UNIT 3: SUPPLY

Pinku ----▸ Iphone
↳ 15 Iphone
↳ [Willingness to offer] X
Supply X

Tanya ----▸ Iphone 15 ⟶ [Willingness to offer] ✓
[Ability to offer] X
Supply X

SUPPLY

↳ Amount of goods or services that the producers are willing & able to offer to the Market at various prices during a given period of time.

Flow

Important points:-

1] 100 Luxury cars - Supply ✓
40 cars sold
Supply ≥ Sale
→ What is offered may not get sold

2] Supply is a flow concept.
→ The quantity supplied is 'so much' per unit of time
Eg :- 100 units per week. per day, per year

Determinants of Supply

1] Price of the Good:

Ceteris Paribus

Direct relation between price & Supply

Profit ↑

Price ↑ ⟶ Supply ↑
Price ↓ ⟶ Supply ↓

2] Price of related goods:

Firm produces 2 goods, Tomato & wheat

a]

Tomato
Price ↑
Supply ↑

Wheat
Supply ↓

b] Factory

70% → Petrol cars → Supply ↓

30% → EV cars → Price ↑ → Supply ↑

Price of other goods ↑, they become more profitable to the firm & their Supply Increases. → Supply of the wheat & petrol cars ↓

Inputs

3] Price of factors of production:

Factors	Land	Labour	Capital	Entrepreneur
Factor Cost	Rent	Wages	Interest	Profit

Factor Cost ↓ → Profit ↑ → Supply ↑

Lower Cost → More Profit: a) Encourages existing firms to expand production.
b) New firms enter the Market.

Rise in price of particular factor of production.
→ Will cause increase in cost of those goods, that use a great deal of that factor.

Eg :-Labour Cost ↑ ------→

Business A	Business B
Capital Intensive	Labour Intensive
2 workers	200 workers
	→ Substantial increase in cost

4] State of technology:

→ Use of technology, inventions & innovations ------→ In production efficiency ↑, In production cost ↓ ------→ Profit ↑, Supply ↑

Availability of Spare Production Capacity & the ease with which factor substitution can be made & the cost of such Substitution also determine supply.

5] Government Policy:

→ Taxes like excise duty, GST, import & export duty. ------→ Cost of production ↑, Profit ↓, Supply ↓

→ Subsidy ------→ Cost of production ↓, Supply ↑

6] Nature of Competition & Size:

- Competitive
  - More Sellers
  - More Supply
- Monopoly
  - Limited Supply

7] Expectations:

- Expects fall in the prices ⟶ ↑ in Supply Today
- Expects Increase in the prices ⟶ ↓ in Supply Today

8] No. of Sellers:

- More no. of Sellers ⟶ More Supply
- Less no. of Sellers ⟶ Less Supply

9] Other Factors:

a) Government Industrial & foreign policy (Import)
b) Infrastructual facilities
c) Goal of the firm (Rev↑ Profit↑)
d) Natural factors like weather, flood, etc.
e) Man-made factors [like labour strike, war, etc.]

Law of Supply

Ceteris Paribus, The quantity of goods produced & offered for sale will increase as the price of goods rise & decreases as price falls.

Direct relation between price & Quantity Supply.
- Price ↑ Quantity Supplied ↑
- Price ↓ Quantity Supplied ↓

→Willingness to Supply depends on the:

a) Cost of production for addtional unit of good.
b) Price at which goods can be sold.

SP - cost = Profit ↑

Greater the difference between these two - Greater is the Willingness to supply

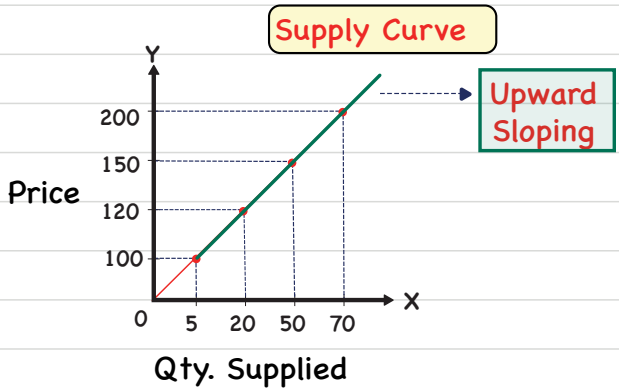
→Behaviour of Supply is also affected by Time period:

- Short Run
  - Not easy to increase Supply.
- Long Run
  - Supply can be easily adjustable.

→ Supply Schedule:

Eg :-Sunglasses

Price	Qty. Supplied
100	5
120	20
150	50
200	70



Max Qty

The Supply Curve shows:

a) **Highest Quantity** willingly Supplied at each price.

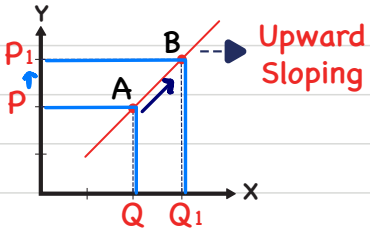
b) **Minimum price** which will induce suppliers to offer various quantity for sale.

→ Market Supply:

- Sum of supplies made by all Individual firms.
- Amount of commodity supplied per time period at various price by all the producers in the Market.

Market

→ Movement on Supply Curve:



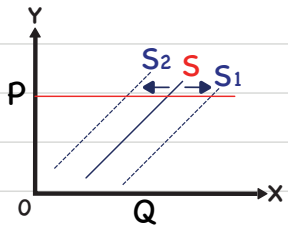
a) Due to change in own price.

b) Change in Quantity Supplied.

↑Price → Increase in Quantity Supplied → Expansion of Supply → Upward Movement

↓Price → Decrease in Quantity Supplied → Contraction of Supply → Downward Movement

→ Shift in Supply curve:



a) Due to factors other than own price.

b) Change in Supply.

↑Supply --→ Rightward Shift

↓Supply --→ Leftward Shift

Elasticity of Supply

Responsiveness of the Quantity Supplied of a good to change in its price.

1] Percentage Method:

$$\text{Elasticity} = \frac{\%\triangle \text{ In Quantity Supplied}}{\%\triangle \text{ In Price}}$$

$$\frac{\triangle Q}{\triangle P} \times \frac{P_0}{Q_0}$$

Es will always be positive.

Eg 1) $P_0 = 2000$ $Q_0 = 2500$ units
$P_1 = 2100$ $Q_1 = 3000$ units

$E_s = \frac{500}{100} \times \frac{2000}{2500} \Rightarrow E_s = 4$

$Q_1 - 2000 = -800 \Rightarrow -800 + 2000 = 1200$

Eg 2) $E_s = 2$ $P_0 = 100$ $Q_0 = 2000$ $2 = \frac{\Delta Q}{-20} \times \frac{100}{2000}$
$P_1 = 80$ $Q_1 = ?$

$\Delta Q = -800$

$2 = \frac{\triangle Q}{-20} \times \frac{100}{2000} \Rightarrow \triangle Q = -800$

$\Rightarrow Q_1 - 2000 = -800 \Rightarrow Q_1 = 1200$

Eg 3) $E_s = 5$ $\%\triangle$ In Price $= 20$ $5 = \frac{\%\Delta \text{ in Qty}}{20} \times 100$
$Q_0 = 100$ $Q_1 = ?$

$\frac{Q_1 - 100}{100} \times 100 = 100 = 200$

$5 = \frac{\%\triangle \text{ in } Q_S}{20} \Rightarrow \%\triangle \text{ in } Q_S = 100$

$\Rightarrow \frac{Q_1 - Q_0}{Q_0} \times 100 = 100 \Rightarrow \frac{Q_1 - 100}{100} \times 100 = 100 \Rightarrow Q_1 = 200$

2] Point Method:

Elasticity is to be measured at a given price or between two prices, where $\triangle$ in price is very small.

$$E_s = \frac{dq}{dp} \times \frac{p_0}{q_0}$$

1] Supply Function, $q = -10 + 10p$, when price = ₹15 $q = -10 + 10 \times 15 = 140$

At price = ₹15, $\Rightarrow q = -10 + 150 \Rightarrow q = 140$

$E_s = 10 \times \frac{15}{140} = 1.07$

$\Rightarrow E_s = \frac{d[-10 + 10p]}{dp} \times \frac{15}{140}$

$\Rightarrow E_s = \left[\frac{d[-10]}{dp} + \frac{d[10p]}{dp}\right] \times \frac{15}{140}$

$\Rightarrow E_s = [0 + 10] \times \frac{15}{140}$

$\Rightarrow E_s = 1.07$

2] q = -20 + 40p, when price = ₹10

At price = ₹10, $\Rightarrow$ q = -20 +400 $\Rightarrow$ q = 380

$\Rightarrow E_s = 40 \times \frac{10}{380}$ $\Rightarrow E_s = 1.05$

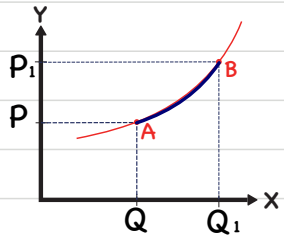
3] Arc Elasticity:

a) Elasticity of Supply between 2 prices.

b) Elasticity over a range or arc of the Supply curve.

$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P_1+P_2}{Q_1+Q_2}$

$E_p = \frac{\triangle Q_S}{\triangle P} \times \frac{P_0+P_1}{Q_0+Q_1}$



Eg :- $P_0 = 10$ $Q_0 = 20$

$P_1 = 15$ $Q_1 = 50$

$E_s = \frac{30}{5} \times \frac{25}{70}$ $\Rightarrow E_p = 2.14$

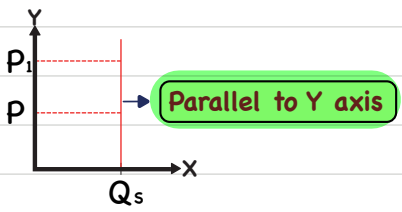
Types of Supply Elasticity:

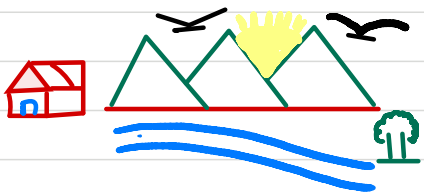
1] Perfectly Inelastic Supply:

No change in Supply due to Change in price.

--> $E_s = 0$

Eg :- Highly Perishable goods.
Artistic work





Inelastic

Slope ↑ – Steeper
Elasticity ↓

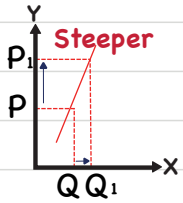
2] Relatively less Elastic Supply:

→ Inelastic Supply

→ $E_s < 1$ | %△ In Qs < %△ In Price

→ Quantity is not very responsive to price.

Eg :- Automobile



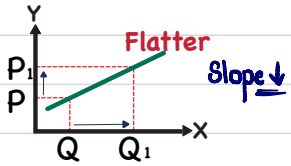
3] Relatively Greater Elastic Supply:

Slope ↓

→ Elastic Supply

→ $E_s > 1$ | %△ In Qs > %△ In Price

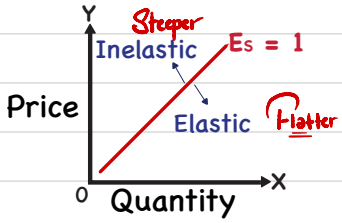
→ Quantity is very responsive to price.



4] Unit - Elastic:

→ $E_s = 1$ | %△ In Qs = %△ In Price

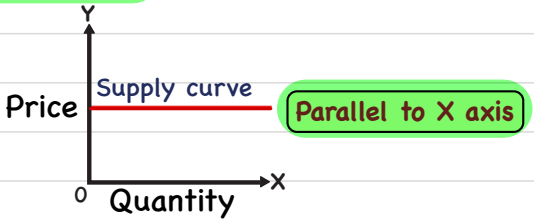
→ Dividing line between Elastic & Inelastic ranges.



5] Perfectly Elastic Supply:

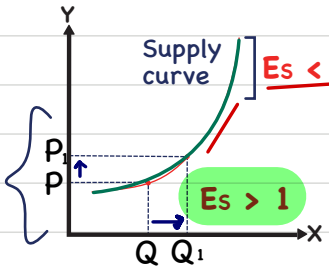
→ Infinitesimally change in price results in infinite change in quantity Supplied.

→ $E_s = \infty$



→ Supply curve gets flatter, Elasticity rises

In some cases, elasticity of Supply is not constant, but varies over supply curve.



In this region, firms have idle Capacity

Once the firm reaches the full capacity, further increase in production is possible only by extra Investment.

↓

To induce firms to increase supply, prices must rise substantially.

→ When price rises, Quantity supplied is increased substantially.

is

Substantially

Determinants of Elasticity of Supply:

Es depends on the **flexibility** sellers have, to change the Supply.

The more easily sellers can change the Supply.
→ Greater the Elasticity.

1] Production cost & process:

- a] If increase in production causes substantial increase in cost. → Elasticity will be less.
- b] If cost remains constant as output increase. → Elastic.
- c] Products that have more complex process & takes longer time to produce. → Less Elastic.

2] Time period:

- a] Shorter time period to adjust Supply. → Less Elastic. → Insufficient time to find resources.
- b] Long time period to adjust Supply. → More Elastic. → Firms can build new plants.

3] Degree of Competition:

- a] More producers & high degree of competition. → Elastic.
- b] Few barriers of entry into the Market. → Elastic.

4] Spare Capacity:

- Spare production capacity available. → Elastic.

5] Availability of Resources:

- a] Raw material & inputs are easily & cheaply available. → Elastic.
- b] Difficult to procure resources economically. → Less Elastic.

6] Storage:

- a] Those commodities which can be easily & inexpensively stored. --> Elastic.
- b] Highly Perishable goods. --> Perfectly inelastic.

7] Expectation about future prices:

- Expectation of Substantial rise in prices in future --> It will make the seller respond less to the current rise in price. --> Less Elastic.

8] Factor Substitution:

- a] Factors of production can be easily substituted. --> Elastic.
- b] If production process involves resources which are highly Specialized. --> Inelastic.

--> Labour employed is scarce, required to be highly skilled, longer training period. --> Inelastic.

9] Mobility of Resources:

- Capital & Labour are occupationally Mobile. --> Elastic.

Equilibrium Price

Equilibrium price in the Market is determined by the interaction between Demand & Supply.

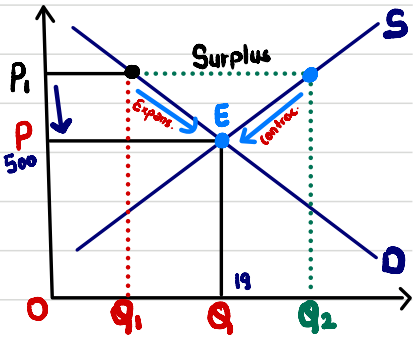
--> Market Equilibrium.
--> Market clearing price.
--> Unique point.

Eg:- Kurti

Price	Qty Demand		Qty Supply	Impact on Price
₹1000 ↓	6	Surplus ↓P	31	Downward ↓
₹800 ↓	↑12	Surplus ↓P	25↑	Downward ↓
₹500 ↓ Eq price	19	=	19	Equilibrium
₹350	25↑	Shortage ↑P	12↓	Upward ↑

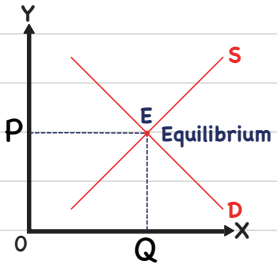
Equilibrium/Quantity:

Amount that buyer is willing to pay/buy = Amount that Seller is willing to Sell



कमी-shortage

Demand > Supply, Deficiency, ↑P
Supply > Demand, Surplus, ↓P



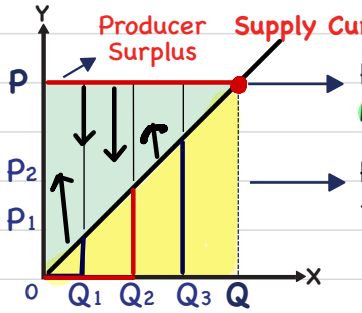
The determination of Market price is Central theme of Micro- economics analysis.
Micro-economic Theory = Price Theory

Market Equilibrium & Social Efficiency:

Represents net gain to Society

- Producer → Producer Surplus
- Consumer → Consumer Surplus ($MU_x - P_x$)

Producer Surplus

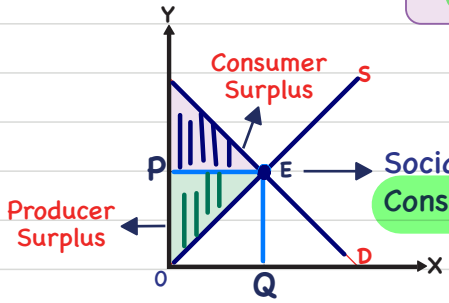


Producer Surplus disappears where Market price is at Equilibrium

Price at which producers were ready to sell

→ Benefits derived by producers from sale of units above & beyond their cost of producing that unit.

Price they Receive > Minimum price at which they were ready to Supply



Social efficiency is achieved with both Producer & Consumer enjoying max possible Surplus

Supply over :)