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Economics

S.No.	Author	Theories, Definitions & Books
1.	Adam Smith	Father of Economics, Wealth Definition of Economics The wealth of nation-Book
2.	Edwin Conan	Optimize theory of population
3.	Edward Chamberlin	Theory of Monopolistic Completion Or Selling Cost Concept
4.	Milton Friedman	Wealth Theory and Demand for Money
5.	Gustav Cassel	Purchasing power parity, Work on interest
6.	Malthus	Quantity Theory of population
7.	Rawl Prebish	International Trade
8.	Paw M Swiji	Kinked Demand Curve
9.	Ragner Frish	Macro and Micro (Terms)
10.	David Ricardo	Comparative Theory of Cost
11.	Dupit	Consumer Surplus
12.	J.B.Say	Supply Creates its own Demand
13.	J. R. Hicks	Elasticity of Substitute, Indifference Curve approach; Modern theory of Interest; Profit is the reward for the use capital.
14.	Peter & Paiyar	Zero Base Budgeting
15.	Lionel Robbins	Nature and significance of economic science Positive Science Economic Security Definition Theory
16.	Thomas Gresham	Bad Money drives good money of circulation
17.	*Hartley Withers*	Money is what money does/ Every Loan Create Deposit
18.	Irving Fisher	Quantity Theory of money Purchasing Power of money Credit money based equation 9th theory of money.
19.	J.M. Keynes	Income & Expenditure Theory, Liquidity Preference theory, General theory of Employment, Interest & Money. Money is link between present & future Scope and method of Political Economy – Book
20.	Saligman	Economic laws are essentials hyperthitical in nature
21.	Paul A Samulson	Growth Definition
22.	F.H Knight	Uncertainty theory of profit
23.	Alfred Marshall	Elasticity of Demand; Definition of welfare Law of diminishing utility, Quasi rent principle of Economics Economics is the study of man kind in ordinary business of life
24.	Alfred Marshall	first economic who challenged the logical theory
25.	J.K. Mehta	Belongingness definition & also explain State\Theory of Wantlessness
26.	TERESCOT	If money is not the heart of our economic system it must be considered as its blood stream
27.	H.H. Gossen	Law of Equi Marginal Utility also known as Gossen's Second Law

Intro Microeconomics

1. **ECONOMICS**– it refers to the study of using the scarce resources to satisfy maximum needs

MICRO ECONOMICS: It is a study of behavior of individual units of an economy such as individual consumer, producer etc.

MACRO ECONOMICS: It refers to study of economy as a whole. Eg. GDP, Aggregate Demand.

2. **ECONOMY:** An economy is an area where economic units exchange goods and services

3. **ECONOMIC PROBLEM:** "An economic problem is basically the problem of choice" which arises due to scarcity of resources having alternative uses".

4. **CAUSES OF ECONOMIC PROBLEM:**

i) Scarcity of resources

ii) Unlimited wants

iii) Limited resources having alternative uses

5. **BASIC (CENTRAL) ECONOMIC PROBLEMS**

i) Allocation of resources

a. What to produce?

Which products should be manufactured and in what quantities? The products that do not command positive prices in the market will not be manufactured. As a result just those goods with positive prices are to be produced and in such a manner that will clear the markets.

b. How to produce?

'which techniques are to be adopted'?. There are two types of techniques. A labour–intensive technique would employ relatively more labour and less capital. On the other hand, capital–intensive technique means more capital and less labour.

The choice of technique depends on the prices of the factors of production. That is, if labour is cheap and capital is expensive, a labour–intensive technique would be considered and vice–versa. The prices of labour and capital are determined by the demand for and supply of labour and capital respectively

c. For whom to produce

The solution of this problem is very simple commodity can be consumed only by people who have more purchasing power. Price mechanism determines the income of the workers, i.e.; purchasing power. The purchasing power of the owner of capital is determined in the same way. Thus, it relates to determining the price of every commodity and every factor of production :– i) Efficient Utilization of resources

ii) Growth of resources

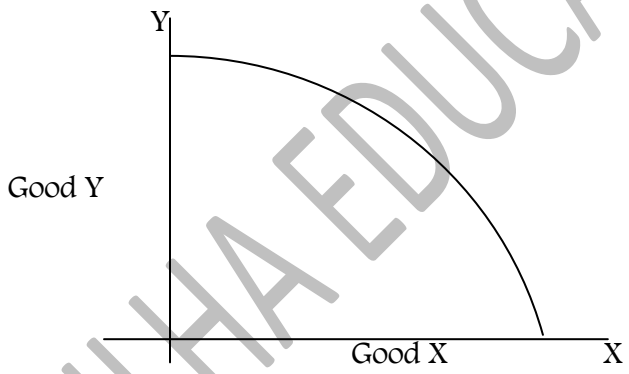
Production possibility Curve/ Transformation Curve/ Production Possibility Frontier

(i) It is a curve

- Representing various combination
- Of two goods that can be produced
- Using all the given resources
- For a given state of technology, resources and period of time

(ii) Example– (suppose the resource is fixed i.e., only 10 hector of land)

Good Y	Good X
150 kg	–
130 kg	1kg
100 kg	2kg
60 kg	3kg
0	4kg



The Shape of PPC curve is –

- Downwards sloping
- Concave to the origin

(iii) Why it is downward sloping?

- Because a producer has limited resources. So, to increase the production of one good the other has to be sacrificed. Hence, it is downward sloping.

- Why PPC/PPF / transformation curve is is concave?

  ANS. The PPC is concave to the origin because of the increasing Marginal opportunity cost.

  The MOC increase because the resources are not equally efficient in production of both the goods, hence more of one good is to be sacrifice for producing an additional unit of another.

- What is Marginal opportunity cost?

  ANS. A MOC is the sacrifice of production in one good or cost incurred, for producing one additional unit of another. It is the slope of PPC.

MOC=−ΔY/ΔX= Loss of Y/Gain of X

Concept of Opportunity Cost-OC is the benefit of next best alternative forgone.

In economics we not only consider the cost which has been actually incurred but also the cost of the benefit which could not be gained in this way it is different from Accountancy, as it is just a study that tells about decision making.

- Depicting central problems using PPC-

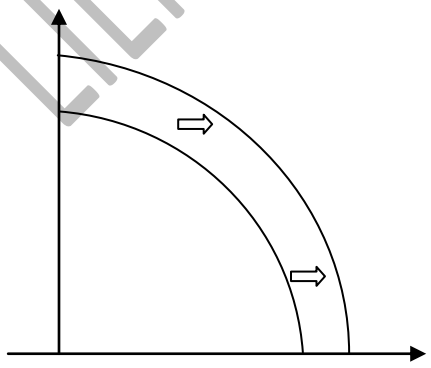
  Other than the three central problem "what to produce" , "how to produce" , "for whom to produce" there are two other problems as well in an economy phase.

  They are-

(i) Problem of growth

(ii) Problem of fuller utilization of resources

1. If there is rightward shift in the PPC curve it indicates growth In the economy. It can be representing by the following diagram-

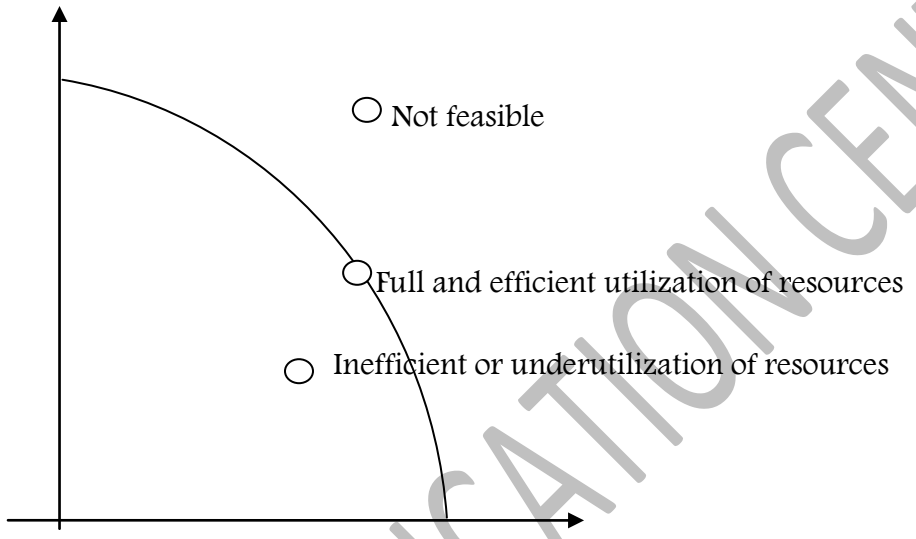


2. An economy can lie in two situations:-

   (i) When it is utilizing all its resources efficiently in such a case it will produce a combination which lies on the PPC.

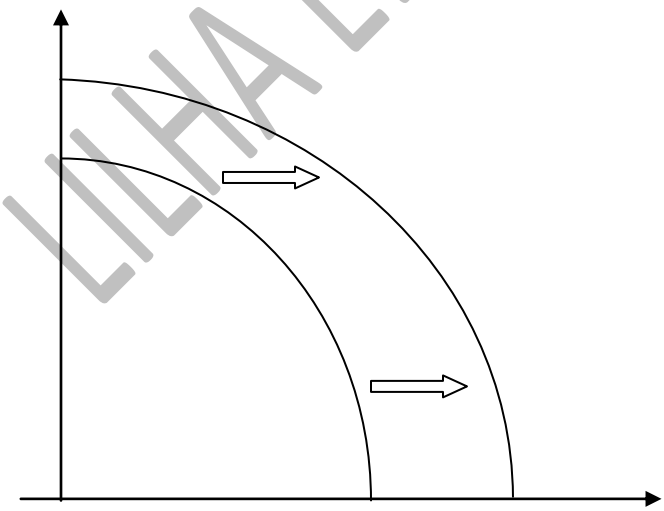
   (ii) It may not utilize all the resources efficiently indicating the problem of inefficient utilization in such a case it will produce a combination which lies inside the PPC.

- Producing a combination outside the PPC is not feasible (possible)

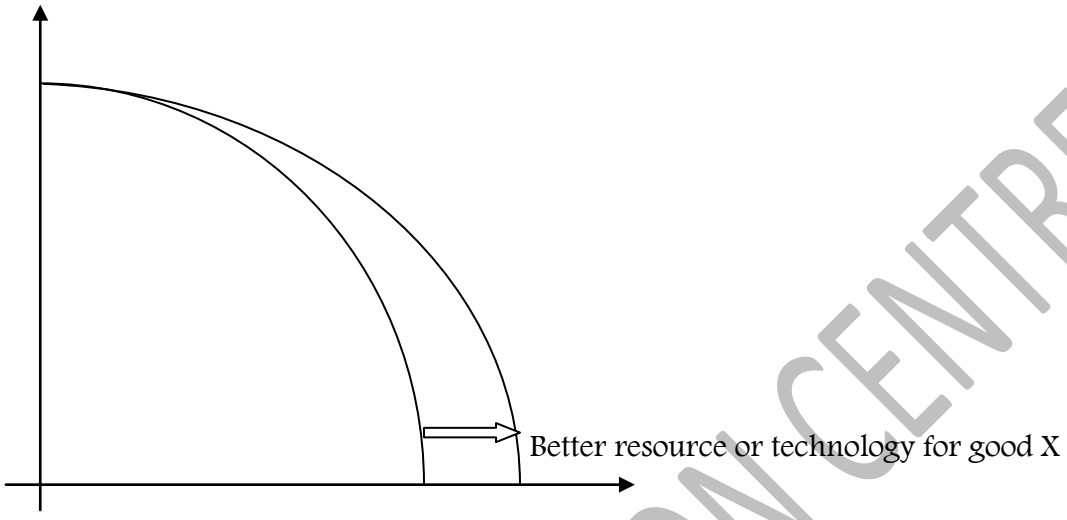


(v) reasons for shift and rotation

1) Shift occurs when a better technology or resource is developed for both the goods.



2. Rotation occurs when a better technology or resource is developed for a particular good.



Utility Analysis / Consumer Equilibrium

Utility– It is satisfaction derived from the consumption of a good or,

Want satisfying power of commodity is known as utility.

Two approach for measuring utility are:–

Cardinal approach:–"When utility is measured in quantitative terms. The unit for measurement in this approach 'Utils'"

Ordinal approach: – "when utility is measured through comparison between two goods it is said to be ordinal approach."

Cardinal approach:–

Total utility and Marginal Utility:–

Total Utility: – Total satisfaction derived from consumption of all the units of a good is called total utility.

Marginal Utility: – Satisfaction derived from the consumption of one additional unit of a good or the increase in total utility from consumption of on additional unit

Units	MU	TU
1	20	20
2	16	36
3	10	46
4	5	51
5	0	51
6	-2	49

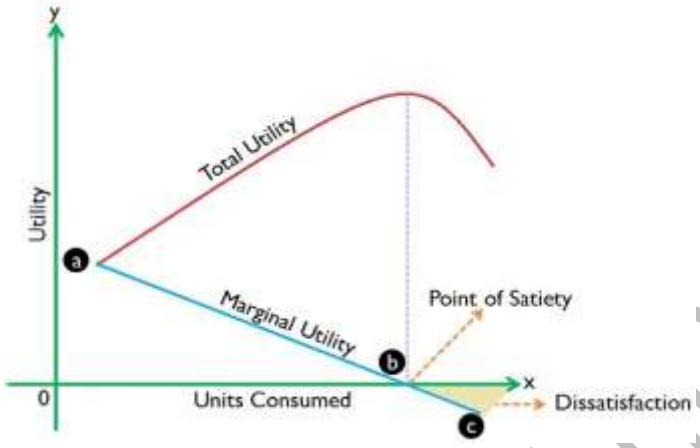
Total Utility= TU= ∑MU

$MU = TU_N - TU_{N-1}$ OR $MU = \Delta TU / \Delta Q$

Law of Diminishing Utility:– As we consume more and more of a commodity the satisfaction derived from every additional unit keeps on declined i.e. marginal utility keeps on decreasing this is Law of diminishing Marginal Utility.

Assumption of the law: –

1. There is a standard unit of consumption.
2. The consumption is continuous i.e. there should not be too much time gap between consumption of two units.
3. The consumer is rational.
4. Marginal utility of money remains constant.



Relationship between Total Utility and Marginal Utility: –

1. When Marginal utility is positive, Total Utility increases.
2. When Marginal utility is 0 Total utility is maximum.
3. When Marginal utility is negative, total utility is decreasing.

Law of Equi-Marginal utility: – A consumer consuming two goods will be in equilibrium when the ratio of their marginal utilities is proportional to their price.

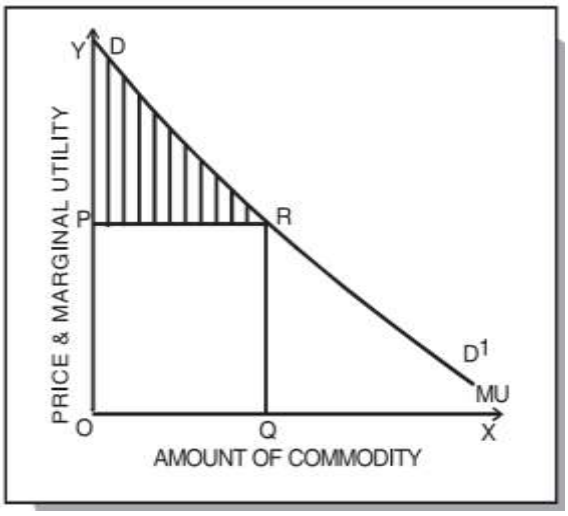
Example:- Price of X=Rs.10 MU_x=30U therefore MU_x/P_x=3

Price of Y=Rs.5 MU_y=20U therefore MU_y/P_y=4

$MU_x/P_x > MU_y/P_y$ therefore Y will be preferred until the ratio of MU_y/P_y becomes 3

Consumers Surplus-It is a situation when a consumer is willing to pay more than what he actually pays.

Consumers Surplus = What consumer is ready to pay (MU_x / MU_m) – What he actually pays(P_x)



Consumers Equilibrium–

- It refers to a situation
- In which consumer derives maximum satisfaction i.e., he does not want to consume any more commodity

Consumer Equilibrium

For one commodity

$MU_x/P_x = MU_m$

For two commodity

$MU_x/P_x = MU_y/P_y = MU_m$

Marginal Utility of Money (MU_m): – The satisfaction derived from one rupee.

Example: – Price of X=Rs.20, Utility of a rupee=2U

Units	MUx	MUx/Px	Situation
1	100U	5	MUx/Px >MUm therefore consumer surplus
2	80U	4	MUx/Px >MUm therefore consumer surplus

3	60U	3	MUx/Px >MUm therefore consumer surplus
4	40U	2	MUx/Px =MUm therefore consumer is in equilibrium
5	20U	1	MUx/Px <MUm therefore consumer will not consume 5^{th} unit

Assumption of Cardinal approach:

1. Cardinal measurement of utility is possible.
2. Marginal Utility of money remains constant throughout different purchases
3. the total utility derived will be sum total of independent utilities.

Limitation of cardinal approach:-

1) Measurement of utility as cardinal number is difficult.
2) The same product can have different utility for different users.

ORDINAL APPROACH

Topic covered:-

1. Indifference curve, definition
2. Shape of indifference curve
3. Reasons for the shape of indifference curve
4. Marginal rate of substitution
5. Properties of indifference curve
6. Monotonic preference of consumer.
7. Budget set and budget line
8. Equilibrium using indifference curve

1) It is a curve
   - Representing various combination of two goods
   - Providing the same level of satisfaction.

2)
- It is downwards sloping-
- It is convex to the origin

3)

- It is downwards sloping because to gain one additional unit of a good the other has to be sacrificed so as to maintain the same level of satisfaction.(Monotonic preference of consumer)
- It is convex to the origin because of decreasing marginal rate of substitution.

4) MRS is the rate of sacrifice in the consumption of a good for gaining one additional unit of another good.

It decline because as we consume more unit of a good the marginal utility derived from it keep on declining while on the other hand the good that we are sacrificing its marginal utility is increasing hence, lesser has to be sacrificed every time for gaining one additional unit of another.

It is the slope of indifference curve.

5) Following are the properties:-

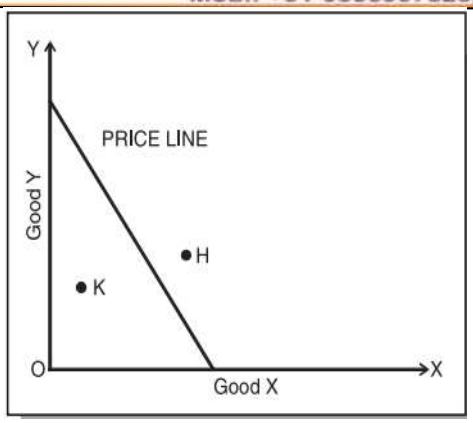
- Indifference curve is downwards sloping and convex to the origin.
- Higher IC indicates higher level of satisfaction:- Because in a higher IC a consumer will get either more of one good or more of another good or more of both the goods(MPC)
- Two IC's never intersects each other- An IC shows all the possible combination where the consumer gets same level of satisfaction. If two IC's interests each other they will show the same level of satisfaction at point of intersection, which is not possible.

6) A consumer prefers that bundle of good in which he gets either more of one good or more of another good or more of both the goods(MPC)

7) Budget set refers to the combination of all those goods that can be purchased using the given income(spending the whole income is not necessary).

Equation of Budget Set – Y(Income) >= Price of X * Units of X + Price of Y * Units of Y

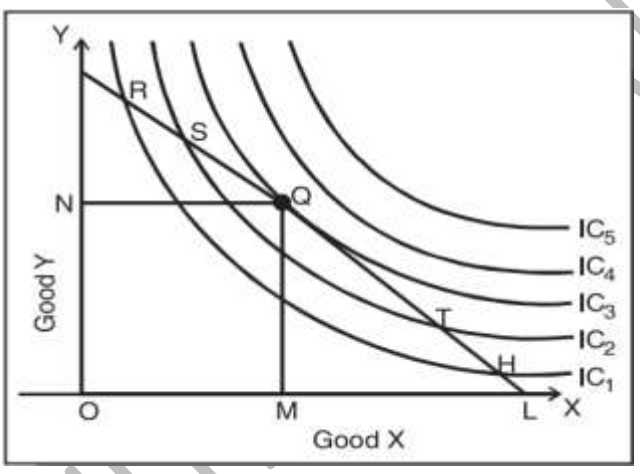
Budget line represents various combination of those goods that can be purchased using whole of given income.



Equation of Budget Set – Y(Income) >= Price of X * Units of X + Price of Y * Units of Y

8) Following are the condition for consumer equilibrium under IC approach:-

- IC is tangent to the budget line at the point of equilibrium i.e.
  Marginal rate of substitution = Price ratio
  $\Delta Y/\Delta X = Px/Py$
- The consumer spends all his income on the given goods.



Explanation: As we can see in the above figure there are 5 IC's showing different levels of satisfaction.

The consumer would like to prefer IC5 as it gives the highest level of satisfaction, but only IC1, IC2, IC3 are within the reach of budget line.

Hence the consumer would prefer the highest IC within the reach of budget line i.e. IC3.

So the consumer prefers the highest IC which is just in the reach of budget line i.e. tangent to Budget line.

THEORY OF DEMAND

Demand –

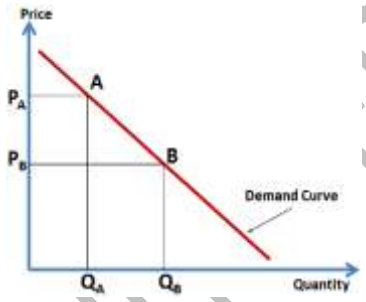
- it is a situation
- when a consumer is willing to purchase
- & able to purchase
- At the given prices.

Quantity demanded– It refers to demand at particular level of price , at a particular point of time.

Demand schedule – it is a tabular presentation of demand. It shows quantity demanded at various price level.

Price	Qty
25	5
30	4
35	3

Demand Curve: It shows us graphical presentation of demand i.e. the Quantity demanded at various price level.



Demand function: It is a mathematical presentation of demand

Eg. Qx = 50–5p, the relative demand schedule will be:

P	Qx
5	25
6	20
10	0

Individual Demand Schedule: It refers to tabular presentation of demand showing quantity demanded at various price level for a individual buyer

Ex- Individual demand schedule of A and B

A		B	
Px	Qx	Px	Qx
10	5	10	7
15	3	15	5
20	0	20	1

Market demand schedule: it refers to tabular presentation of demand showing quantity demanded at various price levels for the market as whole. Ex – Market demand schedule

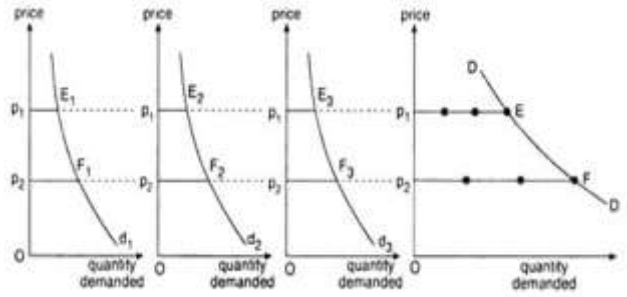
Px	Qx
10	12
15	8
20	1

Imp. Note:
A demand function always carries a negative sign along with price indicating the inverse relationship between price and quantity demanded.
In case of a Giffen good, the sign along with Price would become positive, indicating demand would increase with increase in price.
There can be other factors as well, which may affect the demand function such as Income(Y) of consumer. In such a case demand function would be $Q(x) = a + bY - cP(x)$, indicating goods are Normal goods, for an inferior good the demand function would be $Q(x) = a - bY - cP(x)$

Individual demand curve: It refers to graphical presentation of demand showing quantity demanded at various price levels for a individual buyer

Market demand curve: It refers to graphical presentation of demand showing quantity demands at various prices level for the market as whole.

Market demand curve is a horizontal summation of individual demand curve.



LAW OF DEMAND

It states that with increase in price, demand decreases and with decrease in price, demand increases, assuming all other factors remaining constant.

P ↑ D ↓

P ↓ D ↑

("With increase in Price Demand decreases", but "with Decrease in demand price will increase" may not always be true since there may be several factors affecting demand of a good, hence the vice versa may not always hold true for Law of Demand)

Other factors affecting Demand:

1. Price of related goods
    a. Complementary goods – Those good which are used together are called complementary goods. Ex- Marker & ink, Bike & Fuel.
    If price of complementary goods increases then demand of own goods decreases
    If price of complementary goods decreases then demand of own good increases.

    Pc ↑ Dx ↓

    Pc ↓ Dx ↑

    b. Substitute goods – The goods which can be used in place of each other are called as substitute goods. Ex – Maggie & Yippie.
    If price of substitutes goods increases then demand of own goods increases.
    If price of substitutes goods decreases then demand of own goods decreases.

Ps ↑ Dx ↓

Ps ↓ Dx ↑

2. Income of consumer
    a. Normal goods – Those goods whose demand increases with increase in income and vice versa are called normal goods.

Y ↑ D ↓

Y ↓ D ↑

    b. Inferior goods- those goods whose demand increases with decrease in income and vice versa are called inferior goods.
3. Future expectations – if future price expected to rise then demand at present will increase. If future price expected to decrease then demand at present will decrease.
4. If there is a favorable change in taste & preference then demand increases. If there is an unfavorable change then demand decreases.

Some other factors affecting market demand.

5. Population Size - Population increases, demand increases; population decreases demand decreases

6. Govt. Policy – Favorable policy then demand increases, unfavorable policy then demand decreases.

Reasons for Operation Of Law Of Demand/ Demand Curve Downfall.

1. Law of diminishing marginal utility – According to it as we increase consumption of a good the satisfaction from every additional unit declines. Because of which the price of every additional unit must decline. So, we can say that demand increases or decreases only with increase or decrease on price.

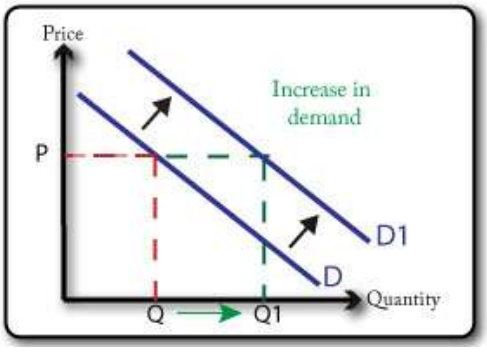
2. Income of consumer – When the price of a good increases or decreases the real income purchasing power of consumer changes. The monetary income doesn't changes. So with increase in price real income decreases. Therefore demand decreases.
3. Substitution effect – When the price of a good increases it is substituted by other goods. Hence, demand decreases and when price decreases. It substitutes other goods. Hence, demand increases.
4. New users – Some new users may enter or existing users may exit the market because of increase or decrease in price respectively.
5. Alternative uses – Some alternative uses of a good may be develops with decrease in price leading to increase in demand

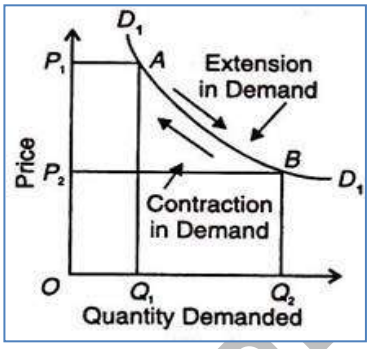
Exceptions to the Law of Demand

1. Giffen good – Those goods whose demand increases with increase in price and decreases with decrease in price are called as giffen goods.
2. Basic or necessary goods – An increase or decrease in the price of such a good does not affect its quantity demanded. These goods have a perfectly inelastic relationship, in that any change in price does not change the quantity demanded
3. Articles of Distinction – If a good is purchased merely because it is a status symbol (articles of distinction) then its demand may increase with increase in price.
4. Future exception – If future prices are expected to raise then demand may increase even with increase in price.

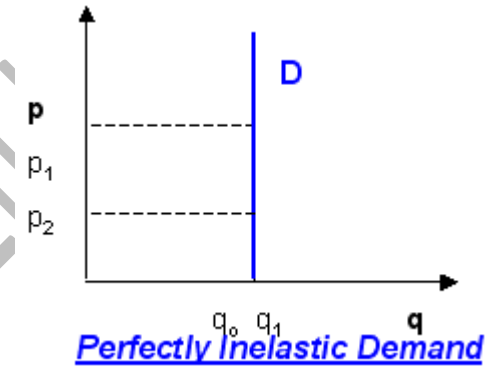
Difference between Increase in demand & Extension in demand.

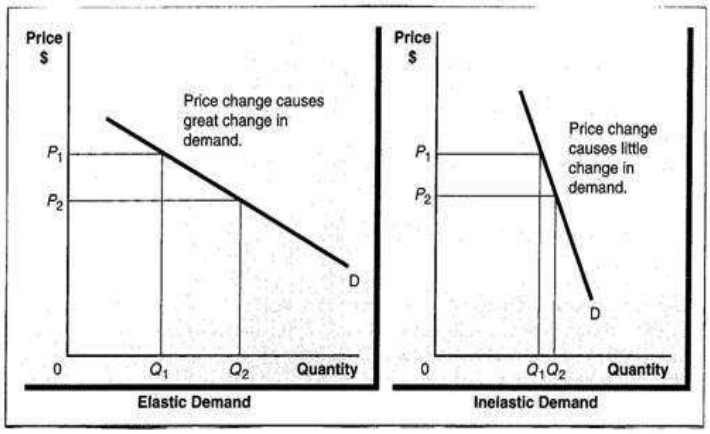
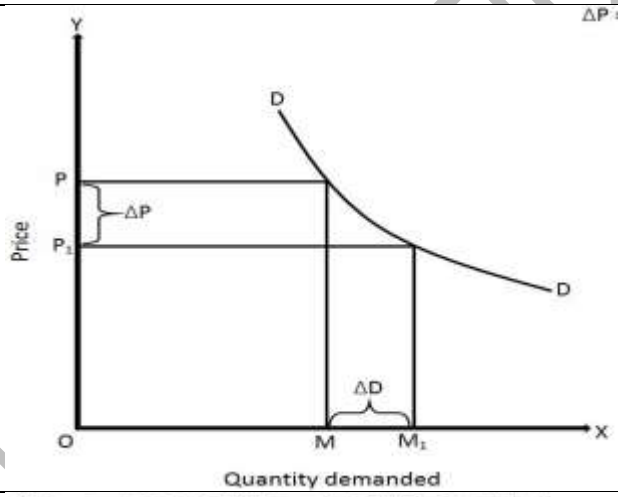
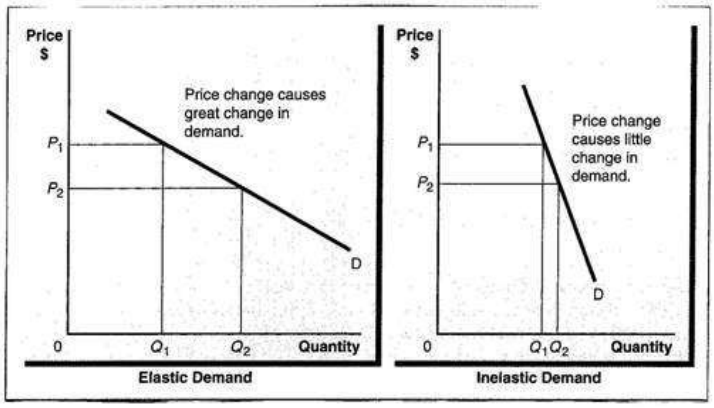
	Increase	Extension
1.	When demand increases at the same price.	When demand increases because of decrease in price.
2.	When there is a change in factor other than price.	When there is decrease in price.
3.	Ex-Favorable policy of govt. income increases (N.G.)	Price decreases
4.	Rightwards shift in demand curve	Rightwards movement along with demand curve.

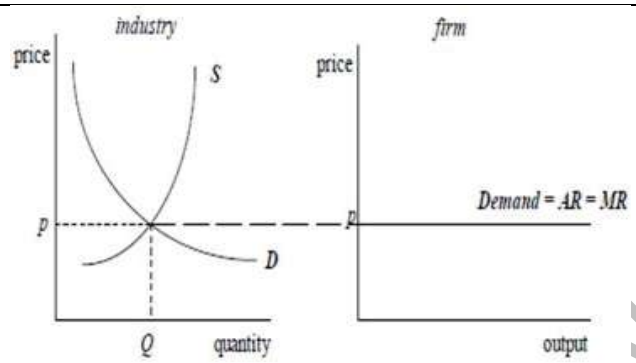




	Decrease	Contraction
i)	When demand decreases at the same price.	When demand decreases because of increase in price.
ii)	When there is a change in factor other than price.	When there is increase in price.
iii)	Ex-Decrease in income unfavorable govt. policy of govt. income increases (N.G.)	Price decreases
iv)	Rightwards shift in demand curve	Rightwards movement along with demand curves.

Demand curve under different situations of Elasticity of Demand			
Name	Diag.	Degree of Elasticity	Explanation
Perfectly Inelastic Demand	 Perfectly Inelastic Demand	Ed = 0	In this situation there is no change in quantity demanded with change in price. Demand curve is vertical to X-axis. It is an imaginary

			situation and not seen in the real life.
Inelastic demand		Ed < 1	The % change in Demand < % change in Price. Demand curve is downward sloping line. It happens in case of Monopoly market as the number of sellers is very less.
Unitary elastic demand		Ed = 1	Percentage change in demand = percentage change in price Demand curve is a rectangular hyperbola
Elastic Demand		Ed < 1	The % change in Demand % change in Price. Demand curve is downward sloping line. Under Monopolistic competition

			firms have Elastic demand as the number of sellers is very high & close substitutes available.
Perfectly Elastic Demand		Ed = infinity	There is change in Demand without any change in Price or if there is an increase in price the Qty. demanded falls to zero, and with decrease in price the Qty. demanded will increase by many times. Demand curve is a vertical straight line. In case of Perfect competition firms have perfectly elastic demand due to availability of large number of perfect substitutes .

Elasticity of Demand

Elasticity of demand: – It refers to the responsiveness of demand with respect to the change in price.

Following are the methods are measurement of elasticity of Demand.

i) Percentage method
ii) Geometric method
iii) Expenditure method

A. Percentage Method

$E_d = \frac{\%\Delta\ Qty\ Deamnd}{\%\Delta Price}$

⇨ $\frac{\frac{\Delta Q}{Q0}*100}{\frac{\Delta Q}{Q0}*100}$

⇨ $\frac{\Delta Q}{\Delta P} * \frac{P0}{Q0}$

Q_0 = Initial Qty

P_0 = Initial Price

Q_1 = New Qty

P_1 = New Price

$[\Delta Q = Q_1 - Q_0]$

$[\Delta P = P_1 - P_0]$

Elasticity of demand: – Since there is inverse relationship between price and qty. So elasticity of demand which always carry relative sign.

For the shape of simplicity the negative sign has been ignore

Degree of elasticity of Demand

Perfectly inelastic (0)	*Relative inelastic (<1)*	*Unitary elastic (= 1)*	*Relative elastic (>1)*	*Perfectly elastic (∞)*

i) **Perfectly inelastic** (elasticity of demand is 0) – When quantity of good does not change with respect to change in price then demand is called as perfectly inelastic

ii) **Relative inelastic** (elastic of demand is >1) – When percentage change in price is more than percentage change in qty demand.

iii) **Unitary elastic** – When % change in price is equal to % change in qty demanded it is unitary elastic.

iv) **Relative elastic** (elasticity of demand is <1) – When percentage change in price is less than percentage change in qty demand it is elastic.

v) **Perfectly elastic** (elasticity of demand is ∞) –When without change in price there is change in qty demanded. It is perfectly elastic or when with a slight increase in price the demand falls to zero or with decrease in price the demand increases by many times, the demand is perfectly elastic.

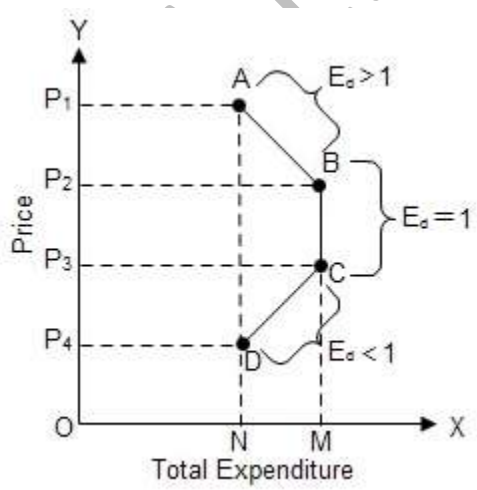
B. **Expenditure method** for measurement of elasticity of demand

(T.E. – Total Expenditure)

Ed < 1	Price increases	T.E increase
Ed <1	Price decreases	T.E decrease
Ed =1	Increase or decrease in Price	T. E. no change
Ed > 1	Price increase	T. E. decrease
Ed > 1	Price decrease	T. E. increase

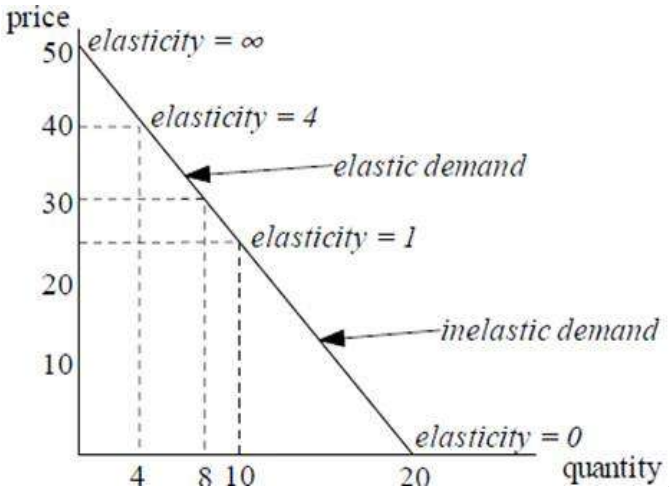
(Note: this method does not tell us about the exact measurement of elasticity, it just tells about the degree of elasticity)

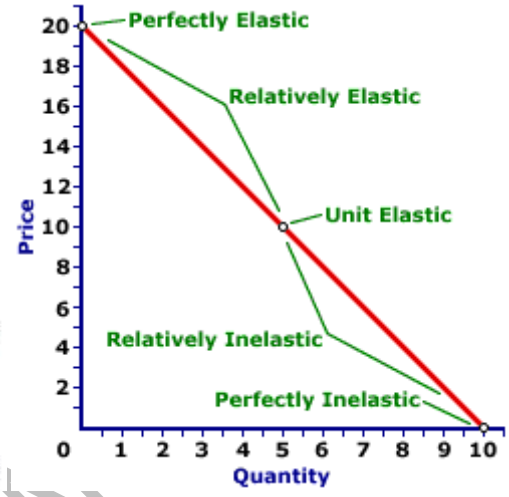
Diagrammatic presentation of relationship price and total expenditure



C. **Geometric method** for determining elasticity of demand.

$$Ed = \frac{\text{Lower Segment}}{Upper\ Segment}$$





As per this method: -

i) Elasticity of demand is 0 when demand curve touch the x-axis

ii) When demand is below the mid-point. Elasticity of demand is less than one. Ed >1

iii) At the midpoint elasticity of demand is 1

iv) Above the midpoint elasticity is Ed <1.

v) When the demand curve touches the Y axis. Elasticity of demand is ∞

Factors affecting on elasticity of demand -

I) Income of the consumer – If the consumer has high income then elasticity of demand is low and for lower income consumer elasticity of demand is high

II) Price of goods – If a good has high price then elasticity is and the price is low than low elasticity.

III) Type of good – For necessity goods elasticity of demand is less than 1 while for luxury goods the elasticity of demand is high.

IV) Postponement of use – If the use of product can be postponed then its elasticity is high and if its use can't be postponed then its elasticity is low.

SUPPLY

Supply refers to a situation where a seller is ready to sell and able to sell at the given prices.

Quantity supplied – refers to supply of a good at a particular price level.

Supply schedule- refers to a tabular presentation of the various quantities supplied at different prices.

Supply curve – represents diagrammatic presentation of supply at different prices.

A supply curve representing quantity supplied at different prices for an individual seller / market as a whole, is called individual / market supply curve

Law of supply:-

It states that – "supply increases with increase in price and decrease with decrease in price i.e. it has positive relationship, assuming other factors of supply remains constant.

The factors (other than price) affecting supply are:

i) Technology – a better technology may help in producing more with the same resources and lower cost, thus supply increase with a better technology

ii) Goal of the seller – a seller may have different goal, e.g. if the seller has 'sales maximization' objective then he will sell more even at same or lower price, whereas a firm with profit maximization objective will try to maximize profit not by more sales but higher profit margin

iii) Price of related goods – if the price of related goods rises, the commodity of seller may become lesser attractive, and hence the supply of own commodity will reduce.

iv) Price of factors of production – if the cost of production increases, it leads to lesser profit margin, and hence the supply will reduce whereas if the cost of production reduces due to reduction in price of factors of production, the profit margin will increase leading to greater supply.

v) Market expectation – if in future the prices are expected to rise the supply at present will reduce, whereas if the prices are expected to fall in future the supply at present will increase.

vi) No. of sellers –

No. of sellers increases, supply increases

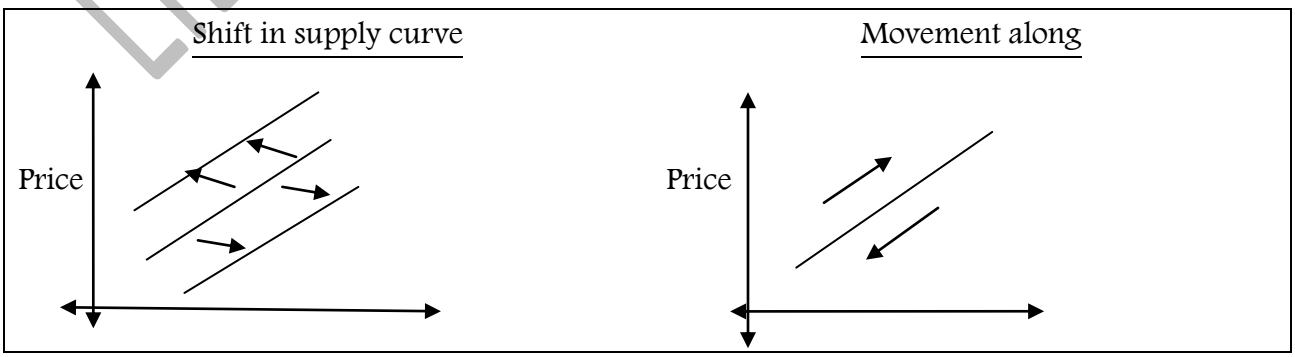
No. of sellers decreases, supply decreases

Why does the law of supply operate? / why supply curve upward sloping?

1) With increase in prices new sellers may enter the market whereas with decrease in price existing seller may exist the market (due to lesser profit margin).
2) Old stock may be sold with increase in price where as stock may be maintained in case of decrease in price.
3) The supplier increases its supply due to greater profit margin with rise in price whereas with fall in price the supply (production) will fall.

Exceptions:-

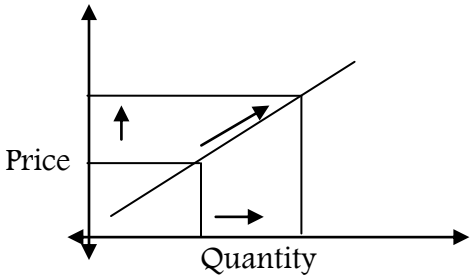
1) Article of distinction – the seller may not increase the supply of such product with increase in price so as to maintain its uniqueness.
2) Supply of product depending upon natural factors- production of such products such as agriculture product may not increase with increase in price as they are generated through a long natural process.
3) Perishable goods – supply does not increase with increase in price.
4) Government restriction – if government has imposed restriction on supply of a product then it may not increase with increase in price.



	Quantity
• Occurs due to factors other than price of the commodity • A new supply curve is formed whether in righward or backward direction.	• Occurs due to change in price (extension and contraction) • No, new supply curve is formed.

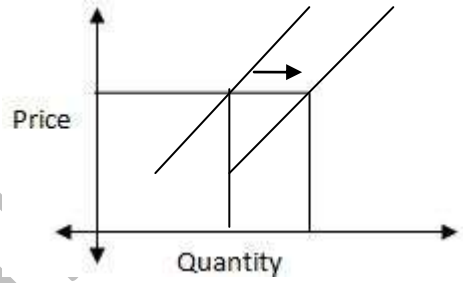
Extension

1) Quantity supplied rises due to rise in price
2) No, new supply curve is formed. There is movement along the supply curve.



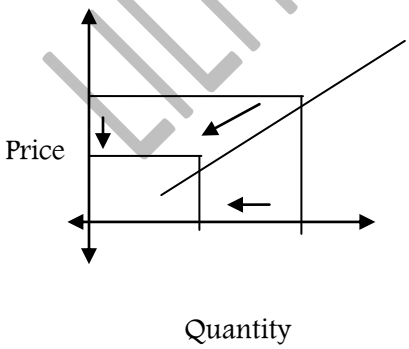
Increase

1) Quantity supplied rises due to other factors
2) New supply curve is formed whether in rightward or leftward direction.



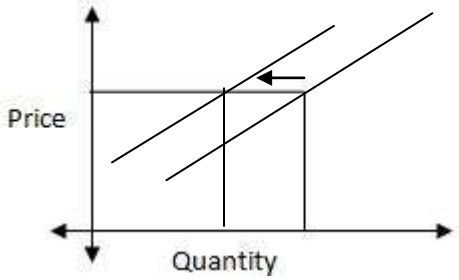
Contraction

1) Quantity supplied falls due to fall in price of a commodity.
2) No, new supply curve is formed. There is movement along the supply curve.



Decrease

1) Quantity supplied falls due to other factors than price
2) New supply curve is formed whether in rightward or leftward direction.



Elasticity Of Supply

- It measurement of
- Responsiveness of qty supplied with respect to change in price.

1) Percentage method :-

$$ES = \frac{\%\Delta Q}{\%\Delta P}$$

$$= \frac{\frac{\Delta Q}{Qo} \times 100}{\frac{\Delta P}{Po} \times 100}$$

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

Note-1

- Elasticity of supply has got no unit of measurement.
- Elasticity of supply is a measurement of relative change (% change) not absolute change.

Practical question

1. The price of a goods decrease from Rs. 20 to 15 due to which the qty supply fall from 200 to 160 Calculate ES.

   Solution -

P	Q
20	200
15	160

$P_0 = 20$

$P_1 = 15$

$Q_0 = 200$

$Q_1 = 160$

$\Delta P = P_0 - P_1 = 20-15 = 5$

$\Delta Q = Q_0 - Q_1 = 200-160 = 40$

$ES = \frac{Q}{P} \times \frac{P0}{Q0}$

$= \frac{40}{5} \times \frac{20}{200}$

$= 0.8$

2. The price of good increase by 10% due to which qty supply increase by 15%.

Solution–

$\% \Delta Q = 15\%$

$\% \Delta P = 10\%$

$ES = \frac{\%\Delta Q}{\%\Delta P}$

$= \frac{15}{10} = 1.5$

3. The price of good increase from 20 to 25 due to which qty supply increase by 50% Calculate ES.

Solution –

$P_0 = 20$

$P_1 = 25$

$\Delta P = 5$

$\%\Delta Q = 50\%$

$\%\Delta P = \frac{\Delta P}{P0} \times 100$

$= \frac{5}{20} \times 100$

$= 25\%$

Es = $\frac{\%\Delta Q}{\%\Delta P}$

= $\frac{50\%}{25\%} = 2$

4. Find the % change in price of a good. If % change in qty. supply is 30% and Es of supply 1.5.

Solution –

ES = $\frac{\%\Delta Q}{\%\Delta P}$

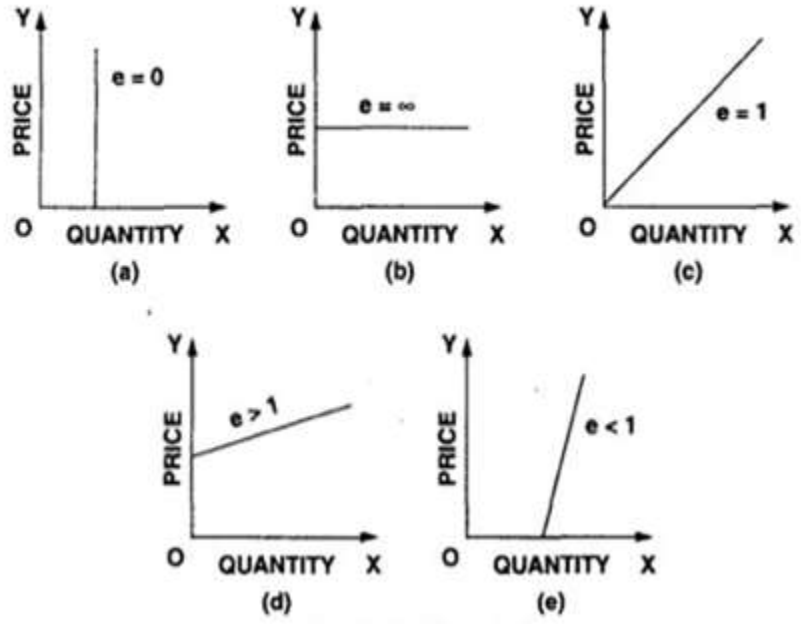
1.5 = $\frac{30}{\%\Delta P}$

1.5%ΔP = 30

%ΔP = $\frac{30}{1.5} = 20\%$

Degree of Elasticity of Supply

0	Perfectly inelastic supply	% Δ Q = 0
0–1	Inelastic supply or relative inelastic	% Δ > % ΔS
=1	Unitary elastic	% ΔQs = % ΔP
>1	Elastic	% ΔQs > % ΔP
= ∞	Perfectly elastic	% ΔP = 0



Geometric Method

1) If the supply curve passes through the Y axis them elasticity of supply will be greater than one. If the supply curve is horizontal line parallel for x axis then elasticity of supply will be perfectly inelastic.
2) The supply curve passes through the origin the elasticity of supply will be =1 that is unitary elastic.
3) If supply curve passes through x-axis then supply will be elastic that is greater than one.
4) If supply curve is vertical to x-axis the supply will be perfectly inelastic.

Factors Affecting elasticity of supply

1) **Availability of input** – If the input is easily available then supply can be increased with increase in price. Hence elastic but input is not easily available then supply will be in elastic.
2) **Goal of the seller** – If the seller has a goal of profit maximization then supply will be inelastic and if he has goal of profit maximization, sell maximization then supply will be elastic.
3) **Risk taking capacity** – If the seller can take higher risk then supply is elastic, if sellers is conservative then supply is inelastic.
4) **Durability** – For durable goods supply is elastic. For perishable good is inelastic.
5) **Government Support** – If the govt. makes favorable policy then supply is elastic, when unfavorable policy it inelastic.
6) **Utilized capacity** – If there is unutilized capacity then supply is elastic but unutilized capacity is very less than supply in inelastic.

CONCEPT OF COST

Cost is value of input for producing the required level of output

Or

Cost is the total expenditure incurred in producing a commodity.

Types of cost

1. Implicit cost & Explicit cost
2. Fixed & variable cost
3. Opportunity Cost

Opportunity cost is the benefit of the best alternative forgone.

Implicit cost

- Is the cost incurred on self-owned Factors of production.
- In implicit cost no actual payment is done. It is based on the concept of opportunity cost.
- It is usually not recorded in the books of Accounts, but included for costing purpose.
- Example-IOC, Rent of own land.

Explicit Cost

- It is the cost of those factors of production which are not self-owned.
- In explicit cost original payment in being made.
- They are recorded in the book of accounts.
- Example – Payment of wages, Rent insurance premium.

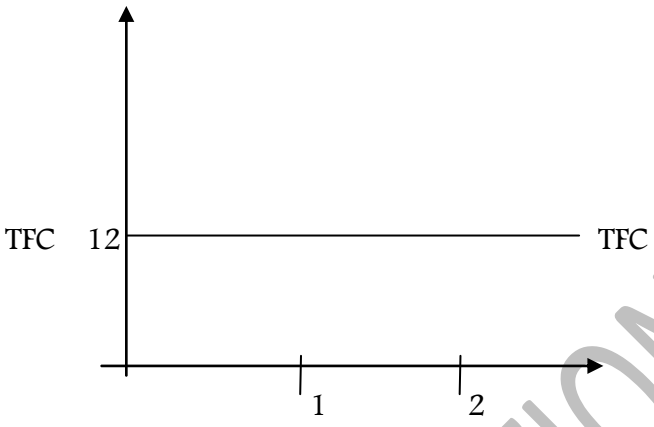
Fixed Cost

- Fixed cost remains same whether output is large, small or even zero.
- It does not changes with level of production upto certain level of production and for a particular period of time (short run).
- It incurred ever at zero level of production.

- Example – Rent of premises, Interest on loan etc.

Fixed Cost Schedule

Output (In units)	TFC
0	12
1	12
2	12

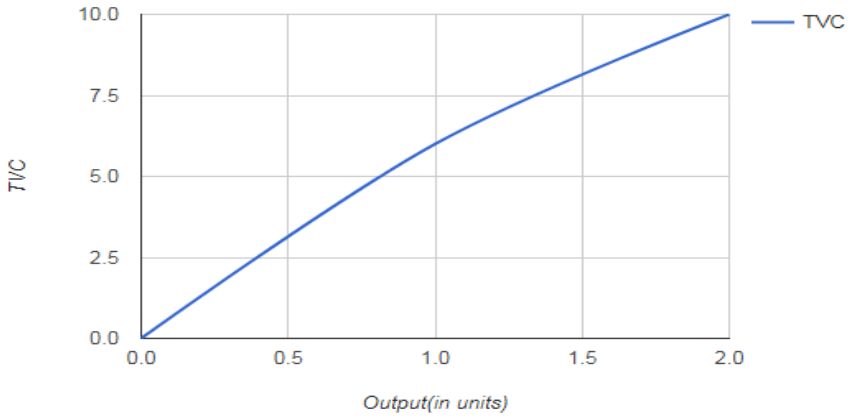


Variable Cost

- Variable cost rises with the increase in output.
- The cost that changes with level of production.
- It is not incurred at zero level of production.
- Example – Wages of casual labour.
- Variable Cost is called direct cost as vary directly with the level of output.
- It is inversely 'S' shape.

Fixed Cost Schedule

Output (In units)	TVC
0	0
1	6
2	10



Marginal Cost is the cost incurred on producing one additional unit of a product.

$MC = \frac{\Delta TC}{\Delta QTY}$ or TCn – TCn–1

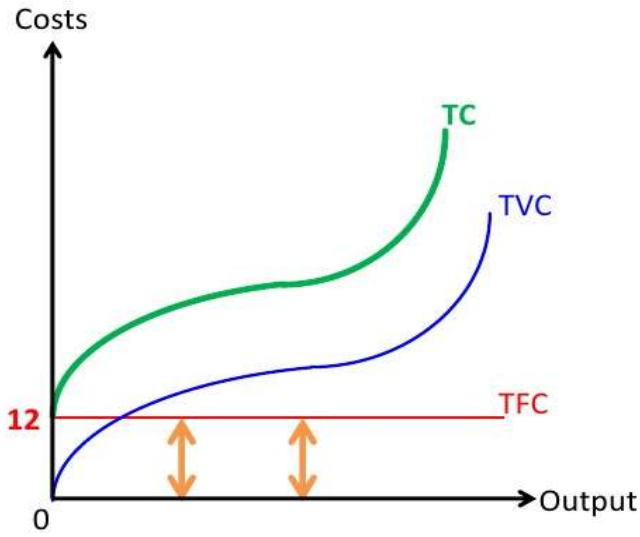
Total Cost is the sum total of all the cost incurred in production, or

TC = TFC + TVC (or TVC = TMC)(only in short run)

(TC = AC x QTY)

Ex.

	TFC + TVC = TC		
Output	TFC	TVC	TC
0	12	0	12
1	12	10	22
2	12	16	28
3	12	21	33
4	12	28	40
5	12	40	52
6	12	60	72
7	12	91	103

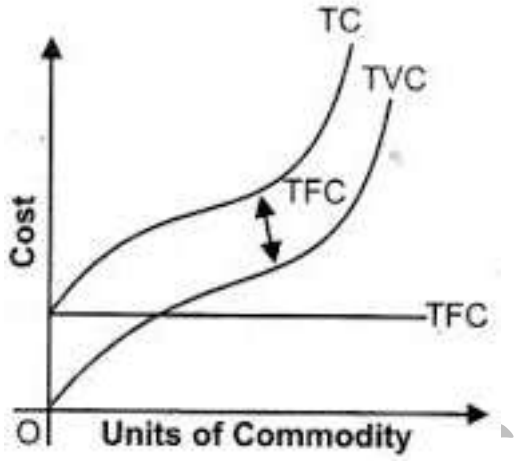


Average Cost/ Average Total Cost is the cost producing one unit of a product on an average.

$AC = \frac{TC}{Qty.} = \frac{TFC+TVC}{Qty.} = \frac{TFC}{Qty.} = \frac{TVC}{Qty.} = AFC + AVC$

TC = TFC+ TVC

Units	VC	TVC	TFC	TC
0	-	-	10	10
1	10	10	10	20
2	8	18	10	28
3	5	23	10	33
4	7	30	10	40
5	12	42	10	52



SHORT-RUN

Relationship between TC,TFC &TVC

TC curves keeps on rising as TVC keeps on increasing. The increase in TC is because of increase in TVC.

TVC also keeps on rising because there is always some marginal cost in producing an additional unit i.e. MC is never negative zero.TVC in the initial stage increases at a decreases rate and later increase at increasing rate

TFC always remains constant at every level off output.(gap between TVC & TC = TFC)

The gap between TC & TVC remains constant because this gap represents TFC, and TFC does not change.

Hence gap between TC & TFC keeps on increasing because it represents TVC which keeps on increasing.

TC – TVC= TFC

TC =TFC + TVC

TC – TFC= TVC

Relationship between AC, AFC & AVC

AC= AFC + AVC { AFC = TFC/Qty }

AC – AVC = AFC

AC = TC/Qty {AVC = TVC/Qty }

$AC = \frac{TFC+TVC}{QTY}$ {TFC always be same }

AC = TFC/Qty + TVC/Qty { AC= AFC + AVC }

AC = AFC + AVC {AVC is more than or above MC then AC rises}

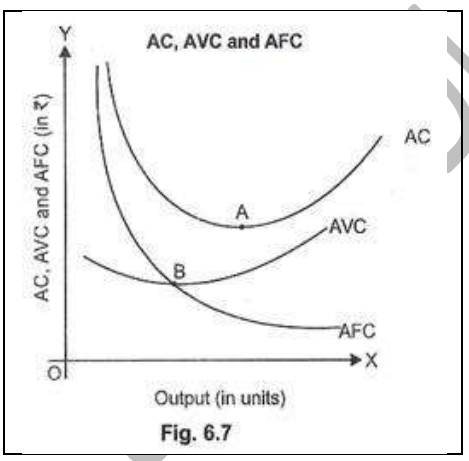


Fig. 6.7

AFC – Downward Sloping . Starts from infinity & never will be 0.

AFC => On Y- axis => Can never touch the Y-axis because at zero level of output TFC is a (+) value and any(+) value divided by zero will be an infinite value.

$AFC = \frac{TFC}{Qty.} \rightarrow \frac{(Constant)}{(Changes)}$

Units	TFC	TVC	AFC	AVC	AC
0	10	0	0	-	-
1	10	20	10	20	30
2	10	38	5	19	24
3	10	54	3.3	18	
4	10	76	2.51	19	
5	10	100	2	20	22

Shape of AFC:-

- It is per unit fixed cost of production.
- It is hyperbola. (as the area under the curve remains same at all the points)
- It starts from some point at but never touches any axis i.e. AFC is never zero, because even at O level of production TFC is never 0.(on X-axis)
- AFC is always downward sloping because TFC does not changes but Qty. keeps on increasing.

Shape of AVC:-

- Refers to per unit variable cost of production.
- AVC is U shape because MC in the initial stage decline and then rises (Please note that MC=VC in short run) which is due to law of variable proportion which stage that marginal product in the initial stage will rise and then decline.

Output	TVC	AVC
0	0	---
1	6	6
2	10	5
3	15	5
4	24	6
5	35	7

Shape of AC:-

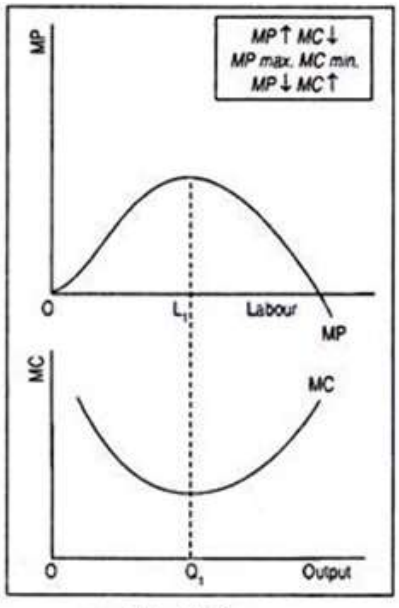
- AC is U shape because MC In the initial stage decline and then rises which is due to law of variable proportion which stage that marginal product in the initial stage will rise and then decline.

Relationship between AC and AVC:-

- AC curve starts above AVC curve.
- The gap AC and AVC represents AFC.
- This gap on decreasing because AFC keeps on decreasing.
- AC and AVC curve never meet / touch / intersect each other because the gap between them is AFC which is never 0.
- Then MC cuts AVC from below at its minimum points.
- This is because AVC Will rises only when MC is above AVC.

(AVC attaints its minimum earlier than AC)

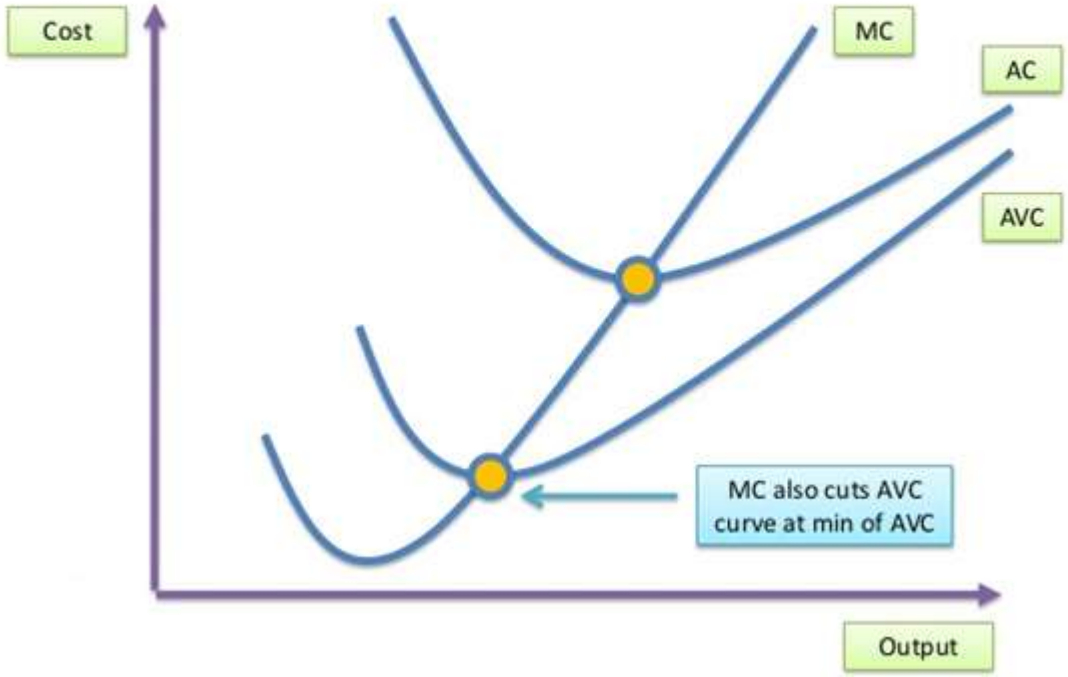
Marginal Cost Curve:-



MP and MC Curves

- It is U shaped because due to law of variable proportion which state that MP is in the initial stage will rises then decline.

Average Cost, and Marginal Cost in the Short Run



Relationship between MC and AC:-

- MC cuts AC below at its minimum point.
- Because AC will start rising only MC is greater than AC.

Production Function

Production – Any activities which add value to the goods is called as production

Factors of production:-

Those things which help in production are called as factor of production.

Fixed factors	Variable Factors
1) Those factors which don't change with the level of production up to certain level are called as fixed factors of production	Those factors which change with the level of production are called as variable factors of production.
2) These are used even at zero level of production	These are not used at level of production
3) Land, capital, machinery, salary	Labour (wages), Transport, Electricity

Short Run	Long run
It is that period of time in which some factors of production are fixed some are variable	It refers to that period of time in which all the factors of production are variable.

Total Product – It is the output produced using all the factors of production.

TP = ∑MP

Marginal Product – It is output produced using one additional unit of factor of production.

MPn = TPn – Tpn-1

$MP = \frac{\Delta TP}{\Delta n}$

n = no. of units of input of variable factors of production

Average Product – It is the output produced per unit of input.

$AP = \frac{TP}{n}$

Units	MPn = TPn – Tpn–1	TP = ∑MP = AP × n	AP = $\frac{TP}{n}$
1	15	15	15
2	17	32	16
3	10	42	14
4	6	48	12
5	2	50	10
6	–8	42	7
7	–12	30	4.28

Production Function– It shows as the mathematical relationship between output produced and input of factors of production. It can be written as.

[Qx = F (Labour, K̄, L̄)]

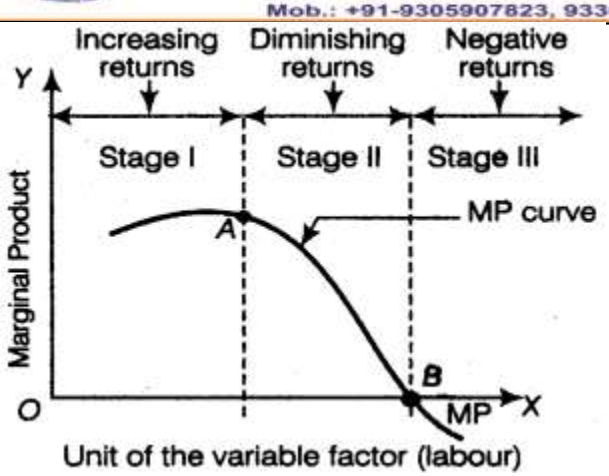
K̄ = Capital (Fixed)

L̄ = Land (fixed)

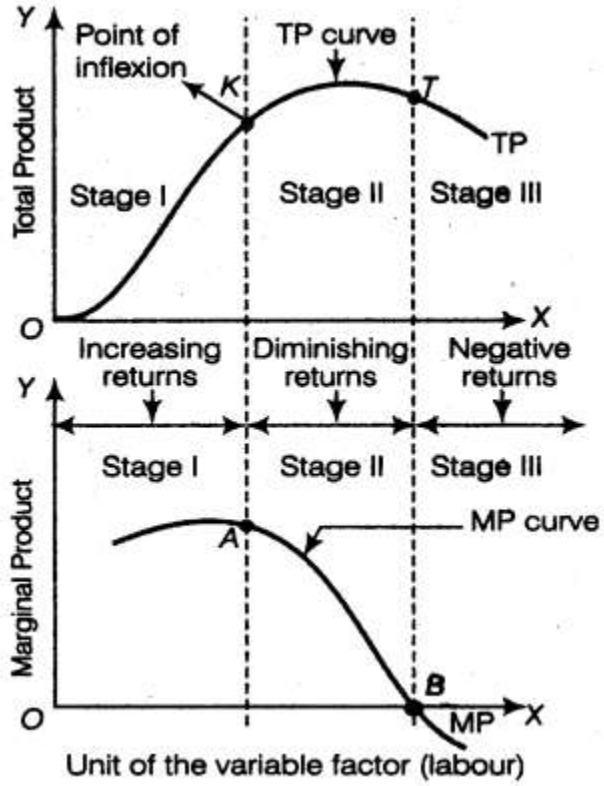
Law of Variable Proportion– This law states that as there is increase in the no. of units of variables factors of production in the initial stage, MP increase but after a certain point its start declining and it can even become negative.

Explanation – Variable proportion mean the change in ration of combining fixed factors and variable factors for a particular fixed factor there is an optimum no. of variable factor that must be used in the initial stage when the no. of division of work.

∴ Workers efficiency is less as, the no. of labors increase division of work done and resources are better utilize, so efficiency increase after reaching the optimum combination he additional labour is lesser useful, ∴ Efficiency (Productivity decline.



- **Relationship between TP & MP**



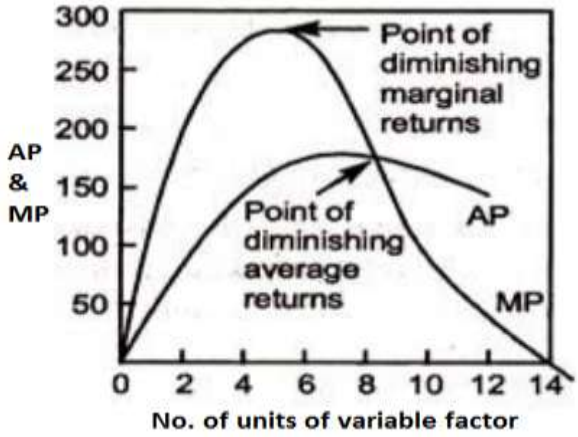
i. When MP increase, TP increase at an increasing rate

ii. When MP decrease but is positive MP increase at a decreasing rate

iii. When MP is equal to 0 and it is maximum.

iv. When MP is negative TP Short declining.

- **Relationship between AP & MP**



i. When MP is increasing, AP is also increasing

ii. When MP is decreasing but it is greater than AP, AP is still increasing MP attains its maximum first.

iii. When MP = AP is maximum

iv. When MP decrease & It becomes lesser than AP, AP also starts declining.

Combined diagram:-

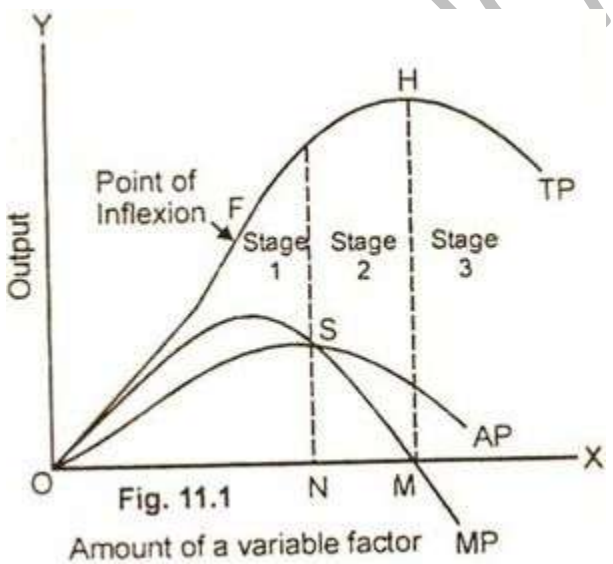
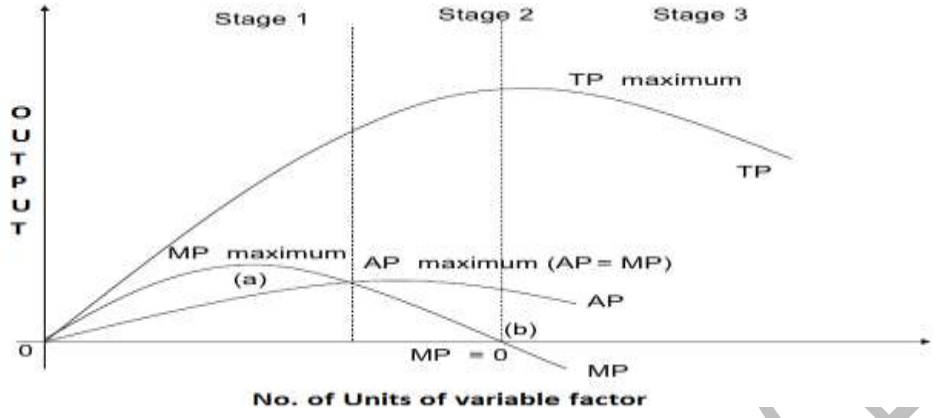


Fig. 11.1

- **Returns to factor:** - It refers to the output generated by using additional input of variable factors of production. (Law of variable proportion tells us about return to factor)

- **Returns to Scale:-** It refers to the output generated by using additional input of variable factor as well as fixed factor production.
- Stages of law of variable proportions:-



- 1st Stage, Stage of increasing return: -

  MP increasing in this stage reasons:-

  (i) Better utilization of fixed factor of production

  (ii) Division of work: - As the no. of labour in the initial stage of increase the works get divided each worker specialized in its own work.

  (iii) There is better coordination of resources.

- 2nd stage, stage of diminishing return:-

  MP product in this stage decrease but it is positive.

- 3rd Stage, Stage of negative return:-

  In this case MP decrease & it is negative.

  Reasons for diminishing/ Negative return

  1) Overutilization of fixed factor production poor coordination among the resources due to over employment of variable factor.

Note:-

1) A producer never operates its 3rd stage that is negative return because the total product in this stage & start declining.
2) A producer may produce 2nd stage even though he is getting diminishing return because the MP is in this stage is positive & Hence TP is increasing.

Concept of Revenue

Revenue – The amount realized from the sale of a good. (direct connection with demand)

Marginal revenue: – Excess revenue generated from sale of one additional unit.

Change in TR by selling 1 additional unit.

Example: – TR.

10 units @ Rs. 10 = 100

11 units @ Rs. 9.5 = 104.5

4.5 = M.R.

Average revenue: – The amount of revenue received on an average on one unit of a good.

Example –

AR = TR/Qty. = 80/10 = 8 = price.

Example – 1

Unit	Price	Marginal revenue	AR	TR
0	–	–	–	–
1	20	20	20	20
2	18	16	18	36
3	15	9	15	45
4	10	-5	10	40

Example – 2

They always same

Unit	Price	Marginal revenue	AR	TR
0	–	–	–	–
1	20	20	20	20
2	20	20	20	40
3	20	20	20	60
4	20	20	20	80

Note – The relationship between marginal revenue and total revenue is same as that between MU and TU (utility "U")

Revenue curve under perfect competition:-

(TR in P.C. Increasing with constant rate, it is left to right upward line)

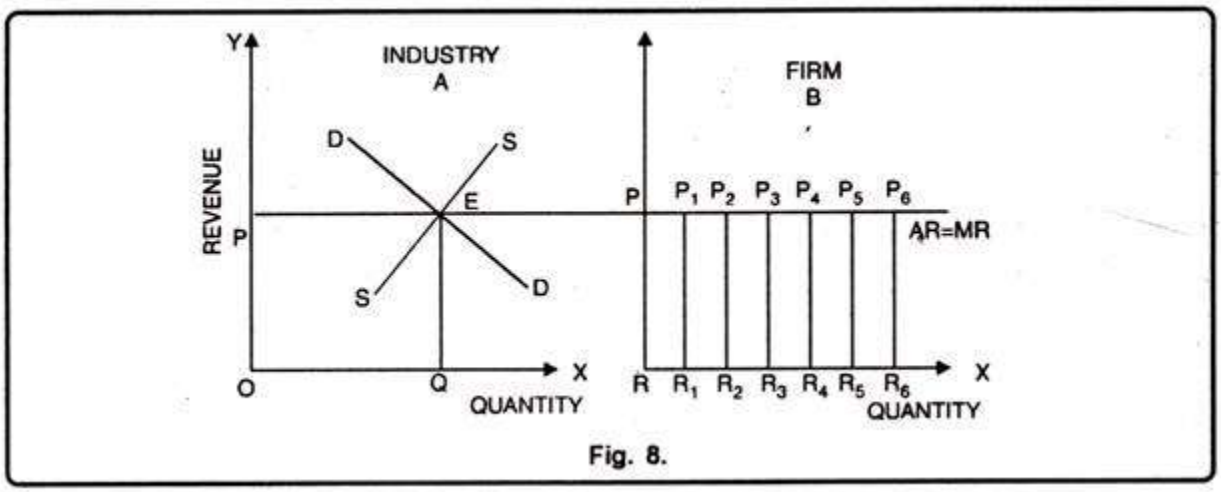
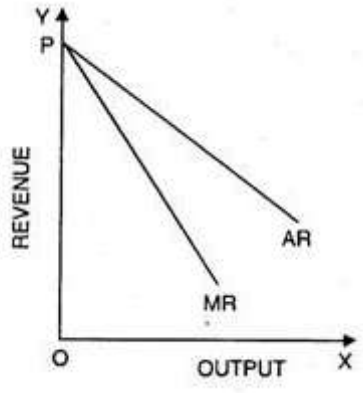


Fig. 8.

In perfect competition a firm can sell any no. of units at the given price fixed by the industry.

**(The firm will not sell at a lower price because it cannot sell a lighter quality by lowering its price and if it sells at a higher price its demand fall to 0.)

Revenue curve under Monopolistic competition:-



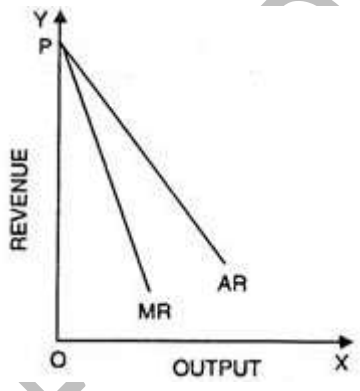
- Average revenue and marginal revenue both curve are downward sloping in the case of monopolistic (or oligopoly and monopoly) competition. This is because of the fact that extra unit can be sold by a firm only by lowering its price.
- Marginal revenue decline faster than average revenue this is because when price i.e. average revenue is lowered, the price of each and every unit falls due to which the rise in total revenue is less than price i.e. the fall in MR is more than AR.

The relationship between AR curve and Demand curve:-

AR curve shows the various quantity that can be sold at different prices (since AR =P) similarly the demand curve also represents the demand at various level of price. Hence, AR curve and demand curve are identical to each other.

Revenue curves under Monopoly competition:-

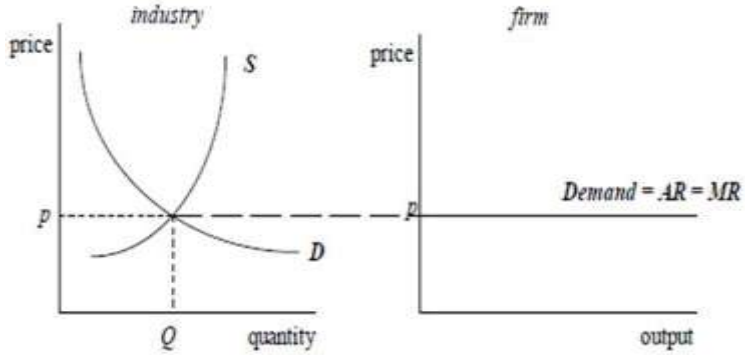
This curve are similar to that under monopolistic competition i.e. MR and AR both are downward sloping but the AR & MR curves under monopolistic competition are flatter than AR and MR curve under monopoly this is because elasticity of demand in case of monopolistic competition is higher than that of monopoly i.e., more units can be sold by lowering the price in comparison to monopoly competition.



Relationship between MR and AR:-

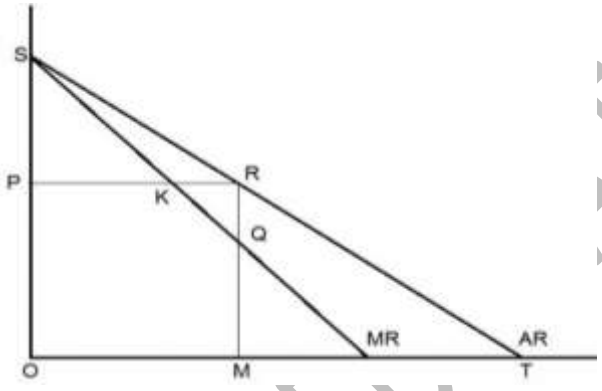
When AR does not change i.e., AR or price remains constant – in such a case:-

- MR and AR curves co-inside each other
  i.e., MR = AR



- When AR is not constant –
  - When AR decreases, MR also decline
  - But decline in MR is at a faster rate than AR

Note: – MR can be negative or 0 but AR is never 0 or negative because TR never falls to 0 or negative.



PRODUCER EQUILIBRIUM

Producer's Equilibrium:

Equilibrium refers to a state of rest when no change is required. A firm (producer) is said to be in equilibrium when it has no inclination to expand or to contract its output. This state either reflects maximum profits or minimum losses.

There are two methods for determination of Producer's Equilibrium:

1. Total Revenue and Total Cost Approach (TR-TC Approach)

2. Marginal Revenue and Marginal Cost Approach (MR-MC Approach)

It must be noted that scope of syllabus is restricted to "Producer's Equilibrium by MR- MC Approach". Still, for better understanding, "Producer's Equilibrium by TR-TC approach" is given.

Before we proceed further, we must be clear about one more point. Producer can attain the equilibrium level under two different situations:

(i) When Price remains Constant (It happens under Perfect Competition). In this situation, firm has to accept the same price as determined by the industry. It means, any quantity of a commodity can be sold at that particular price.

(ii) When Price Falls with rise in output (It happens under Imperfect Competition). In this situation, firm follows its own pricing policy. However, it can increase sales only by reducing the price.

Total Revenue-Total Cost Approach (TR-TC Approach):

According to TR-TC approach, producer's equilibrium refers to stage of that output level at which the difference between TR and TC is positively maximized and total profits fall as more units of output are produced. So, two essential conditions for producer's equilibrium are:

The difference between TR and TC is positively maximized;

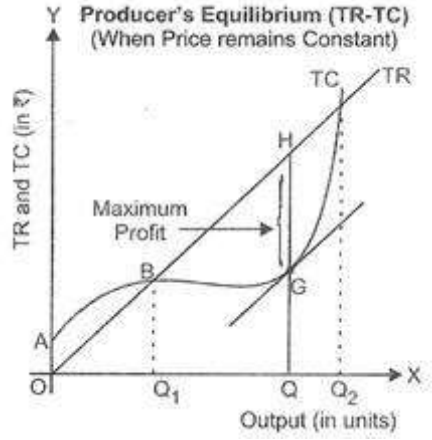
Total profits fall after that level of output.

The first condition is an essential condition. But, it must be supplemented with the second condition. So, both the conditions are necessary to attain the producer's equilibrium.

Producer's Equilibrium (When Price remains Constant):

When price remains same at all output levels (like in case of perfect competition), each producer aims to produce that level of output at which he can earn maximum profits, i.e. when difference between TR and TC is the maximum.

Output (units)	Price (Rs.)	TR (Rs.)	TC (Rs.)	Profit = TR–TC (Rs.)	Remarks
0	10	0	5	–5	Profit rises with increase in output
1	10	10	8	2	
2	10	20	15	5	
3	10	30	21	9	
4	10	40	31	9	Producer's Equilibrium
5	10	50	42	8	Profit falls with increase in output
6	10	60	54	6	



Producer's Equilibrium (When Price Falls with rise in output):

When price falls with rise in output (like in case of imperfect competition), each producer aims to produce that level of output at which he can earn maximum profits, i.e. when difference between TR and TC is the maximum.

Output (units)	Price (Rs.)	TR (Rs.)	TC (Rs.)	Profit = TR–TC (Rs.)	Remarks
0	10	0	2	-2	Profit rises
1	9	9	5	4	with increase
2	8	16	9	7	in output
3	7	21	11	10	
4	6	24	14	10	Producer's Equilibrium

5	5	25	20	5	Profit falls with increase in output

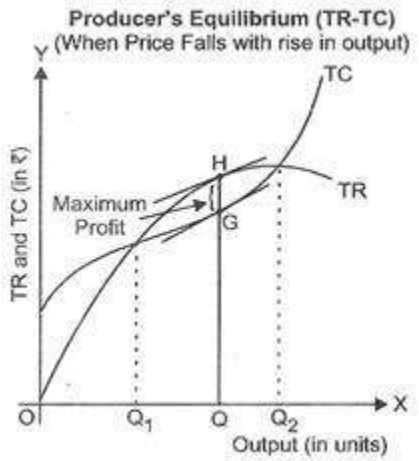


Fig. 8.2

Marginal Revenue–Marginal Cost Approach (MR–MC Approach):

According to MR–MC approach, producer's equilibrium refers to stage of that output level at which:

1. MC = MR:

As long as MC is less than MR, it is profitable for the producer to go on producing more because it adds to its profits. He stops producing more only when MC becomes equal to MR.

2. MC is greater than MR after MC = MR output level:

When MC is greater than MR after equilibrium, it means producing more will lead to decline in profits.

Both the conditions are needed for Producer's Equilibrium:

1. MC = MR:

We know, MR is the addition to TR from sale of one more unit of output and MC is addition to TC for increasing production by one unit. Every producer aims to maximize the total profits. For this, a firm compares it's MR with its MC. Profits will increase as long as MR exceeds MC and profits will fall if MR is less than MC.

So, equilibrium is not achieved when MC < MR as it is possible to add to profits by producing more. Producer is also not in equilibrium when MC > MR because benefit is less than the cost. It means, the firm will be at equilibrium when MC – MR.

2. MC is greater than MR after MC = MR output level:

MC = MR is a necessary condition, but not sufficient enough to ensure equilibrium. It is because MC = MR may occur at more than one level of output. However, out of these, only that output level is the equilibrium output when MC becomes greater than MR after the equilibrium.

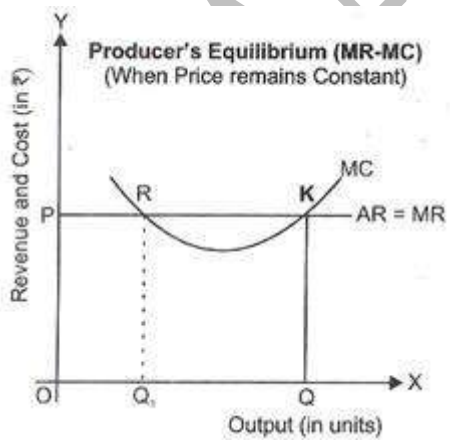
It is because if MC is greater than MR, then producing beyond MC = MR output will reduce profits. On the other hand, if MC is less than MR beyond MC = MR output, it is possible to add to profits by producing more. So, first condition must be supplemented with the second condition to attain the producer's equilibrium.

Producer's Equilibrium (When Price remains Constant):

When price remains constant, firms can sell any quantity of output at the price fixed by the market. Price or AR remains same at all levels of output. Also, the revenue from every additional unit (MR) is equal to AR. It means, AR curve is same as MR curve. Producer aims to produce that level of output at which MC is equal to MR and MC is greater than MR after MC = MR output level.

Output (units)	Price (Rs.)	TR (Rs.)	TC (Rs.)	MR (Rs.)	MC (Rs.)	Profit = TR– TC (Rs.)
1	12	12	13	12	13	-1
2	12	24	25	12	12	-1
3	12	36	34	12	9	2
4	12	48	42	12	8	6
5	12	60	54	12	12	6
6	12	72	68	12	14	4

Producer's Equilibrium will be achieved at 5 units of output.



Producer's Equilibrium is determined at OQ level of output corresponding to point K as at this point: (i) MC = MR; and (ii) MC is greater than MR after MC = MR output level.

Relation between Price and MC at Equilibrium (When Price remains Constant):

When price remains same at all levels of output, then Price (or AR) = MR. As equilibrium is achieved when MC = MR, it means, price is equal to MC at the equilibrium level. For, "Gross Profits are Maximum at Point of Producer's Equilibrium", refer Power Booster Section.

Producer's Equilibrium (When Price Falls with rise in output):

When there is no fixed price and price falls with rise in output, MR curve slope downwards. Producer aims to produce that level of output at which MC is equal to MR and MC curve cuts the MR curve from below.

Producer's Equilibrium (When Price Falls with rise in output):

Output (units)	Price (Rs.)	TR (Rs.)	TC (Rs.)	MR (Rs.)	MC (Rs.)	Profit = TR–TC (Rs.)
1	8	8	6	8	6	2
2	7	14	11	6	5	3
3	6	18	15	4	4	3
4	5	20	20	2	. 5	0
5	4	20	26	0	6	-6

Producer's Equilibrium will be achieved at 3 units of output.

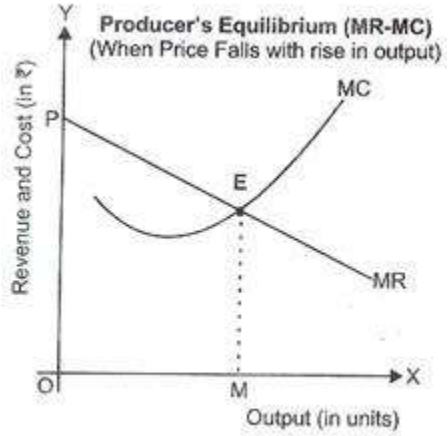


Fig. 8.4

Producer's Equilibrium is determined at OM level of output corresponding to point E as at this point: (i) MC = MR; and (ii) MC is greater than MR after MC = MR output level.

Producer's equilibrium will be determined at OM level of output corresponding to point E because at this, the following two conditions are met:

1. MC = MR; and

2. MC is greater than MR after MC = MR output level.

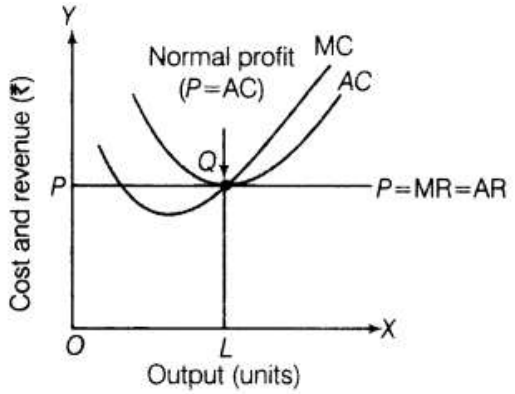
So, the producer is at equilibrium at OM units of output.

Relation between Price and MC at Equilibrium (When Price Falls with rise in output):

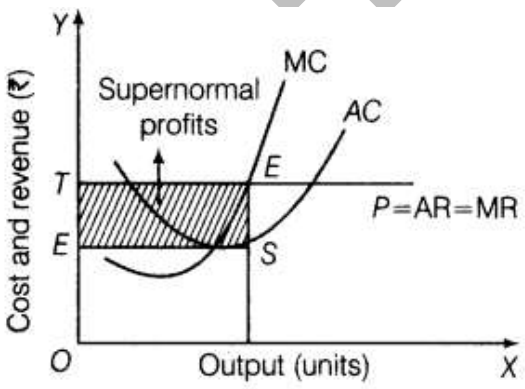
When more output can be sold only by reducing the prices, then Price (or AR) > MR. As equilibrium is achieved when MC = MR, it means, price is more than MC at the equilibrium level.

Different situations of Producer Equilibrium

Normal profit: it is a situation when a producer is just able to recover its cost, i.e. Total Cost = Total Revenue. The point at which a firm is earning Normal Profit is called as "Break-even Point". The situation depicts a zero economic profit, but a positive accounting profit as cost includes opportunity cost as well; hence the word "Profit" is used. We can also say that at this point the seller is just earning its opportunity cost (which any other seller in the market normally earns). The producer continues production at normal level of profit.

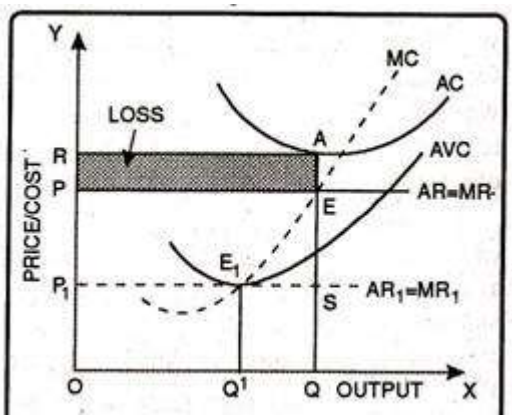


Abnormal Profit: it is a situation when a firm Total Revenue is more than its Total Cost. The situation is called Abnormal Profit as the firm is earning more than its opportunity cost (normal earning). There is a positive economic profit in this case; hence the firm continues production in this case.

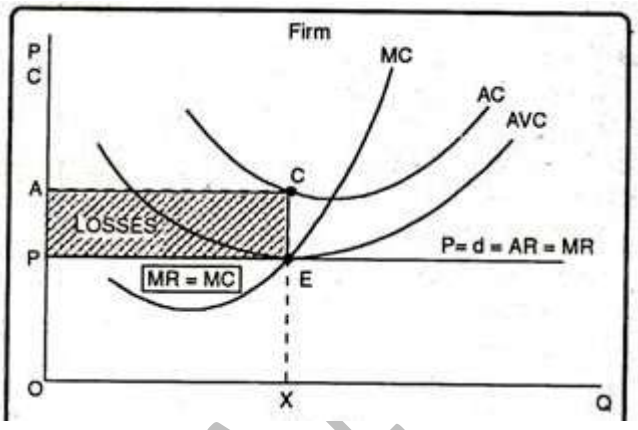


Normal Loss: the firm under this situation is incurring economic loss, but it is atleast recovering its variable cost. Thus Total Revenue is more than or equal to Total Variable Cost but less than

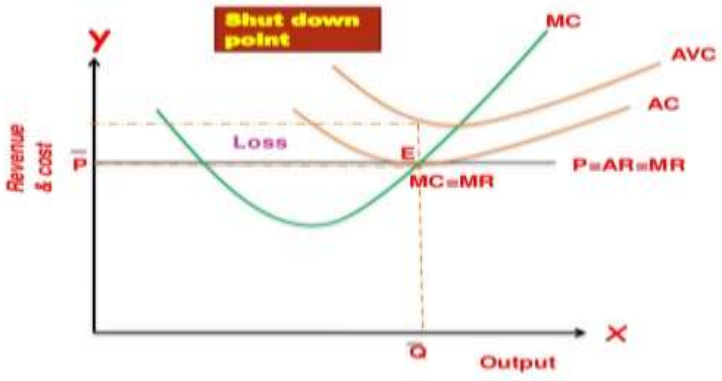
Total Cost, the producer continues production even in this case as the firm is recovering its variable cost and if production is stopped firm will incur higher losses(of Fixed Cost).



Shut-Down Point: it is a situation when a firm is recovering just its variable cost i.e. Total Revenue = Total Variable Cost. Thus the firm does continue its production further.



Abnormal Loss: the firm under this situation is not even recovering its variable cost, thus Total Revenue is less than Total variable cost. Hence a firm stops production in this case.



FORMS OF MARKET

Market is a place where buyer and seller meet each other.

Market includes for a seller not only its existing customers but also potential customers.

It need not be a physical place (Online trading).

There are basically 4 types of market:-

1) Perfect competition
2) Monopolistic
3) Monopoly
4) Oligopoly

The above forms of market will be judged on the basis of following features:-

D- Product Differentiation / Price Discrimination
P- Perfect knowledge
E- Entry / Exist
R- Restriction
F- Freedom
E- Entry / Exit
C- Curves
T- Transferability of factors of production
I- Independent price policy
O- Or
N- No. of sellers

- Product differentiation – whether the products are different from each other on the basis of price, quality, packing or any other feature.
- Price discrimination – it means whether the seller may charge different prices from different consumer.
- Perfect knowledge – it means whether the consumer has complete knowledge about the market regarding the goods available and the sellers in the market.

- Entry / Exit restriction – whether a new firm can enter into the market or exit (leave) the market without any restriction from the market or govt.
- Transferability of factors of production – whether the factors of production can be transferred from one firm of a particular industry to another firm in the same industry.
- Independent pricing policy – whether the firm decides the price of its product on the basis of industry / competitors or it has an independent pricing policy irrespective of competitors price.
- No. of sellers

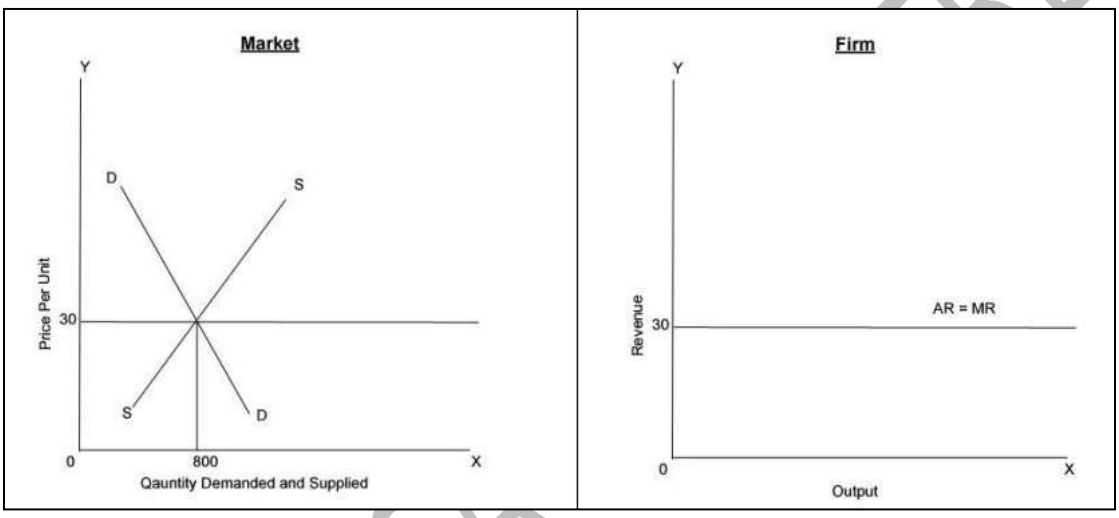
Perfect competition:-

It is a form of market in which there are a large no. of sellers and buyers, selling homogenous products and the no. of sellers is so large that no single seller has control over the market

Factors –

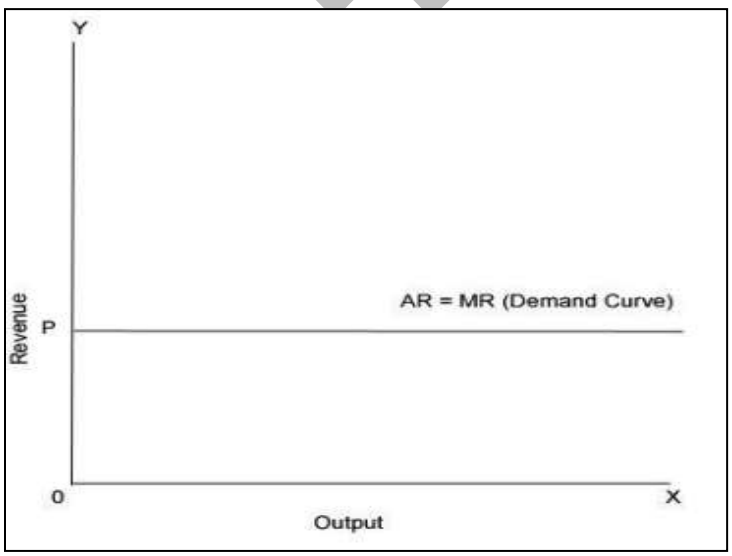
1. Price discrimination – there is no price discrimination.
2. Product homogeneity – same kind of product is being sold by every seller that is the products cannot be differentiated on the basis of size, price, quantity, quality or any other feature.
3. Free entry & exit – there are no restriction on entry or exit of firm. The implication of this feature of Perfect Competition is that while in the short run firms can make either supernormal profits or losses, in the long run all firms in market earn only normal profits.
4. Perfect knowledge – the consumer has perfect (complete) knowledge about the market i.e. he knows about the sellers and the goods available in the market. This feature ensures that the market achieves a uniform price level.
5. Transferability of factors of production – the factors of production i.e., land, labor, capital & enterprise, material and machine are transferable (mobile) from one firm of the industry to another firm in the same industry.

6. Independent price policy – under perfect competition the firms are price taker and not price maker i.e., they do not have independent pricing policy. The price of the firm products is decided by the industry on the basis of demand and supply (market forces). No firm in its individual capacity can alter the price given to it by the market. If any firm were to change a price higher than market determined price, buyers would shift to another firm. No firm would like to charge a price lower than the market determined price, as by doing so it loses revenue.



7. No. of sellers – there are a large no. of sellers and no single seller has control over the market.

Shape of the AR and MR curves under Perfect Competition



Since the firm under Perfect Competition is a Price Taker and cannot change the price it can change for its product, the Average Revenue (which is equal to price) is the same for all units of output sold. In this case, Marginal Revenue is also constant and equal to the Average Revenue. Average Revenue Curve is also a Demand Curve facing a perfectly competitive firm, which is perfectly elastic. No real world market exactly fits the features of perfect market structure is a theoretical or ideal model, but some actual markets do approximate the model fairly closely. Examples of Perfect Competition include firm products markets, the Stock Market and Foreign Exchange Market, Currency Market, Bond Market.

Monopolistic competition–

It is a form of market in which there is a large no. of firms selling closely related but differentiated products. They compete among themselves not on the basis of price. The examples of this form of market are Mobiles, Cosmetics, Detergents, Toothpastes etc.

Feature:–

- Price discrimination – generally does not exist in monopolistic competition.
- Product differentiation – it is a one of the main features of monopolistic competition the product of every seller is different from the other. So the goods in this case do not compete among themselves on the basis of price. Products are very similar to each other, but not identical. This allows substitution of the product of one firm with that of another. Due to a large number of substitutes being available Demand for a firm's product is relatively elastic.
- Free entry / exit – Like perfect competition, free entry and exit of firms is possible under this market form. Since there are no barriers to entry and exit, firms operating under Monopolistic Competition, in the long run, earn only normal profits.
- Selling Costs As the products are close substitutes of each other, they are needed to be differentiate for this firms incurs selling cost in making advertisements, sale promotions, warranties, customer services, packaging, colors are brand creation.
- Imperfect knowledge – in this case the buyer does not has perfect knowledge about the market as there are a large no. of seller in the market selling differentiated product.

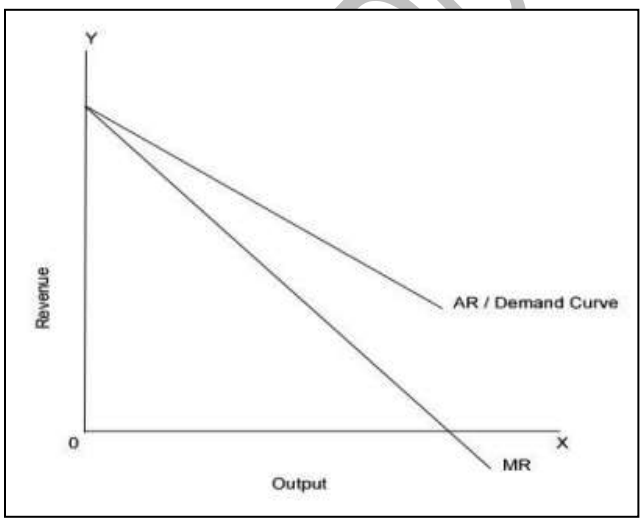
- Transferability – each product has different features the factors of production are not freely transferable from one firm to another firm in the industry.
- Independent pricing policy – in monopolistic competition every firm has an independent pricing policy.
- No. of sellers – there are a large no. of seller.

Shape of the AR and MR Curves under Monopoly

Under Monopolistic Competition, like monopoly, both the AR and MR curves are downward sloping. A downward sloping AR curve implies that in order to sell more units of the output the price of the commodity needs to be reduced. However, the AR and MR curves are flatter under monopolistic competition than under Monopoly because of the large number of close substitutes available for a firm's output. (AR and MR Curves under Monopoly)

Demand Curve under Monopolistic Competition

The AR curve is nothing else but the demand curve faced by a firm. The demand curve is also downward sloping. This implies that buyers are willing to buy more of a commodity only if its price is reduced. As the large number of close substitute is available for a firm's product, the demand curve faced by a monopolistically competitive firm is relatively elastic.

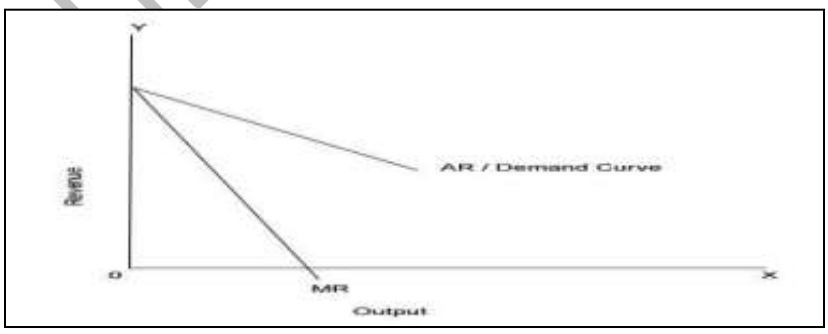


Monopoly:-

It refers to a form of market in which there is only one seller who has control over the market. (No close substitute is available in this market). It may be due to some natural conditions prevailing in the market, or may be due to some legal restriction in the form of patents, copyright, sole dealership, state monopoly, etc. Since, there is only one seller; any change in supply plans of that seller can have substantial influence over the market price. That is why a Monopolist is called a Price Maker. (A Monopolist's influence on the market price is not total because the price is determined by the forces of Demand and Supply and the Monopolist controls only the supply).

- Price discrimination – in monopolist (single seller) has the power to do price discrimination i.e. he may sell at different prices to different customers.
- Free entry / exit – there are too many restrictions on entry of a firm in monopoly market these restrictions may be due to license requirement, patent, huge capital requirement or existence of a very large seller who has complete control over the market.
- Independent pricing policy – a monopolist can decide the price of its product without giving any importance to other factors in the market.
- No. of sellers – single seller.
- Abnormal Profits in the Long run - Being the single seller, monopolists enjoy the benefit of higher profits in the long run.
- Price in Excess of Marginal Cost - Monopolists fix the price of a commodity (per unit) higher than the cost of producing one additional unit as they have absolute control over Price Determination.

Shape of the AR and the MR Curves under Monopoly



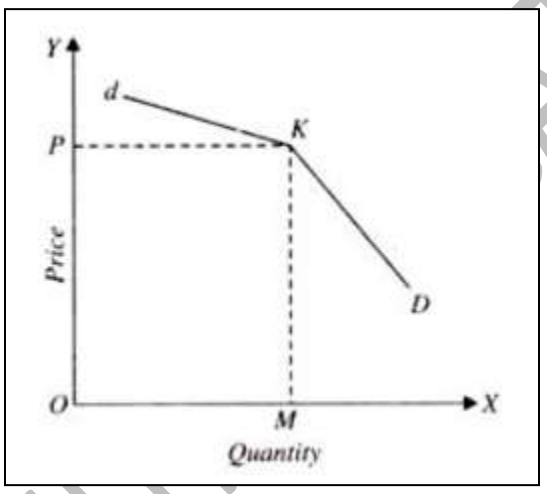
The AR Curve faced by the Monopolistic is Downward Sloping as the Monopolist can increase sales by reducing price. If the AR Curve is declining, it implies that the MR is also declining at a faster rate.

Demand Curve facing the Monopolist – Since there is only one seller in the market, the AR Curve of a monopolist in nothing else but the Market Demand Curve for the product. The demand is relatively inelastic as there is only a single seller for the commodity and its product does not have close substitutes.

Oligopoly –

It is a form of market in which there are a few no. of sellers and every seller has a substantial share in the market. Major Soft Drink firms, Airlines and Milk firms can be cited as an example of Oligopoly.

They are interdependent on each other regarding their pricing and output policy.



The oligopolist faces a kinked-demand curve because of *competition* from other oligopolists in the market. If the oligopolist *increases* its price above the equilibrium price, it is assumed that the other oligopolists in the market *will not* follow with price increases of their own. The oligopolist will then face the more elastic market demand curve.
The oligopolist's market demand curve becomes more elastic at prices above *P* because at these higher prices consumers are more likely to switch to the lower-priced products provided by the other oligopolists in the market. Consequently, the demand for the oligopolist's output falls off

more quickly at prices above *P*, in other words, the demand for the oligopolist's output becomes more elastic.

If the oligopolist reduces its price below *P*, it is assumed that its competitors will *follow suit* and *reduce* their prices as well. The oligopolist will then face the relatively less elastic (or more inelastic) market demand curve. The oligopolist's market demand curve becomes less elastic at prices below *P* because the other oligopolists in the market have also reduced their prices

Features :–

There is a small no. of seller and each seller holds a substantial part in the market.

Pricing policy – under oligopoly the pricing policy is not independent i.e., it depends upon the pricing policy of other competitions in the industry.

Entry / Exit – there are restriction on entry or exist of firms which may be due to capital requirement, technology, patent or other restrictions.

Formation of cartels – (setting) or it refers to an agreement (setting) between firms in which they agree to control the price, quantity produced or distribution of product. Under collusive oligopoly a cartel is being formed by the firms to regulate prices or production.

Under collusive oligopoly there is non price competition –

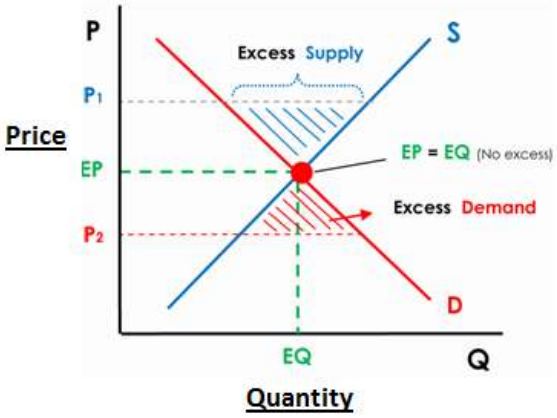
Collusive oligopoly	Non- collusive oligopoly
1) The seller form a carte among themselves	The seller are independent
2) It is not good from customers point of view	It is better from customers point of view
3) There is non- price comp.	There is price comp.

Market Equilibrium

Excess demand: – It is a situation when market demand is greater than market supply at a given level of prices

Excess supply:– It is a situation when market supply is greater than market demand at a given level of price.

Market equilibrium:– It is a situation when market demand is equal to market supply at a particular level of price.



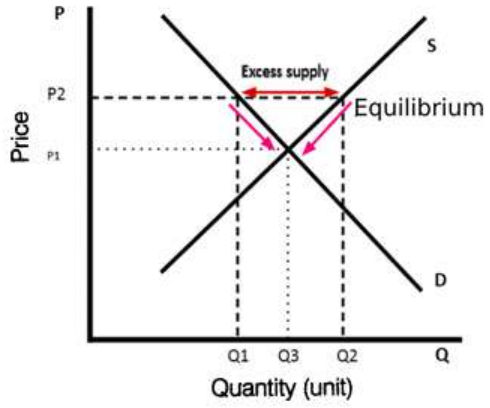
Equilibrium Price: – It is that price at which the market demand & Market supply are equal.

Equilibrium Quantity: – It is that quantity at which market demands market supply are equal.

- **Golden line:** – Market always attains equilibrium whether there is excess demand or excess supply.

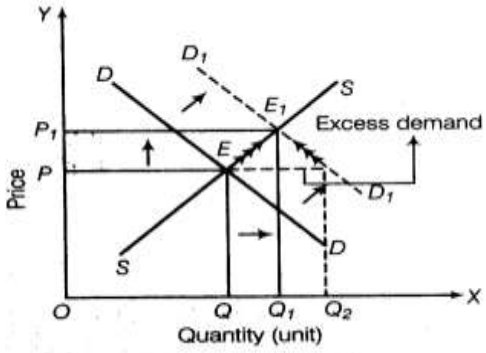
❖ **Excess Supply:** – If there is a situation of excess supply the following will be chain of effect:–

- Because of excess supply i.e. market supply is greater than market demand, there will be same unsold stock left in the market.
- Because of this supplier reduces the price.
- When price reduces there is extension in demand & contraction in supply in thus way market equilibrium is achieved.



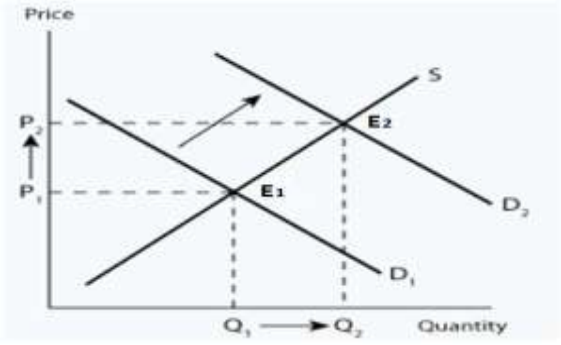
❖ **Excess Demand:** – If there is a situation of excess demand the following will be the chain of effect : –

- Because of excess demand the need of some buyer will not be fulfilled hence, there will be an increase in price.
- Because of it, they will be contraction in demand and extension in supply.
- Hence, the equilibrium is achieve.



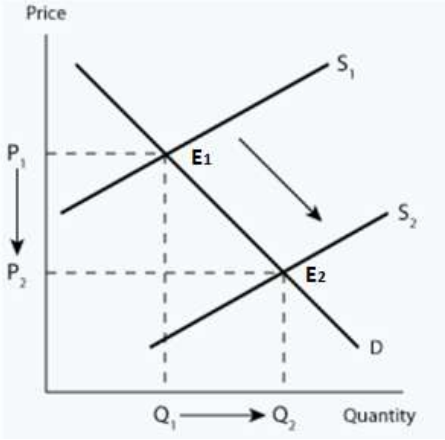
❖ **Change in equilibrium:–**

- **Situation No. 1:–** Increase in demand

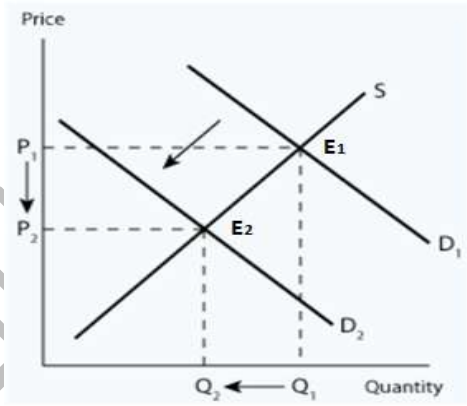


When the demand increases, it creates situation of excess demand due to this there will contraction in demand and extension in supply. Hence equilibrium quantity increases and as well as equilibrium price.

- **Situation no. 2:-** Increase in supply

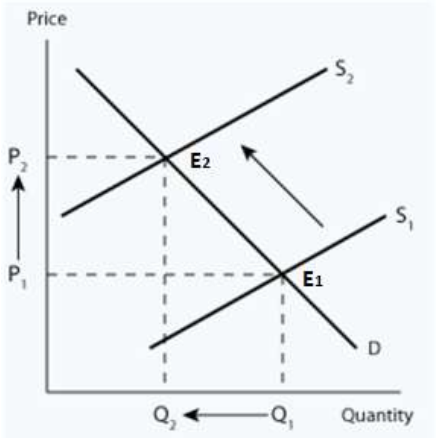


  - When the supply increases it creates a situation of excess supply.
  - Due to this price reduces and there will be contraction in supply and extension in demand.
  - Hence, equilibrium is attain or achieve
  - Because of this equilibrium price decrease quantity increases.
- **Situation no.3:** – Decrease in Demand



  - When the Demand Decrease, it create a situation of excess supply.
  - Due to this price decrease and there will be contraction in supply extension in demand.
  - Hence, equilibrium is achieve.
  - Because of this equilibrium price as well as equilibrium qty is decrease.

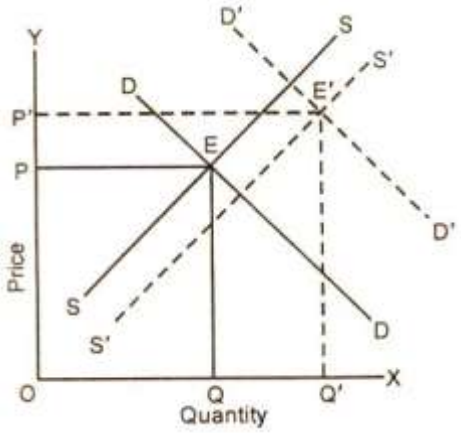
- **Situation no.4 :** – Decrease in Supply



  - When supply decrease it creates a situation of excess demand.
  - Because of excess demand the need of some buyer is not fulfilled.
  - Due to this price increase and there will be contraction in demand extension in supply.
  - Hence, equilibrium is achieve.
  - Because of this equilibrium price increase and equilibrium quantity decreases.

- **Situation no.5:** – Increase in demand & supply

I. Increase in Demand > Increase in supply

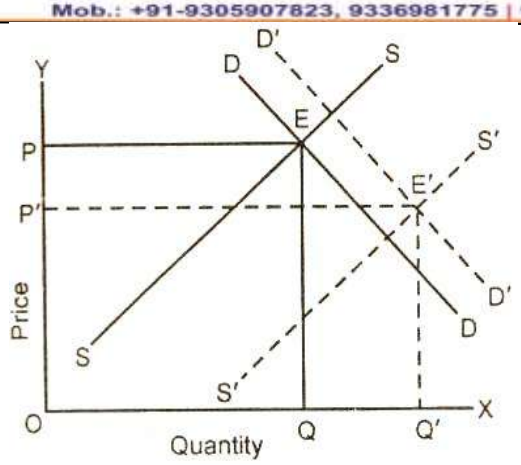


  - It creates a situation of excess Demand.

Eq(Increase)

Ep(Increase)

II. Increase in Supply > Increase in Demand

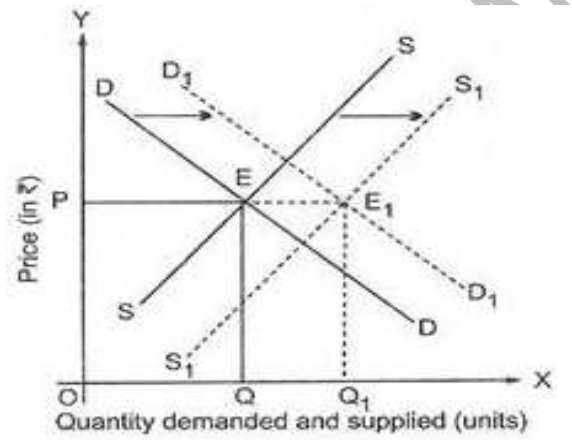


- It creates a situation of excess supply

Ep(Decrease)

Eq(Increase)

III. Increase in Demand = Increase in Supply

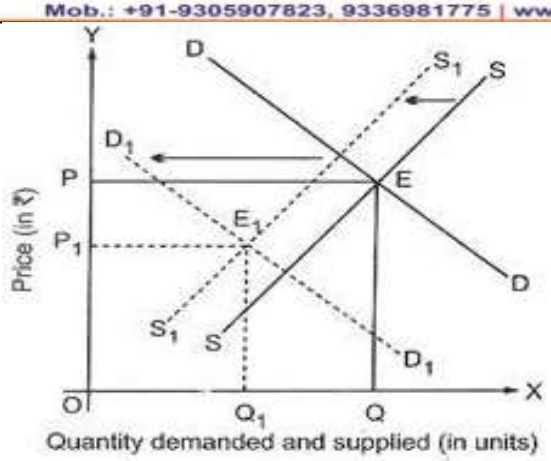


- It creates a situation of equilibrium

EP same but EQ increase

- As the increase in demand is equal to increase in supply.
- So the market is still in position of equilibrium.
- Hence, the new equilibrium is achieve.
- Due to this equilibrium price remain same but equilibrium quantity increase.

- **Situation no.6:** – Decrease in demand & supply
  - Decrease in demand > Decrease in supply.

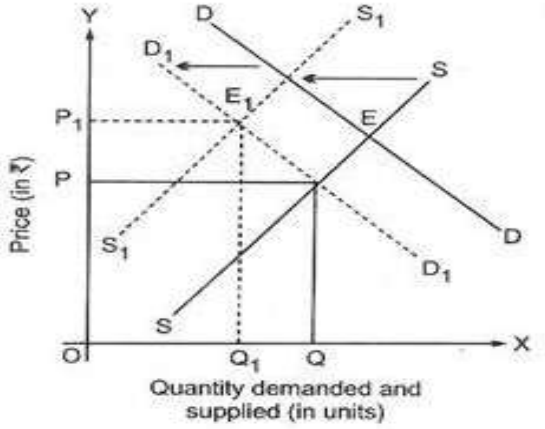


- It creates a situation of excess supply

  Ep(decrease)

  Eq (decrease)

- Decrease in Supply > Decrease in demand

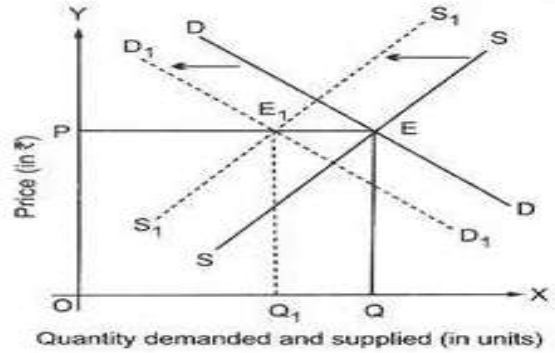


- It creates a situation of excess demand

  Ep(Increase)

  Eq(Decrease)

- Decrease in supply = Decrease in demand

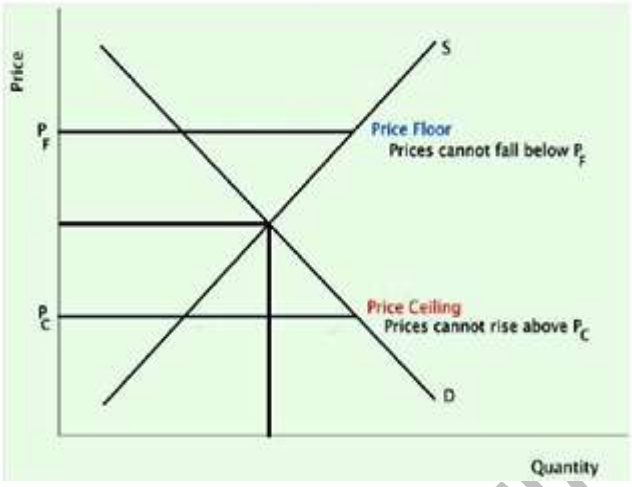


- Economy remains in a situation of equilibrium

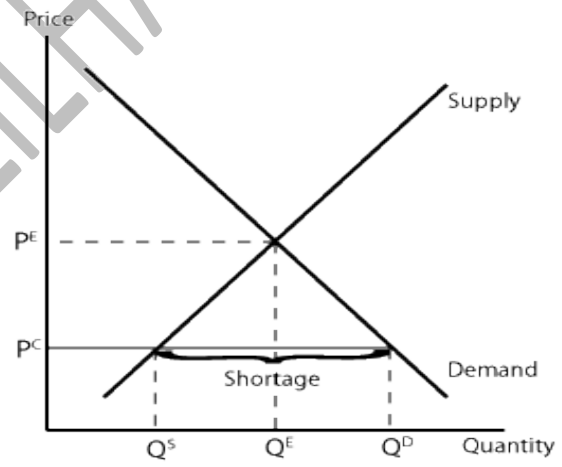
  Ep(same)

  Eq(decrease)

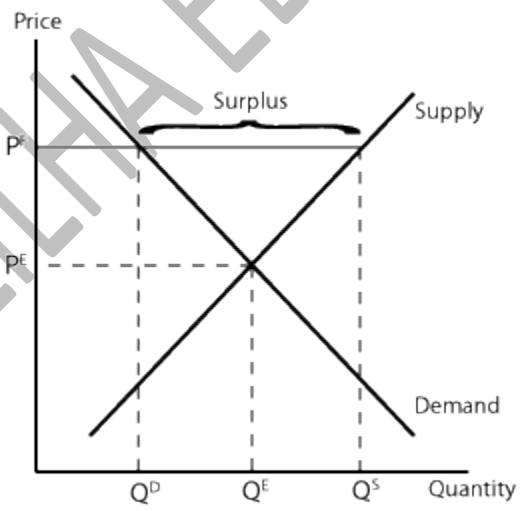
❖ **Price Ceiling and Price Floor**



- **Price Ceiling Definition : –**
  - Price Ceiling is that level of price beyond which the price in the marker can't excess.
  - It is fixed by the government.
  - It is fixed below the level of equilibrium price.
  - Price ceiling is imposed in a situation where the prices rises because of excess demand in the market
  - Price ceiling has to control he rise in price beyond the certain level.



- **Impact :–**
  - Because of price ceiling prices don't rise beyond the certain limit.
  - Because of price ceiling the economy remain in a situation of excess demand.
  - Because of excess demand the need of some buyer is not fulfilled.
  - Government fulfilled this gap of excess demand by increasing the supply
  - Hence, the government may increase supply by making imports or distribution through ration shop.
- **Advantages :–**
  - Government may imposed price ceiling for the purpose of controlling the price of some essential commodities like food items, petroleum, medicines, etc.
  - Hence price ceiling helps in controlling the level of inflation by fixing the maximum price of some essential commodity.
- **Price floor Definition :–**
  - It is that level of price below which the prices of a good can't fall.
  - It is fixed by government.
  - Price floor is fixed above the level of equilibrium price.
  - Price floor is fixed when there is falling price due to excess supply in the market because of fall in price the supply may increase loses, hence price floor is imposed
  - Price floor is imposed to control the fall in price beyond the certain level.



- **Implication :** –
  - Because of price floor prices don't fall below a certain limit.
  - Because of price floor the economy remain in a situation of excess supply.
  - Because of excess supply some goods in the market remain unsold.
  - Government fulfilled this gap of excess supply by increasing the demand of goods & maintaining its buffer stock.
  - Government fixes price floor with the help of minimum support price
- **Advantages :** –
  - Price floor helps in controlling the fall in price beyond the certain level with the help of this government may issue that the supplier doesn't increase losses due to fall in price.
  - It also motivates the producer for production as they are granted a minimum price for their product. For ex- declaration of minimum support price by government in encourages the farmer for production