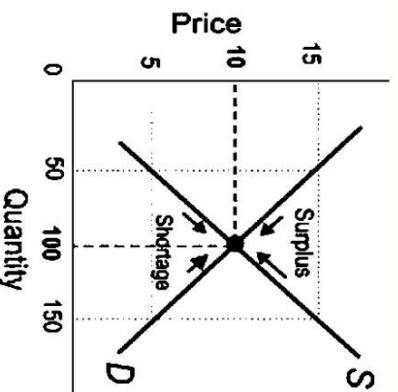
## Behavioural principles

## Chapter 4

## Price Determination in Different Markets

Equilibrium Price

It is the price at which the quantity demanded of a commodity equals the quantity supplied of the commodity there is no unsold stock or no unsupplied demand.

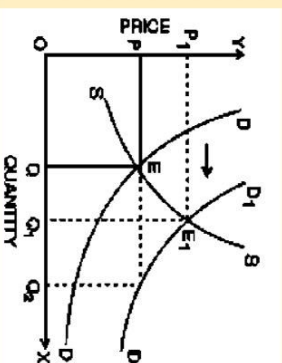
**Stable Equilibrium**

A state where the quantity that firms sell is equal to the quantity that the consumers desire to buy.

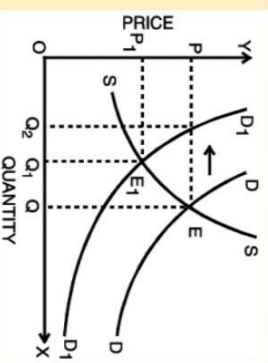
## Unit - 2: Determination Of Prices

Changes In Demand & Supply

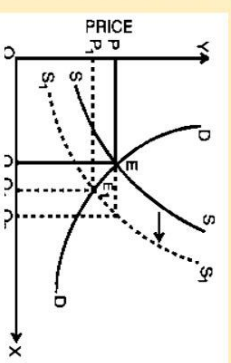
**Increase in demand,** causing an increase in equilibrium price and quantity



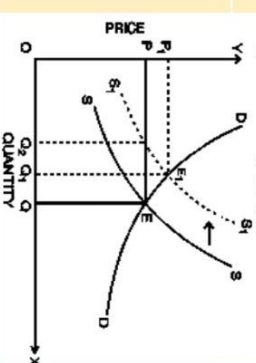
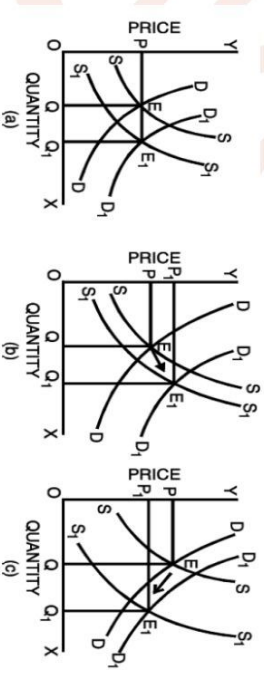
**Decrease in demand** resulting in a decrease in price and quantity demanded



**Increase in supply,** resulting in decrease in equilibrium price and increase in quantity supplied

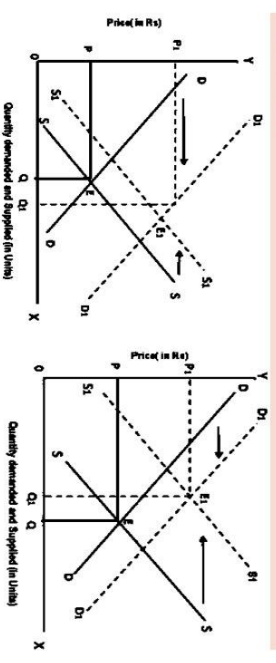


**Decrease in supply** causing an increase in the equilibrium price and a fall in quantity demanded

Simultaneous Changes in Demand & Supply

The supply and demand curves shift in the same direction as follows:

- When both demand and supply increase, the equilibrium quantity increases but the change in equilibrium price is uncertain.
- When both demand and supply decrease, the equilibrium quantity decreases but the change in equilibrium price is uncertain.



The supply and demand curves shift in the opposite directions as follows:

When demand increases and supply decreases, the equilibrium price rises but nothing certain can be said about the change in equilibrium quantity.

When demand decreases and supply increases, the equilibrium price falls but nothing certain can be said about the change in equilibrium quantity.



## Chapter 4

## Unit - 3: Price-Output Determination Under Different Market Forms

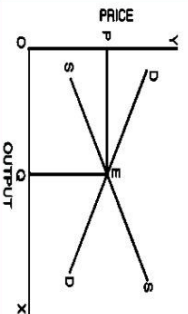
## Price Determination in Different Markets

Perfect Competition

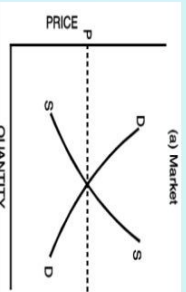
- ✓ There are large number of buyers and sellers who compete among themselves.
- ✓ All goods must sell at a single market price.
- ✓ Every firm is free to enter the market or to go out of it.
- ✓ There is perfect knowledge of the market conditions on the part of buyers and sellers.
- ✓ Perfectly competitive markets have very low transaction costs.
- ✓ All firms individually are price takers.

Price DeterminationEquilibrium of the Industry

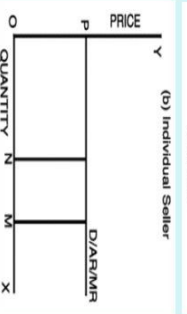
An industry in economic terminology consists of a large number of independent firms.

Equilibrium of the Firm

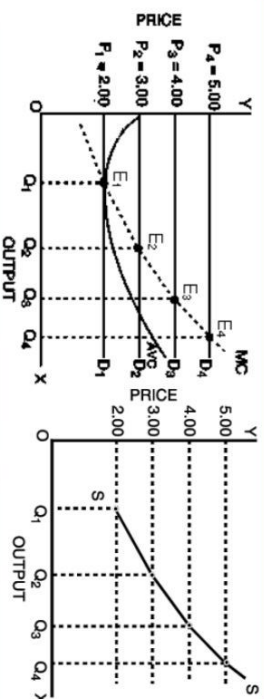
The firm is said to be in equilibrium when it maximizes its profit. The output which gives maximum profit to the firm is called equilibrium output.



(a) Market



(b) Individual Seller

Short run supply curve of the firm in a competitive market

- One interesting thing about the MC curve of a firm in a perfectly competitive industry is that it depicts the firm's supply curve. Marginal cost and supply curves for a price-taking firm

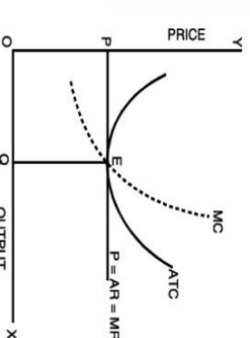
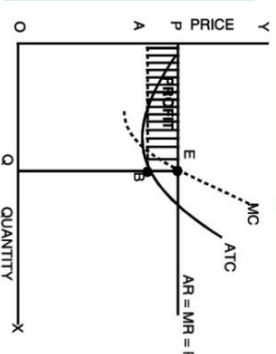
Can a competitive firm earn profits?

## ■ Supernormal Profits:

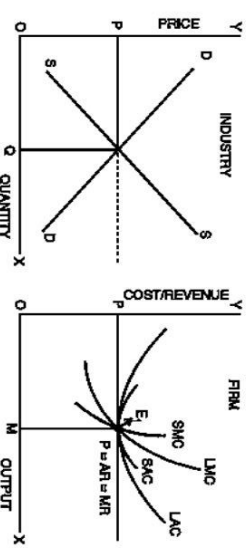
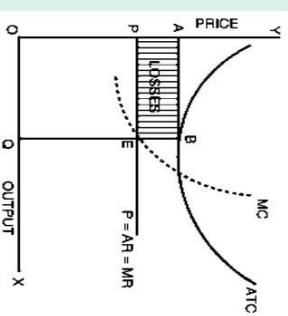
A firm's average revenue equals its average total cost, indicating normal or zero economic profits. Supernormal profits occur when average revenues exceed total cost.

## ■ Normal profits:

When a firm just meets its average total cost, it earns normal profits. Here  $AR = ATC$ .



- Losses: A firm in equilibrium can minimize losses while maintaining output at  $MR = MC$ , meeting variable and fixed costs, and attempting to continue short-run production.



- ✓ The output is produced at the minimum feasible cost.
- ✓ Consumers pay the minimum possible price which just covers the marginal cost i.e.  $MC = AR$ . ( $P = MC$ ).
- ✓ Plants are used to full capacity in the long run, so that there is no wastage of resources i.e.  $MC = AC$ .
- ✓ Firms earn only normal profits i.e.  $AC = AR$ .
- ✓ Firms maximize profits (i.e.  $MC = MR$ ), but the level of profits will be just normal.
- ✓ There is optimum number of firms in the industry.
- ✓ In other words, in the long run,  $LAR = LMR = P = LMC = LAC$  and there will be optimum allocation of resources.



## Monopoly

The word 'Monopoly' means "alone to sell". Monopoly is a situation in which there is a single seller of a product which has no close substitute. Pure monopoly is never found in practice.

### Features

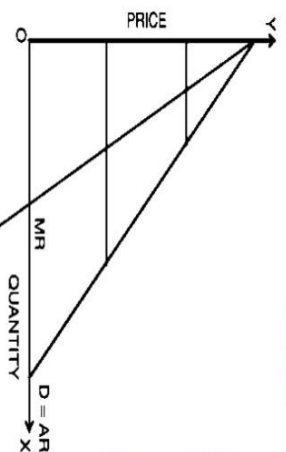
**Single seller of the product:** In a monopoly market, there is only one firm producing or supplying a product.

**Barriers to Entry:** there are strong barriers to entry. The barriers to entry could be economic, institutional, legal or artificial.

**No close-substitutes:** A monopoly firm controls market supply, sets prices, sells no substitutes, and faces a steep downward demand curve.

**Market power:** A monopoly firm has market power i.e. it has the ability to charge a price above marginal cost and earn a positive profit.

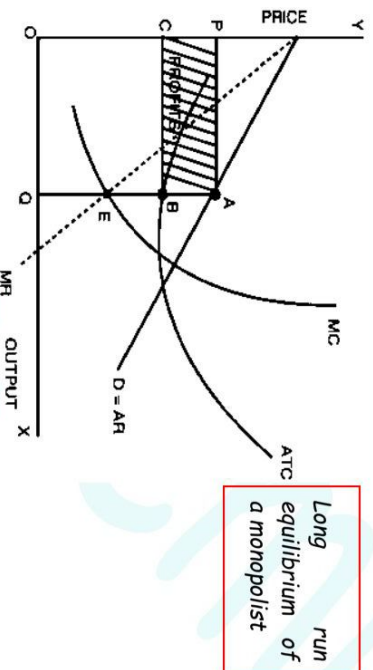
### Relationship between AR and MR



AR and MR are both negatively sloped (downward sloping) curves.

The slope of the MR curve is twice that of the AR curve. MR curve lies half-way between the AR curve and the Y axis, i.e. it cuts the horizontal line between Y axis and AR into two equal parts.

AR cannot be zero, but MR can be zero or even negative.



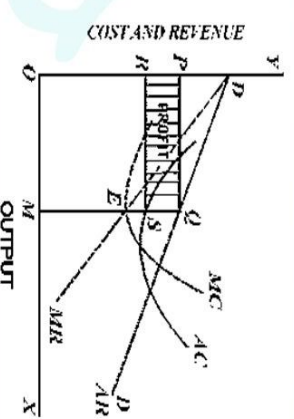
## Imperfect Competition - Monopolistic Competition

**Large number of sellers:** In a monopolistically competitive market, there are large numbers of independent firms who individually have a small share in the market.

**Product differentiation:** the products of different sellers are differentiated on the basis of brands. Because competing products are close substitutes, demand is relatively elastic, but not perfectly elastic as in perfect competition.

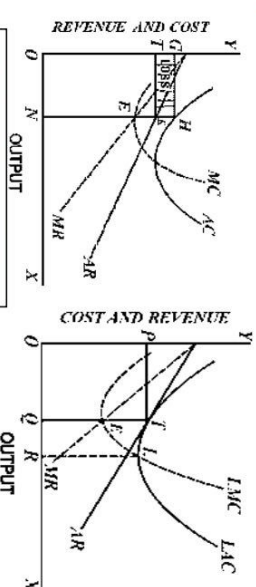
**Freedom of entry and exit:** Barriers to entry are comparatively low and new firms are free to enter the market if they find profit prospects and existing firms are free to quit.

**Non-price competition:** firms are often in fierce competition with other firms offering a similar product or service, and therefore try to compete on bases other than price.



Conditions for the Equilibrium of an individual firm:

- $MC = MR$
- MC curve must cut MR curve from below.



Short run equilibrium of a firm under Monopolistic Competition - With losses

The long-term equilibrium of a firm in monopolistic competition

## Oligopoly

Oligopoly is an important form of imperfect competition. Oligopoly is often described as 'competition among the few'. Prof. Stigler defines oligopoly as that "situation in which a firm bases its market policy, in part, on the expected behavior of a few close rivals".



## Types of Oligopoly:

**Pure oligopoly or perfect oligopoly** occurs when the product is homogeneous in nature.

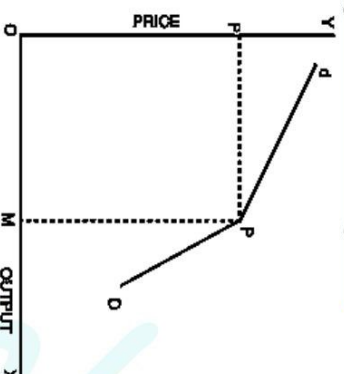
**Open and closed oligopoly:** In an open oligopoly market new firms can enter the market and compete with the existing firms. But, in closed oligopoly entry is restricted.

**Collusive and Competitive oligopoly:** When few firms of the oligopoly market come to a common understanding or act in collusion with each other either in fixing price or output or both, it is collusive oligopoly.

**Partial or full oligopoly:** The dominating firm will be the price leader. In full oligopoly, the market will be conspicuous by the absence of price leadership.

**Syndicated and organized oligopoly:** Syndicated oligopoly refers to that situation where the firms sell their products through a centralized syndicate. Organized oligopoly refers to the situation where the firms organize themselves

## Kinked Demand Curve



■ Paul A. Sweezy propounded the kinked demand curve model of oligopoly. The price will be kept unchanged for a long time due to fear of retaliation and price tend to be sticky and inflexible.

## Other important market forms

■ **Duopoly**, a subset of oligopoly, a market situation in which there are only two firms in the market.

■ **Monopsony** is a market characterized by a single buyer of a product. Or service and is mostly applicable to factor markets in which a single firm is the only buyer of a factor.

■ **Oligopsony** is a market characterized by a small number of large buyers and is mostly relevant to factor markets.

■ **Bilateral monopoly** is a market structure in which there is only a single buyer and a single seller i.e. it is a combination of monopoly market and a monopsony market.

## Meaning Of Business Cycles

- These rhythmic fluctuations in aggregate economic activity that an economy experiences over a period of time are called business cycles or trade cycles.

## Phases Of Business Cycle

- The business cycles or the periodic booms and slumps in economic activities reflect the upward and downward movements in economic variables. A typical business cycle has four distinct phases. These are:

### Expansion (also called Boom or Upswing)

- state continues till there is full employment of resources and production is at its maximum possible level using the available productive

### Peak

- The term peak refers to the top or the highest point of the business cycle. This is the end of expansion and it occurs when economic growth has reached a point where it will stabilize for a short time and then move in the reverse direction.

### Contraction

- During contraction, there is fall in the levels of investment and employment. The consequence is a discrepancy or mismatch between demand and supply. Supply far exceeds demand. Initially, this happens only in few sectors and at a slow pace, but rapidly spreads to all sectors

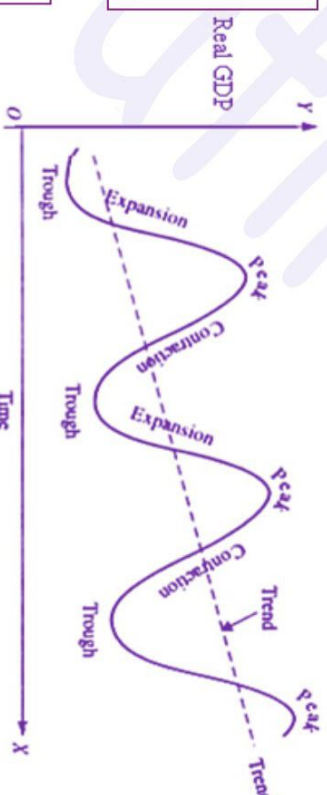
### Trough and Depression

- Depression is the severe form of recession and is characterized by extremely sluggish economic activities. Demand for products and services decreases, prices are at their lowest and decline rapidly forcing firms to shut down several production facilities. Since companies are unable to sustain their work force, there is mounting unemployment which leaves the consumers with very little disposable income.

### Recovery

- The economy cannot continue to contract endlessly. It reaches the lowest level of economic activity called trough and then starts recovering.

The broken line (marked 'trend') represents the steady growth line or the growth of the economy when there are no business cycles



## Features Of Business Cycles

Business cycles occur periodically although they do not exhibit the same regularity. The duration of these cycles varies. The intensity of fluctuations also varies.

Business cycles have distinct phases of expansion, peak, contraction and trough. These phases seldom display smoothness and regularity. The length of each phase is also not definite.

Business cycles generally originate in free market economies. They are pervasive as well. Disturbances in one or more sectors get easily transmitted to all other sectors.

Repercussions of business cycles get simultaneously felt on nearly all economic variables viz. output, employment, investment, consumption, interest, trade and price levels.

Business cycles have serious consequences on the well-being of the society



## Causes Of Business Cycles

**Internal Causes:** The Internal causes or endogenous factors which may lead to boom or bust are:

### Fluctuations in Effective Demand

- According to Keynes, fluctuations in economic activities are due to fluctuations in aggregate effective demand (Effective demand refers to the willingness and ability of consumers to purchase goods at different prices).

### Fluctuations in Investment

- According to some economists, fluctuations in investments are the prime cause of business cycles. Investment spending is considered to be the most volatile component of the aggregate demand.

### Variations in government spending

- Fluctuations in government spending with its impact on aggregate economic activity result in business fluctuations. Government spending, especially during and after wars, has destabilizing effects on the economy.

### Macroeconomic policies

- Macroeconomic policies (monetary and fiscal policies) also cause business cycles. Expansionary policies, such as increased government spending and/or tax cuts, are the most common method of boosting aggregate demand.

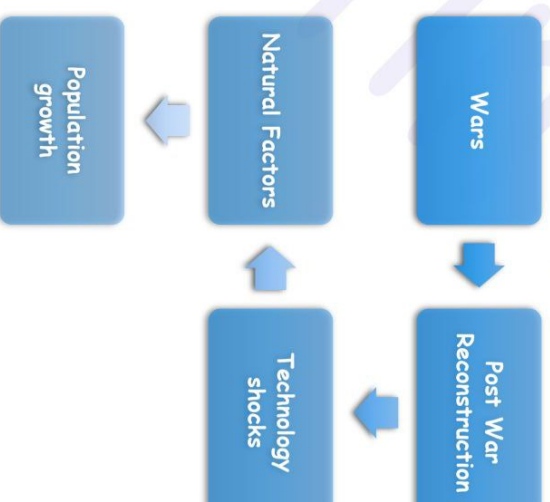
### Money Supply

- According to Hawtrey, trade cycle is a purely monetary phenomenon. Unplanned changes in supply of money may cause business fluctuation in an economy.

### Psychological factors

- According to Pigou, modern business activities are based on the anticipations of business community and are affected by waves of optimism or pessimism. Business fluctuations are the outcome of these psychological states of mind of businessmen.

**External Causes:** The External causes or exogenous factors which may lead to boom or bust are:



## Relevance Of Business Cycles in Business Decision Making

- Business cycles affect all aspects of an economy. Business cycles have tremendous influence on business decisions. The stage of the business cycle is crucial while making managerial decisions regarding expansion or down-sizing. However, it should be kept in mind that business cycles do not affect all sectors uniformly. Some businesses are more vulnerable to changes in the business cycle than others. Businesses whose fortunes are closely linked to the rate of economic growth are referred to as "cyclical" businesses.