**PM SHRI KENDRIYA VIDYALAYA NO. 3 AF II JAMNAGAR**

**AUTUMN BREAK HOLIDAY HOMEWORK 2024-25**

**XI ECONOMICS**

**UNIT 3: PRODUCER BEHAVIOUR AND SUPPLY**

# Concept of Revenue

**Revenue :** Money received by firm from the sale of output.

**Total Revenue :** Total receipt form sale of output.

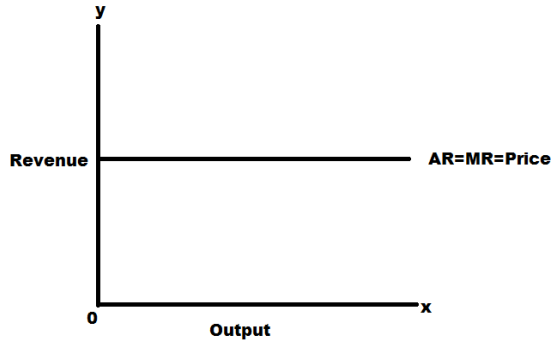
**Average Revenue** : Revenue per unit of output sold.
AR = TR / Q TR = P × Q AR = TR/Q Hence AR= P× Q/Q It means AR=P

**Marginal Revenue :** Net addition to total revenue when one more unit of a good is sold.
MRn = TR n - TR n-1
MR n = Δ TR n / Δ Q
TR = ∑ MR

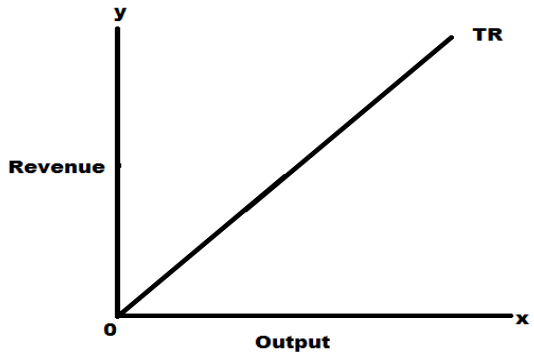
## Formulae for calculation of Revenue

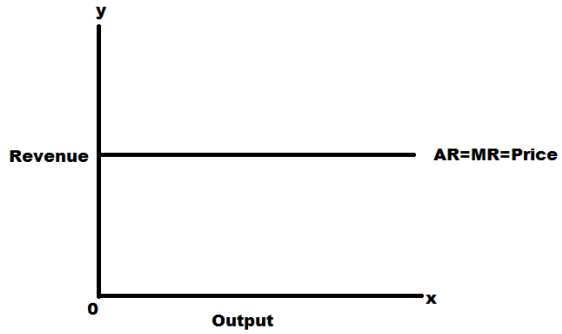
1. TR = Price x Q or AR x Q or TR=∑MR
2. AR= TR/Q
3. $MR_n=TR_n – TR_{n-1}$ or $MR = \frac{\Delta TR}{\Delta Q}$

**Relationship between AR and MR** (when price remains constant or perfect competition):
Under perfect competition, the sellers are price takers. Single price prevails in the market. Since all the goods are homogeneous and are sold at the same price AR = MR. As a result AR and MR curve will be horizontal straight line parallel to OX axis. (When price is constant or perfect competition)




**Relation between TR and MR (**When price remains constant or in perfect competition)
When there exists single price, the seller can sell any quantity at that price, the total revenue increases at a constant rate (MR is horizontal to X




**Producer's Equilibrium with the help of MC and MR schedule in perfect competition**.

Producer is said to be in equilibrium when he is maximizing his profits.

The producer produces a level of output where his profits are maximum. This level of output is determined where the following conditions are fulfilled ;

1. Marginal Cost becomes equal to Marginal Revenue (MC = MR)
2. Marginal Cost is increasing after equating MR

| Units | MC | MR |
|---|---|---|
| 1 | 4 | 3 |
| 2 | 3 | 3 |
| 3 | 2 | 3 |
| **4** | **3** | **3** |
| 5 | 4 | 3 |

The producer is in equilibrium when he is producing 4 units. At 4th unit MC = MR and MC is rising after 4 the unit. He is not in equilibrium at 2nd unit as MC = MR but MC falls after 2nd unit. So producer is maximizing his profit at 4th unit as both the conditions are fulfilled.

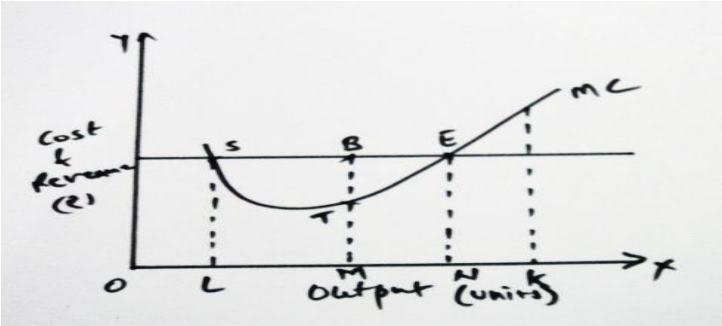
**Producer's Equilibrium with the help of MC and MR Curve in perfect competition market**

Producer is said to be in equilibrium when he is maximizing his profits.

The producer produces a level of output where his profits are maximum. This level of output is determined where the following conditions are fulfilled ;

1. Marginal Cost becomes equal to Marginal Revenue (MC = MR)
2. Marginal Cost is increasing after equating MR

The producer is in equilibrium at ON level of output. Here MC=MR and MC rises after intersecting MR. the producer is earning profits equal to area STE. If the producer decides to produce OM level of output he would lose some profit. His profits would be equal to area SBT.



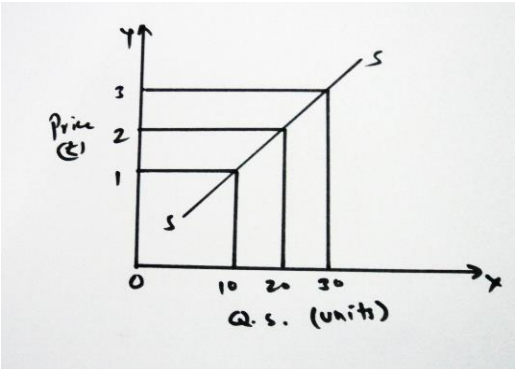

So he is not in equilibrium at OM because Area SBT < Area STE
If he decides to produce more than ON, at OK he would add more to cost and less to revenue. So he must not be maximizing his profits at OK level.
At OL level of output MC = MR but afterward MC falls. This gives an incentive to producer to produce more so that he can increase his profits.
Therefore the producer is in equilibrium when MC = MR and MC is rising.
Hence producer is in equilibrium at ON level of output.

## Concept of Supply

**Supply :** Supply is the quantities of a commodity that seller offered for sale at different possible prices.
**Quantity Supplied :** Quantity supplied refers to the particular amount of commodity offered for sale at particular price at a given period of time.
**Supply schedule** : The table related to price and quantity supplied.
**Supply Curve :** It is a graphical representation of supply schedule.
**Supply Function :** It is a functional relationship between supply and its determinants.

**Sx = f (Px,Po,Pf,T,Gp)**

**Law of Supply with diagram and schedule.**
The law of supply states that other factors are remaining constant, when price increases supply of a good rises and with decrease in price supply of a good falls.
Assumptions : Price of input , technique of production , goal of firm remains constant (other factor remaining constant).
Explanation with schedule and diagram :



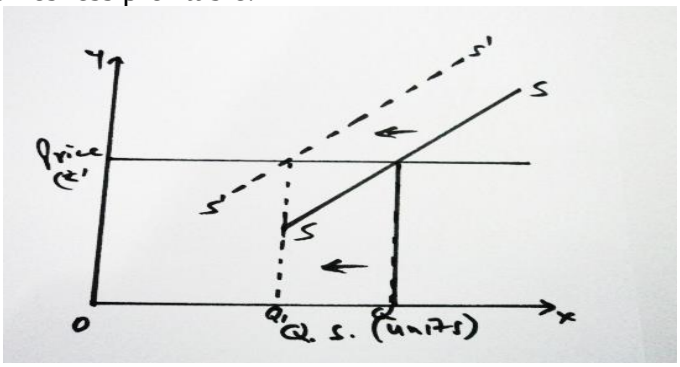

| Price (Rs.) | Qx(Units) |
|---|---|
| 1 | 10 |
| 2 | 20 |
| 3 | 30 |

On ox axis quantity supplied in units and oy axis price in Rs. is given. SS is a supply curve.The supply schedule shows that when price rise from Rs. 1 to Rs. 2 than supply rises from 10 to 20 units of a commodity.

## Supply of a good affected by the following factors :

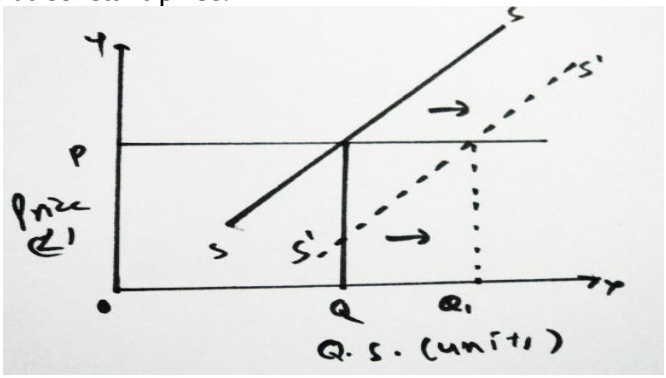
1. Rise in price of inputs (factors) used in production (Pf)
2. Technological improvement (T)
3. Government policy (Tax and Subsidies) (Gp)

**1. Rise in price of inputs used in production** : When the price of inputs used in production of a good increases, the cost of production also increases. Therefore supply of commodity decreases at constant price because production becomes less profitable.




Cost of production increases due to rise in price of inputs. Supply decreases and supply curve shifts to leftward. S'S' in new supply curve.

2. **Technological improvement** : Due to technological progress cost of production reduces therefore supply of commodity increases at constant price.




3. **Government Policy** :

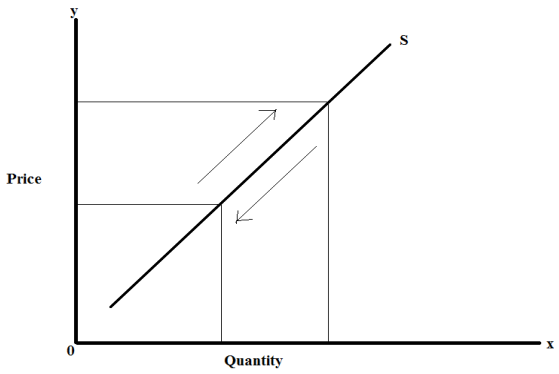
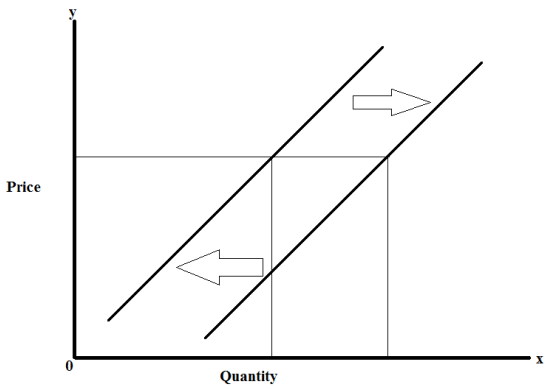
(a) When government reduces taxes then cost of production decreases therefore supply of commodity increases at constant price.

(b) When government reduces the subsidies then cost of production increases therefore supply of commodity decreases at constant price.

## Change in Quantity Supplied and Change in Supply with the help of MC curve

## Differentiate between Change in Quantity Supplied and Change in Supply

| Change in Quantity Supplied | Change in Supply |
|---|---|
| 1. Other factors remain constant. | 1. Price remains constant. |
| 2.Two types :<br><br>(1)Extension of Supply (2)Contraction of Supply | 2.Two types:<br><br>(1)Increase in Supply (2) Decrease in Supply |
| 3. It is represented on same Supply curve.(movement along a curve) | 3.It is represented by shifting of Supply curve. |

| | |
|---|---|
| 4.Reason : Change in price of a commodity | 4.Reason : Change in other factors like input price, technological improvement, Govt. policy etc. |
| 5.Extension of Supply : When price of a commodity increases.<br><br>Contraction of Supply : When price of a commodity decreases. | 5.Increase in Supply : When input price reduces supplier increase the supply of commodity.<br>Decrease in Supply : When input price rises supplier decreases the supply of commodity. |
| 6. Diagram<br>  <br> | 6. Diagram :<br>  <br> |

## Elasticity of Supply

**Price elasticity of supply**: The degree of responsiveness of quantity supplied due to changes in price of the commodity.

**Methods of measuring Elasticity of demand:**

**(a) Propionates / Percentage / Flux Method of Elasticity of supply**:

According to this method, price elasticity of supply is measured by dividing the percentage change in quantity supplied by the percentage change in price.

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

## Five degrees of Elasticity of Supply

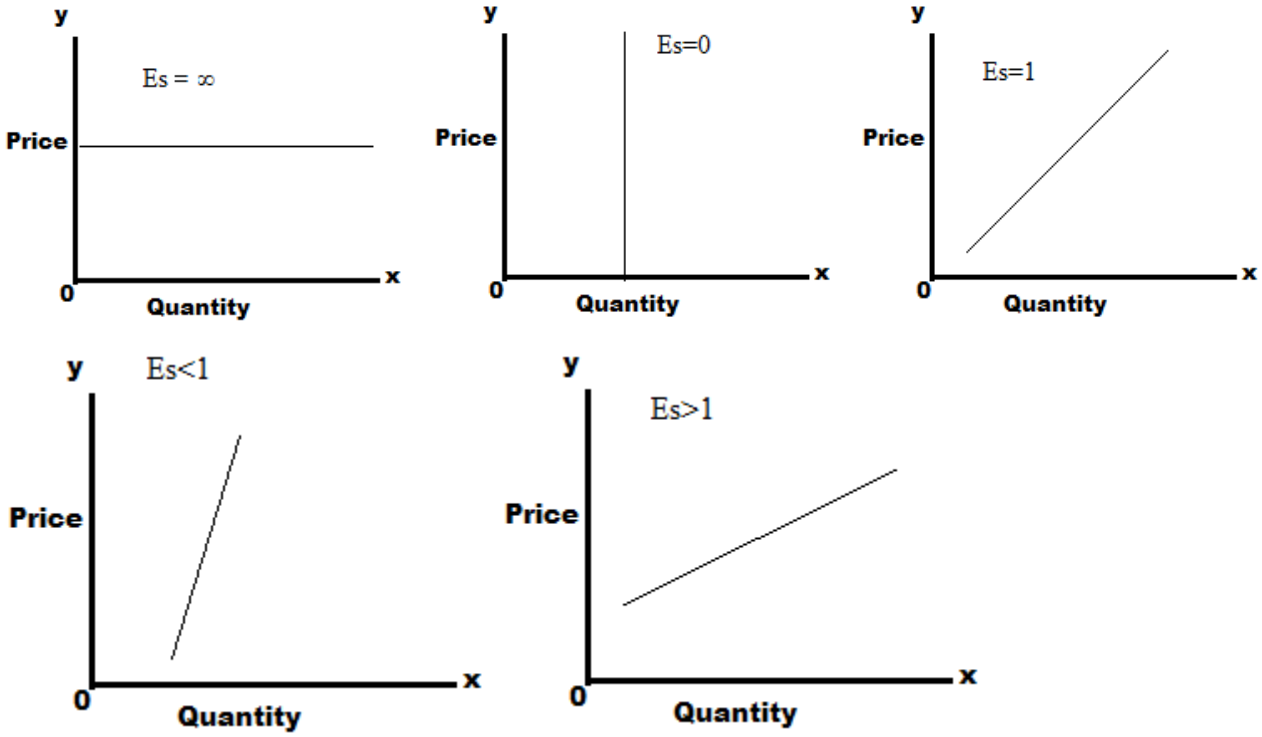
**1. Perfectly elastic supply (Es = ∞):** If quantity supplied changes and price remain constant.

**2.Perfectly inelastic supply (Es = 0):** If quantity supplied remain constant and price changes.

**3.Unitary elastic supply (Es =1) :** If percentage change in the quantity supplied is equal to percentage change in price of the commodity.

**4.More elastic supply (Es >1)** : If percentage change in the quantity supplied is more than percentage change in price of the commodity.

**5.Less elastic supply (Es <1) :** If percentage change in the quantity supplied is less than percentage change in price of the commodity.




## Factors affecting elasticity of supply :

1. Nature of input used
2. Nature of commodity
3. Cost of production

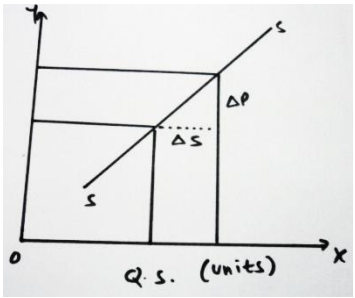
**1. Nature of input used** : If common factors of production are used for production of goods than supply will be more elastic. If specialized factor is used than supply will be less elastic.

**2.Nature of commodity** : Perishable goods – less elastic supply , durable goods – more elastic supply

**3.Cost of production** : If cost of productions increases then supply will be less elastic and if cost of production decreases then supply will be more elastic.

## Slope of supply curve

It measures the rate of change in supply (dependent variable) due to change in price (independent variable).




The supply function : s = a + bp

Here, s = supply a = other factors constant +b = △S/△P (Slope of supply curve) p = price

△P = change in price △S = change in supply

Slope means a unit change in price (p) will result change in supply (s) by amount of +b (slope of supply curve)