

## UNIT 3: PRICE-OUTPUT DETERMINATION UNDER DIFFERENT MARKET FORMS

- Market structure mostly determine a firm's power to fix the price of its product.
- The level of profit maximising price is different in different kinds of Market due to differences in nature of competition.

### → 1] Perfect Competition:

#### Characterstics:-

#### a) Very large no. of buyers & sellers:

- Share of each buyer in Total demand &
- Share of each seller in Total Supply

is too small

No buyer & seller can influence price.

#### b) Product are identical or homogeneous:

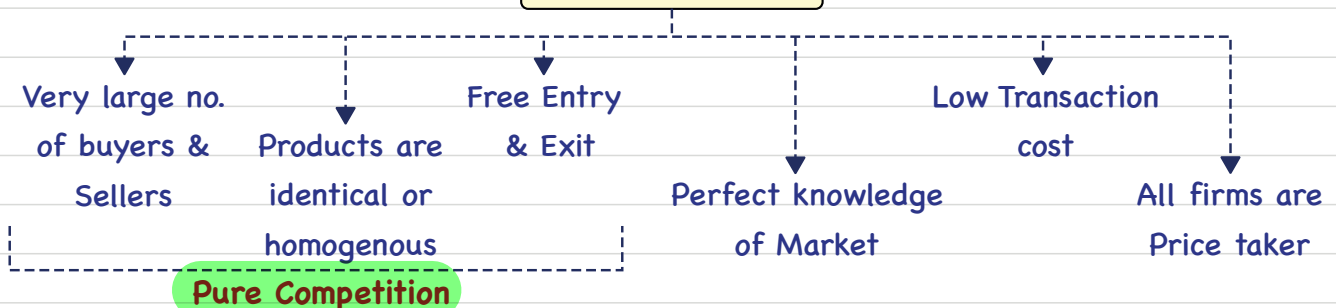
Perfect Substitute

- All goods must sell at a single market price.
- If firms raise its price. - it will loose market share.
- Buyers have no Preference.

#### c) Every firm is free to enter & exit:

- No legal or Market related barriers.
- No special Capital/Investment required.

#### Characterstics



#### d) Perfect knowledge of Market:

- Both buyers & sellers have all the information such as nature of products, price, etc.

#### ✓ e) Low transaction cost:

- No wastage of money & time in finding buyer/seller.

f) All firms, individually are price takers:

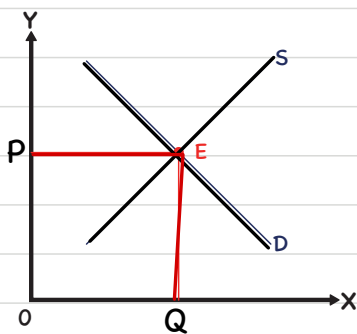
- Firms have to accept the price determined by the market forces of Total demand & Total supply.

Eg :- Agricultural products, financial instruments like stocks, gold & silver, etc.

## Price Determination

→ Short Run:-

1] Equilibrium of Industry/Market:



Total supply = Total demand

Market - Industry is in Equilibrium

→ Price prevailing at Equilibrium point is Equilibrium price [OP].

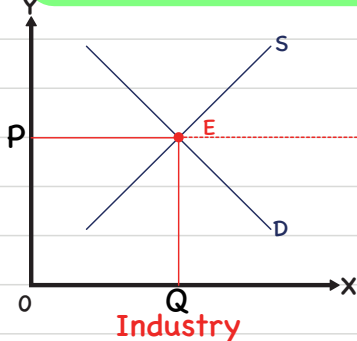
Equilibrium Price ←

Price (₹)	Demand (units)	Supply (units)
1	60	5
2 ↑	35	35
3	20	45
4	15	55
5	10	65

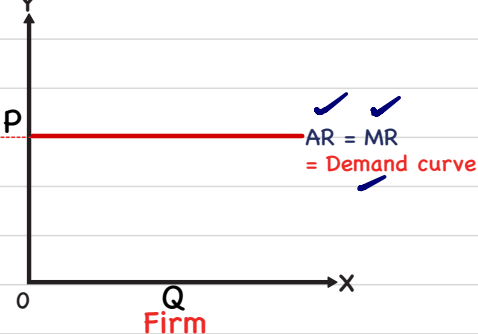
Shortage

2] Equilibrium of a firm:

→ When it is maximising its profits.  $MR = MC$



Industry



Firm

Price(₹)	Quantity Sold	Total Revenue	Average Revenue	Marginal Revenue
2	8	16	2	2
2	→ 9	= 18	2	2
2	10	20	2	2
2	11	22	2	2
2	12	24	2	2

→ Price is decided by Market forces.

→ Firms are price takers: They will try to sell as much as they can, at the price decided by Market

→ Demand curve is perfectly elastic. ∞

→ Condition of Equilibrium of firm:

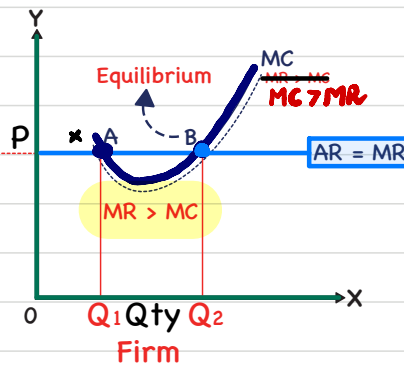
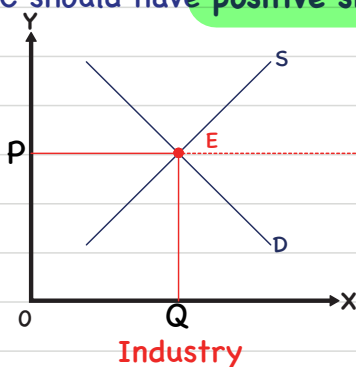
a)  $MC = MR$ ,

→  $MR > MC$ : There is incentive for the firm to expand production further.

→  $MR < MC$ : Reduce output since additional unit add more to the cost than Revenue.

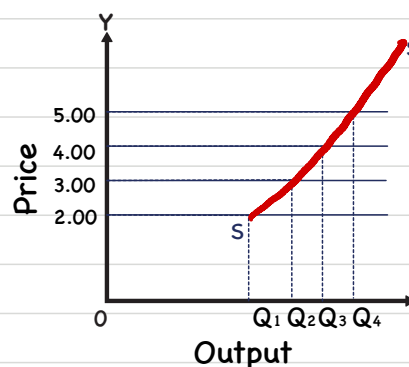
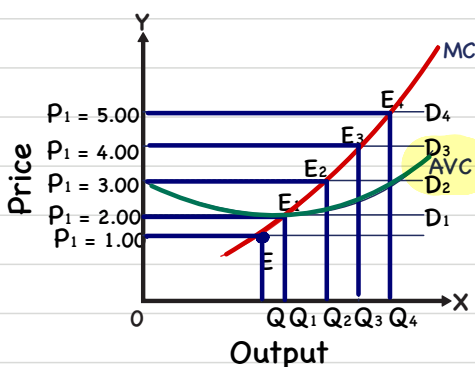
b)  $MC$  should cut  $MR$  from below [At point B]

→  $MC$  should have positive slope



→ At point A,  $MC$  is cutting  $MR$  from above. The firm will benefit if it goes beyond A as additional cost i.e.  $MC$  is falling.

→ Supply curve of firm in a Competitive Market



1] At price ₹2, firm supplies  $OQ_1$  quantity, because  $MC = MR$  at  $E_1$

2] At price ₹3, firm supplies  $OQ_2$  quantity.

→  $MC$  curve is nothing but firms supply curve that shows various quantities the firm will supply at each price.

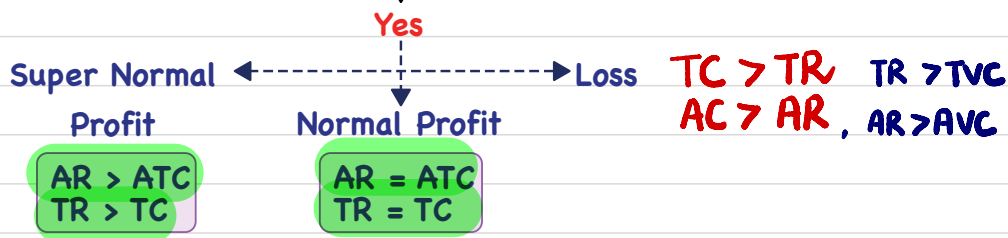
→ For price below  $AVC$ , firm will not supply anything because firm is not able to meet its  $AVC$ .

→ At price above  $AVC$ , firm will equate  $MR$  &  $MC$ .

In perfect competitive firms,  $MC$  above  $AVC$ , is Firm's Supply curve

→ Short Run:-

→ Can a competitive firm earn profits ?



1] Super Normal Profit:

$TR > TC$   
Economic cost

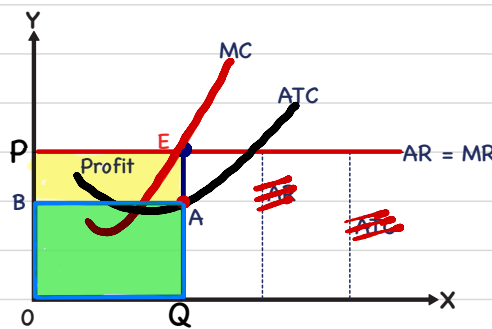
Eg :- Cost paid for producing 1000 units = ₹15000 } Explicit cost  
 Entrepreneur Investment = ₹50000 } Implicit cost ₹5000  
 Normal rate of return = 10%

Total cost = ₹20,000  
Economic cost

$AC = ₹20$

Price  
a)  $AR = ₹22 \rightarrow TR = ₹22000$   
 $TR > TC$   
→ Super Normal Profit

b)  $AR = ₹20 \rightarrow TR = ₹20000$   
 $TR = TC$   
→ Normal Profit



At OQ,

$AR = EQ$

$ATC = AQ$

Profit per unit =  $EQ - AQ$   
= EA

$TR = AR \times Q$

$TR = EQ \times Q$

$TR = OPEQ$

$TC = ATC \times Q$

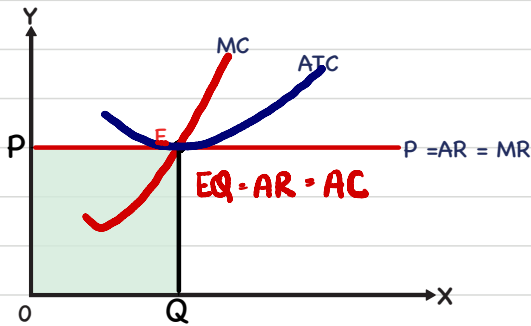
$TC = AQ \times Q$

$TC = OBAQ$

→ Total Profit = BPEA [  $EA \times Q$  ]

→ Super Normal Profit

2) Normal Profit: [ AR = ATC ]



Eq. Qty = OQ,

AR = EQ

ATC = EQ

AR = ATC

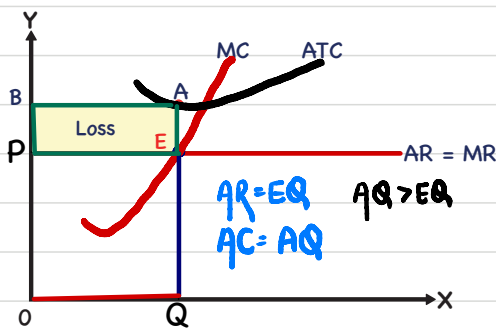
→ Normal Profit

→ Zero Economic Profit

TR = OPEQ

TC = OPEQ, TR - TC = Zero

3) Losses: [ AR = ATC ]



At Q,

AR = EQ

ATC = AQ

AQ > EQ

p.u. Loss = AE

→ Total Loss = PBAE

→ Firm can be in equilibrium & still make Losses

→ This is the situation when firm is **MINIMISING LOSSES.**

→ If AR > AVC, firm will produce the level of output at which MR = MC. [but AR < ATC]

Eg :- "Tasty Burger" is a small kiosk selling Burgers & is a price-taker. The table below

HW provides the data of 'Tasty Burgers' output and costs in Rupees.

Quantity	Total cost	Fixed cost	Variable cost	Average Variable cost	Average Fixed cost	Marginal cost
0	100	100	-	-	-	-
10	210	100	110	11	10	11
20	300	100	200	10	5	9
30	400	100	300	10	3.33	10
40	540	100	440	11	25	14 E
50	790	100	690	13.8	2	25
60	1060	100	960	16	1.67	27

Q-1) If burgers sell for ₹14 each, what is Tasty Burger's profit maximisation level of output? 40 units      AR = MR      LMR = MC

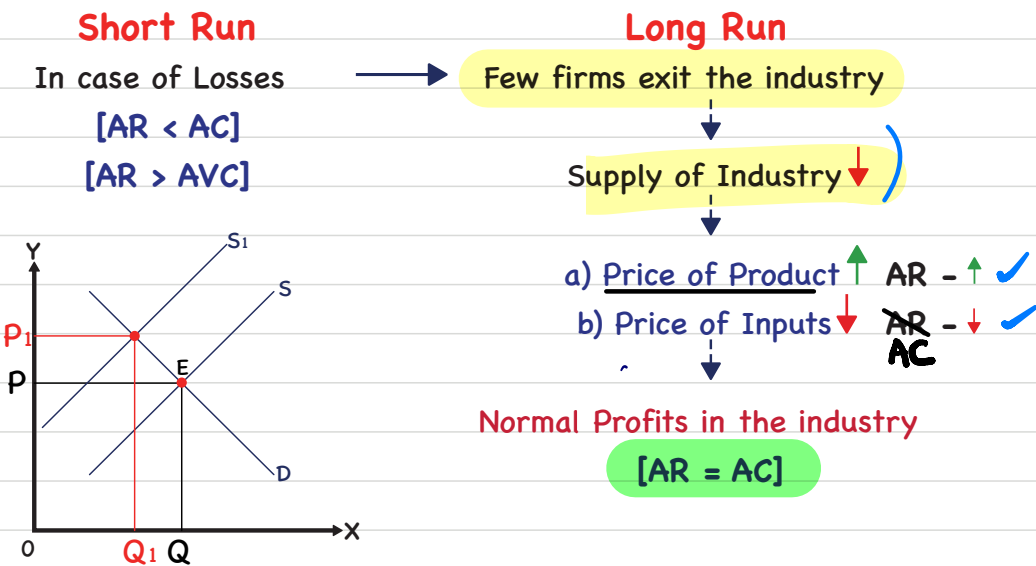
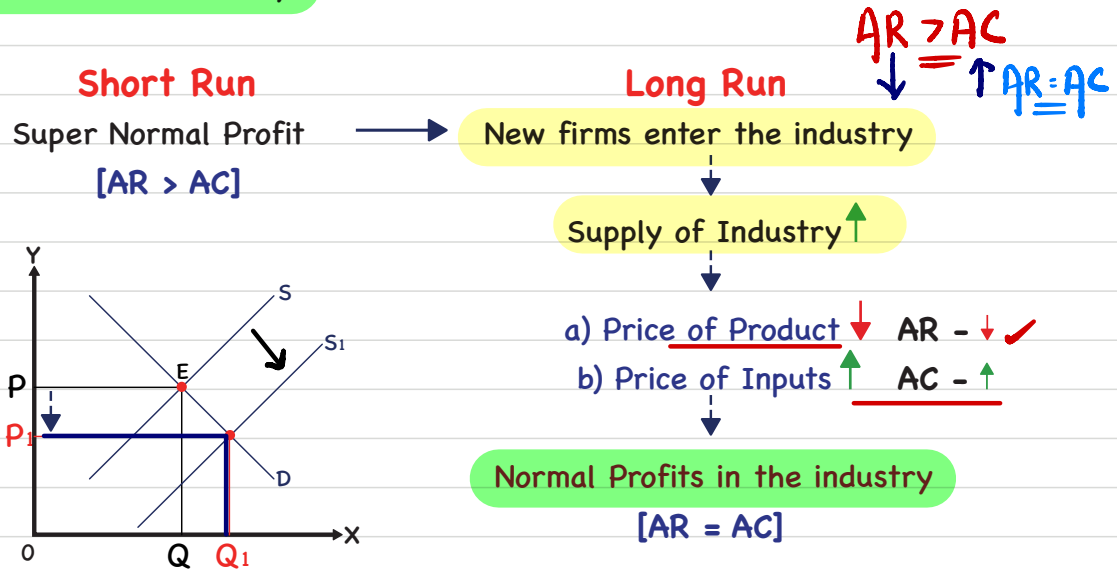
Q-2) What is the total variable cost when 60 burgers are produced? 960

Q-3) What is average fixed cost when 20 burgers are produced? 5

Q-4) Between 10 to 20 burgers, what is the marginal cost? 9

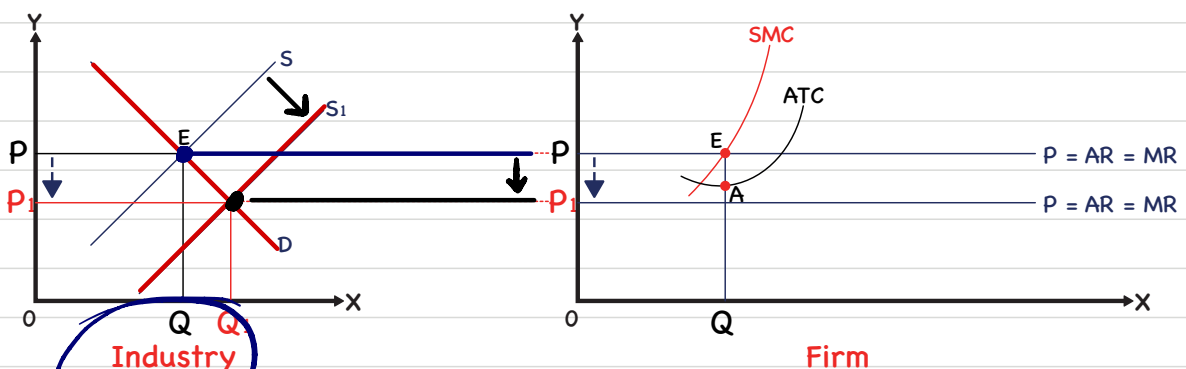
→ Long-Run Equilibrium:-

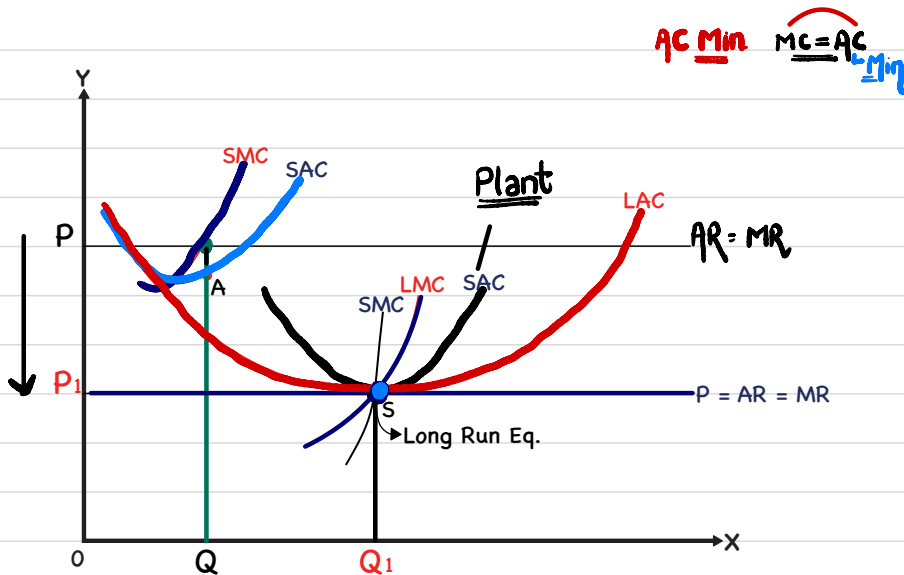
In the Long Run, firm can change the scale of production, quit the industry or new firms can enter the industry.



In the Long Run, Firms earn Normal Profit only.

→ Long-Run Equilibrium:-





- 1] At price  $OP$ , firm is making super normal profit, producing output  $OQ$ .
- 2] Now, firms have incentive to increase the capacity in the long run. At the same time, new firms will enter the industry.
- 3] As supply increases, supply curve will shift rightward & price will fall.  
New price is  $OP_1$

**In the Long Run,**

Firms are in equilibrium when they adjust their plant so as to produce at the Minimum point of LAC curve.

→ LAC = LMC  
→ Min. point

→ At that point, firms will be making NORMAL PROFITS only.

→ SAC = AR [S]  
↓  
Minimum at that point  
→ SAC = SMC

Long Run Equilibrium of firm = LAC = LMC = AR/Price/MR

→ Lowest point on Long Run Avg. cost curve

LAC = LMC = SAC = SMC = MR = Price

AR → SAC = AR

→ SAC is tangent to the demand curve [SAC = AR]

→ At min. point of LAC, the corresponding plant is worked at optimal capacity.

SAC ↓ Plant is fully utilised - Min SAC

→ Firms producing output at optimum cost is optimum firms.

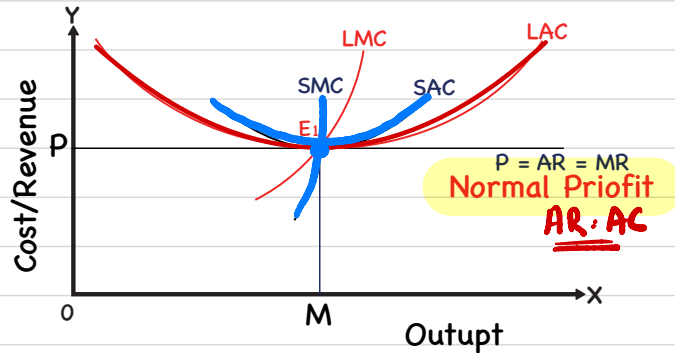
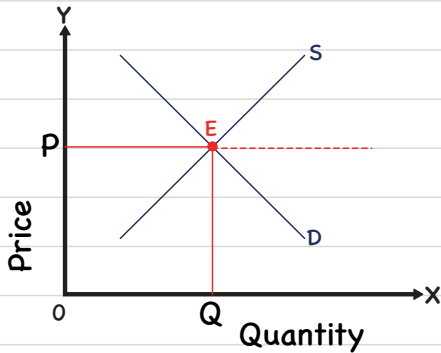
→ All firms under perfect competition is optimum firm.

→ Min point of LAC & SAC coincide.

→ Long-Run Equilibrium of Industry:-

Three condition:

- a) Total Demand = Total Supply
- b) All firms are in equilibrium
  - ↳ All firms are maximising profit. *Min. cost*
- c) No firm has incentive either to enter or exit the industry.
  - ↳ All firms are earning normal profits.



*Imp*

Most Important Points:

Following are the outcomes associated with Long Run Equilibrium:

- 1] Output is produced at Minimum feasible cost.

Minimum AC  $\leftrightarrow$  Productive efficiency  $\rightarrow AC = MC$

*Productive efficiency*  
*Min cost*  
*AC = MC*

- 2] Customer pay the Minimum possible price which just covers MC.

Allocative efficiency  $\rightarrow Price/AR = MC$

*Allocative efficiency*

- 3] Plants are used to full capacity, no wastage of Resources.  $AC = MC$

- 4] Firms only earn Normal profit.  $AR = AC$

- 5] Firms maximise profits.  $MR = MC$

- 6] There is optimum no. of firms in the industry.

→ 2. MONOPOLY - One Seller

Features:

(i) Single seller of the product: - Single firm constitutes the industry.

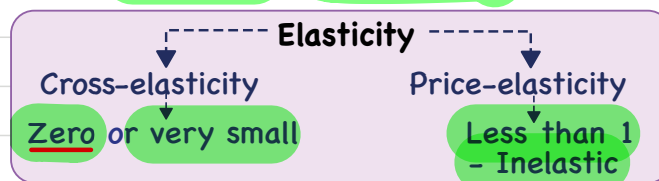
- Absence of competition.

(ii) Barrier to Entry: There are strong barriers to entry.

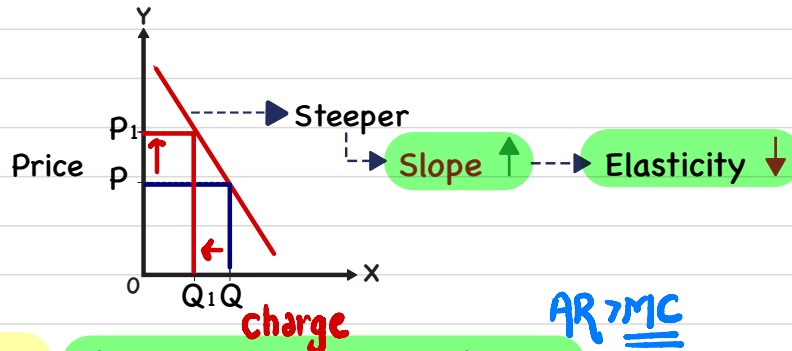
Legal  $\leftrightarrow$  Economic

(iii) No close substitutes: - Monopolist has full control over market supply.

- Price Maker, not price taker.



--> Monopolist face steep downward sloping demand curve.



(iv) Market Power: Ability to charge a price above MC  
 -> Positive profit

—> How do Monopoly Arise ?

1. Strategic control over scarce resources, inputs or technology.
2. Developing or acquiring control over a unique product, which is difficult to copy.
3. Exclusive rights by government.
4. Patent & Copyrights.
5. Business cartels & combinations.
6. Extremely large start-up costs.
7. Natural Monopoly - Economies of scale. -> p.u. cost ↓
8. Enormous Goodwill enjoyed by firm for very long period.
9. Stringent Legal & regulatory requirements.
10. Anti-competitive practices. Eg :- Predatory pricing

—> Monopolistic Revenue curve

--> Demand curve of monopoly is identical with the Market demand curve of the product.

--> If the firm wants to sell more, it has to reduce the price of the products

Quantity sold	Average Revenue (₹) (AR = P)	Total Revenue (₹) (TR)	Marginal Revenue (₹) (MR)
0	10.00	0	
1 ✓	9.50	9.50	9.50 ✓
2	9.00	18.00	8.50
3	8.50	25.50	7.50
4	8.00	32.00	6.50
5	7.50	37.50	5.50
6	7.00	42.00	4.50
7	6.50	45.50	3.50
8	6.00	48.00	2.50
9	5.50	49.50	1.50
10	5.00	50.00	.50
11	4.50	49.50	(-).50

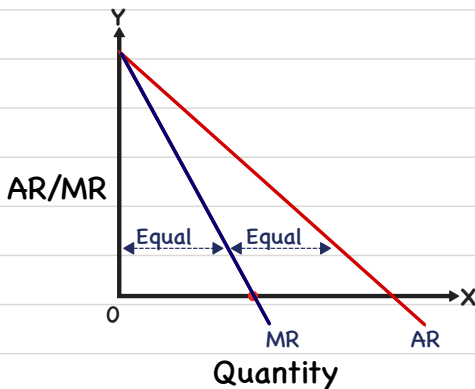
Handwritten notes on the table:  
 - A red box highlights 9.00 in the AR column and 18.00 in the TR column.  
 - A blue arrow points from 9.00 to 18.00 with the text 'MR = 2 \* AR'.  
 - A blue arrow points from 9.50 to 8.50 with a bracket and '1'.  
 - A blue arrow points from 8.50 to 7.50 with a bracket and '1'.  
 - A blue arrow points from 7.50 to 6.50 with a bracket and '1'.  
 - A blue arrow points from 6.50 to 5.50 with a bracket and '1'.  
 - A blue arrow points from 5.50 to 4.50 with a bracket and '1'.  
 - A blue arrow points from 4.50 to 3.50 with a bracket and '1'.  
 - A blue arrow points from 3.50 to 2.50 with a bracket and '1'.  
 - A blue arrow points from 2.50 to 1.50 with a bracket and '1'.  
 - A blue arrow points from 1.50 to .50 with a bracket and '1'.  
 - A blue arrow points from .50 to (-).50 with a bracket and '1'.  
 - A red note says 'MR is tivo.' (likely 'MR is twice').

1. AR per unit = Price

-> AR curve = Demand curve

-> The MR on additional unit sold is lower than Price/AR.

-> Relationship between AR & MR



downward slope

1. AR & MR are negatively sloped curve.
2. Slope of MR is twice as that of AR curve.  
2X Slope of AR curve = Slope of MR curve.
3. MR curve lies halfway between AR curve & Y-axis.
4. AR/Price cannot be zero but MR can be zero or negative.

Monopolies

Simple  
Uniform prices from all buyers

Discrimination  
Different prices from different buyers  
-> Dynamic fair charges in Railways

Profit Maximisation in a Monopolised Market:

-> Equilibrium

-> AC & MC curves are identical in the competitive & Monopoly Markets, but revenue conditions differ.

AR | MR

AR curve

In Monopoly -> Downward sloping Demand curve

Price ↑  
Sales will decrease

Price ↓  
In order to increase Sales

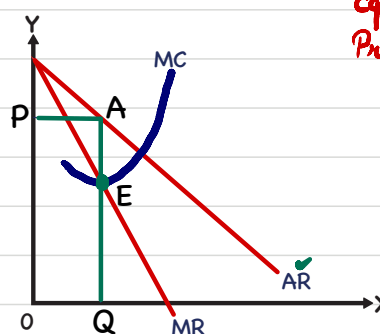
Short Run Equilibrium:-

Equilibrium :-

1. MR = MC
2. MC should cut MR from below

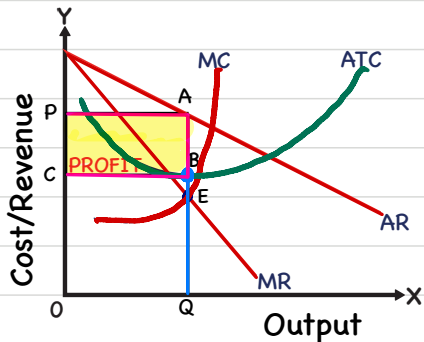
Eq. Qty = OQ

Eq. Price = OP/AQ



→ Super Normal Profit

$TR > TC$   
 $AR > AC$



→ Eq. Qty = OQ

At OQ,

$AR = AQ$

$AC = BQ$

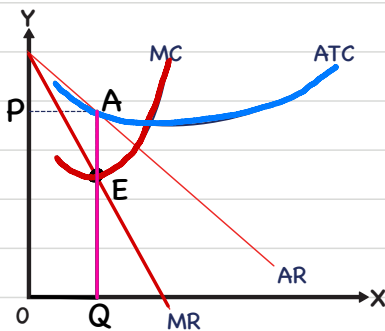
per unit profit = AB

Total Profit = ABCP

Super Normal Profit

→ Normal Profit

$AR = AC$  or  $TR = TC$



→ Eq. Output = OQ

At OQ,

$AR = AQ$

$AC = AQ$

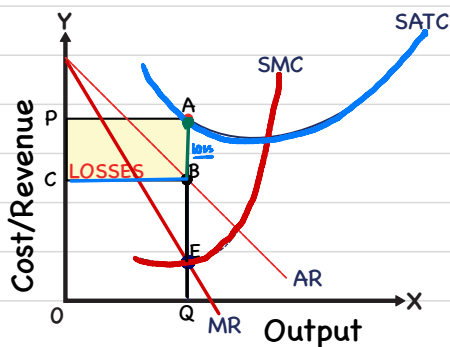
$AR = AC$

→ Normal Profit or Zero Economic Profit

→ Can a Monopolist incur Losses ?

→ YES

→ There is no certainty that a monopolist will always earn profits.



→ Eq. Output is OQ

At OQ,

$AR = BQ$

$AC = AQ$

$AR < AC$

per unit loss = AB

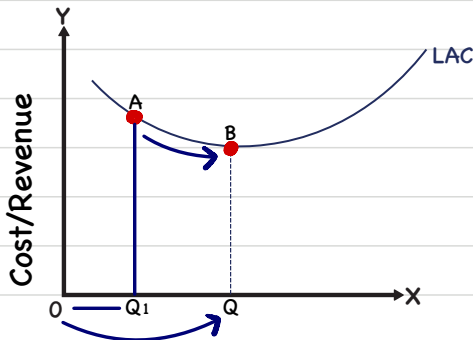
Total Loss = ABCP

→ Whether Monopolist stays in the business in the Short Run depends on whether he/she meets its AVC or not

If,  $AR > AVC$ , Continue ✓

$AR < AVC$ , Shutdown ✓

→ Long Run :-



Eg :-

	Price	Quantity	AC	TR	TC	Profit
A	12	8	5	96	40	56
B	8	12	4	96	48	48

→ Monopolist need not produce at optimum level.

→ When AC is minimum.

→ He/She can produce at Sub-optimal level also.

→ No need to produce at min point of LAC curve, he/she can stop at any point on LAC, where profits are maximum.

Barriers

Monopolist can make Super Normal Profit even in the Long Run.  
In the Long Run, Monopolist will not continue if he/she makes losses.

→ Price Discrimination

When a producer sells a specific Commodity / Service to different buyer at different prices for reasons not associated with cost.

→ Method of pricing adopted by Monopolist in order to earn Abnormal profits.

Few examples:

1. Some countries dump goods at low prices in foreign Market. China
2. Universities charge higher tuition fees from evening class students,
3. Lower charges on phone calls at off peak time.

→ Prices Discrimination can't persist under Perfect Competition  
because sellers have no influence over market determined price.

→ Conditions for Price Discrimination:-

1. Control over supply → Firms should have price setting power.
2. Sellers should be able to divide his market into Sub-markets.
3. Price-elasticity of product should be different in different sub-markets.

OG  
e>l  
P↓

NG  
e<l  
P↑

→ High Prices in a Market with inelastic demand.



4. No Market arbitrage.

↳ Not possible for buyers of lower priced market to resell the products to the buyers of high priced market.

→ Objectives of Price Discrimination

1. To earn more profits.
2. To dispose off Surplus stock. 1-3000 | 2-4000
3. To enjoy economies of scale.
4. To capture foreign markets.
5. To secure equity through pricing.

→ Degrees of Price Discrimination → Prof. Pigou

1. FIRST DEGREE → Individual Consumer

Monopolist separates the market into each individual consumer & charges them the price, they are willing & able to pay.

↳ Extract entire Consumer Surplus

→ Prices are decided under Negotiation, 'bid & offer system' auction.

2. SECOND DEGREE → Quantity

→ Different price for Different Quantity sold.

Monopolist will take away only a part of Consumer Surplus.

There are 2 possibilities:

1. Different consumers pay different prices if they buy different quantity.  
↳ Larger Quantity - Lower unit price.

2. Each consumer pays different price for consecutive purchase.

Eg:- Internet/ Telephone recharge.

3. THIRD DEGREE → Location/Customer Segement

→ Price varies by attributes such as Location or Customer segment.

→ Divide customers into sub-market & charge different prices in different sub-markets

Eg:- Old Gurgaon & New Gurgaon.

Eg:-

Price = ₹30 → AR

A]  $e_d = 2$   $P \uparrow$

$$MR = AR \times \frac{e-1}{e}$$

$$MR = 30 \times \frac{1}{2}$$

$$MR = ₹15$$

B]  $e_d = 5$   $P \downarrow$

$$MR = AR \times \frac{e-1}{e}$$

$$MR = 30 \times \frac{4}{5}$$

$$MR = ₹24$$

→ MR are different when elasticity is different

High elasticity - High MR

Low elasticity - Low MR

→ It is profitable to t/f some quantity of product from A to B.

→ Once a point is reached where MR of both the markets are equal, then it is no longer profitable to transfer goods from A to B.

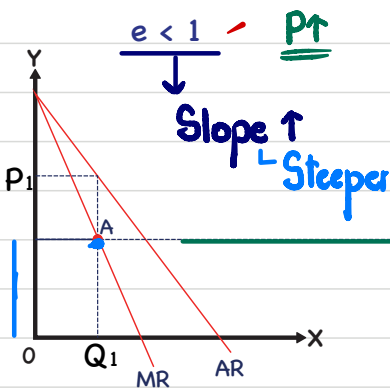
$$MR_A = MR_B$$

→ Now, Monopolist will start charging different prices in Market A & B.

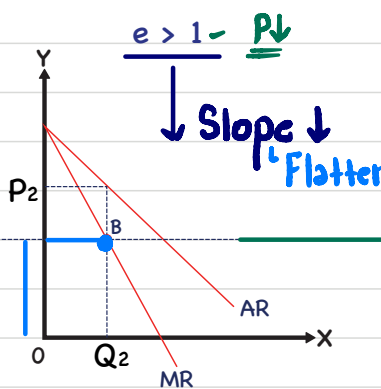
→ Higher prices in Market A - Lower elasticity  
 Lower prices in Market B - Higher elasticity

→ Equilibrium under Price Discrimination

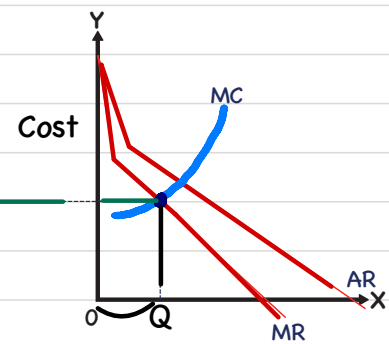
Sub-Market [A] ✓



Sub-Market [B] ✓



Total Market



1. Firstly, Monopolist has to divide the Total Market into various Sub-markets, on the basis of elasticity of demand.

2. In order to reach equilibrium price, the discriminating Monopoly has to make 3 decisions:

- a) How much **total** output to produce -  $OQ$  ✓
- b) How total output should be distributed b/w 2 Sub-Markets ?
  - Sub-Market A -  $OQ_1$  ✓
  - Sub-Market B -  $OQ_2$  ✓
- c) What price to charge ?
  - Sub-Market A -  $OP_1$  ✓
  - Sub-Market B -  $OP_2$  ✓

**Imp.** 1. MR in 2 sub-markets must be equal if profits are to be maximum.  
 2. Also, MR in both sub-markets should be equal to MC of the whole output.

### → Economic effects of Monopoly

- 1) Monopoly is often criticized because it reduces aggregate economic welfare through loss of productive and allocative efficiency.  $AR=MC$  Supply ↓
  - 2) Monopolists  $MC=AC$  charge substantially higher prices and produce lower levels of output than would exist if the product were produced by competitive firms.
  - 3) Monopolists earn economic profits in the long run which are unjustified.
  - 4) Monopoly Prices exceed marginal costs and therefore reduces consumer surplus.
- AR > MC There is a transfer of income from the consumer to the monopolists. Not only that consumer pays higher prices, but they would also not be able to substitute the good or service with a more reasonable priced alternative.
- 5) Monopoly restricts consumer sovereignty and consumers opportunities to choose what they desire.
  - 6) Monopolists may use unjust means for creating barriers to entry to sustain their monopoly power. They often spend huge amount of money to maintain their monopoly position. This increases average total cost of producing a product.
  - 7) A monopolist having substantial financial resources is in a powerful position to influence the political process in order to obtain favourable legislation. low
  - 8) Very often, monopolists do not have the necessary incentive to introduce efficient innovations that improve product quality and reduce production costs.
  - 9) Monopolies are able to use their monopoly power to pay lower prices to their suppliers. Actual cost > Possible cost
  - 10) The economy is also likely to suffer from 'X' inefficiency, which is the loss of management efficiency associated with markets where competition is limited or absent.

→ **Favourable outcome of Monopoly :-**

- a) ↑ in Revenue will enable firm to stay in business, who otherwise would have made losses.
- b) Peak-load pricing: ✓
  - Firms having capacity constraints will be able to spread its demand to off peak times resulting in better capacity utilisation

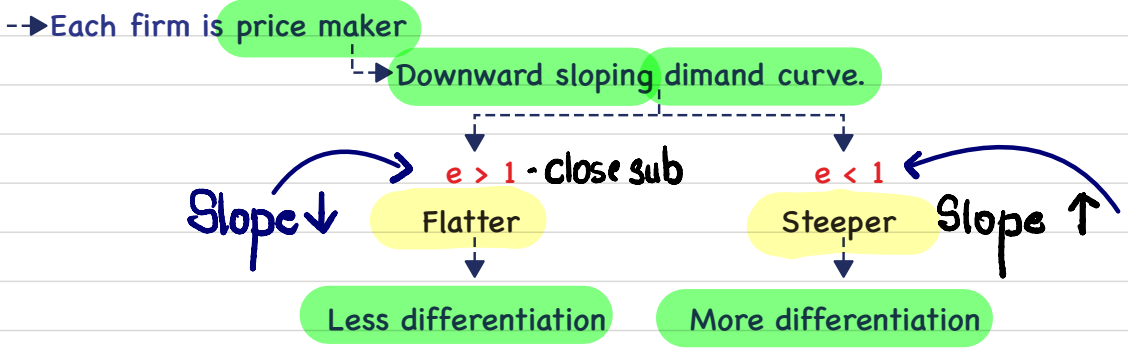
→ **Monopolistic**

→ Mix of Monopoly + Perfect Competition

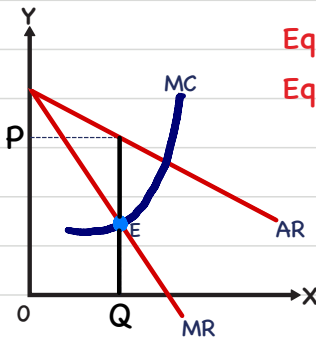
→ **Features:**

1. Large no. of sellers: having small share in the Market.
2. Product Differentiation: Products of different sellers are differentiated on the basis of Brands. [Similar but not identical]
  - Close Substitutes
    - Elastic Demand  $e_d > 1$
  - Such difference may be true or fancied ✓
  - Product differentiation gives rise to the element of Monopoly to the producers over competing products.
    - Producers can raise the price
    - will lose some of the customers.
3. Freedom of entry & exit: barriers are comparatively low. *Normal Profit*
4. Non-price Competition: compete on basis other than price.
  - Eg :- Aggressive Advertisement

→ **Equilibrium of Monopolistic Firm :**



→ Short-Run:-



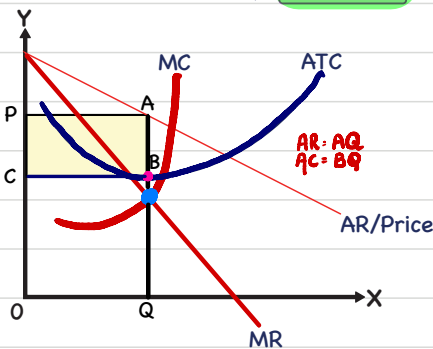
Eq. Output = OQ  
Eq. Price = OP

Condition of Equilibrium :-

1.  $MR = MC$
2. MC should cut MR from below

→ 1. Super Normal Profit

$AR > AC$



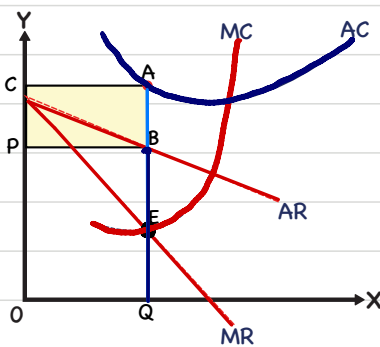
→ At Eq. Output OQ,

$$\left. \begin{matrix} AR = AQ \\ AC = BQ \end{matrix} \right\} AR > AC$$

Super Normal Profit = APCB

→ 2. Can a Monopolistic incur Losses ?

$AR < AC$   
 $AR > AVC$



→ At Eq. Output OQ,

$$\left. \begin{matrix} AR = BQ \\ AC = AQ \end{matrix} \right\} AC > AR$$

Losses = ABPC

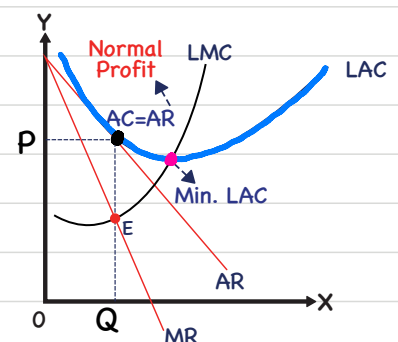
→ Long-Run:-

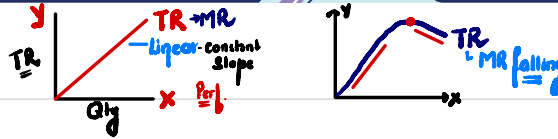
In the Long Run, firms under Monopolistic competition will earn only **NORMAL PROFITS**

Free entry & exit

→ In the Long Run, firms do not operate at optimum capacity because, price reduction to sell more exceeds cost reduction.

Firms have excess capacity





Very Important:

	Perfect Competition	Monopoly	Monopolistic Competition
1	Large number of buyers & large number of firms in the industry	Single seller, no difference between firm & industry	Large number of buyers & large number of firms in the industry
2	Homogenous products which are perfect substitutes	No close substitutes	Differentiated products which are close substitutes, but not perfect substitutes
3	Insignificant market share	Command over the whole market	Each firm is small relative to the market
4	Competition among firms is perfect	<u>Absence of competition</u>	Imperfect competition
5	Complete <u>absence of monopoly</u>	High degree of monopoly power prevails	Some degree of monopoly power due to product differentiation
6	Free entry & exit	Strong barriers to entry	Free entry & exit
7	Price taker	Price maker	Some control over price - Maker
8	Price is equal to marginal cost $AR = MC$ (Allocative efficiency)	Price is higher than marginal cost $AR > MC$	Price is higher than marginal cost $AR > MC$
9	Price less than <u>other market forms</u>	<u>High equilibrium price</u>	Price is high compared to perfect competition
10	Demand curve is infinitely elastic $Ed = \infty$	Downward sloping & highly inelastic demand curve	Downward sloping & more elastic demand curve
11	MR & AR represented by the same curve	MR starts at the same point as AR, & is twice steep when compared to AR $2 \times AR = MR$	MR starts at the same point as AR, & is twice steep when compared to AR
12	TR straight line positively sloping through the origin	TR inverted U shaped	TR inverted U shaped
13	No price discrimination - <u>same price for all units</u>	Can practice price discrimination by selling a product at different prices	Depends on the extent of <u>monopoly power</u> the firm has
14	No supernormal profits in long run	Supernormal profits both in the short run & long run	No supernormal profits in the long run
15	No selling costs	Generally low selling costs, only for informing the consumers	Due to severe competition, selling costs are vital to persuade buyers

16	Price being given, decides only quantity of output	Decides on both price & output	Decides on both price & output
17	Product is produced at the minimum average cost $MC = AC$	Produced at the declining portion of average cost curve	Produced at the declining portion of average cost curve
18	Equilibrium quantity is highest & produced at least cost -Optimum	Equilibrium quantity less than other market forms	Equilibrium quantity less than optimal, there is excess capacity
19	No consumer exploitation $AR = MC$	Consumers can be exploited by charging high prices	Consumers are influenced through price & non price competition
20	Efficient allocation of resources -Min cost	Inefficient allocation of resources X-inefficiency	Inefficient allocation of resources Advertisement
21	No wastage of resources	Wastage of resources	Huge wastage of resources for advertisements

→ **Oligopoly**

↳ Competition among the few [2-10]

Eg :- cold drinks, airline, automobiles

Prof. Stigler defines..

↳ "situation in which a firm bases its market policy, in part, on the expected behaviour of a few close rivals"

→ Selling Homogenous or differentiated product.

→ Oligopolies mostly arise due to factor which are responsible for emergence of Monopolies.

→ **Types of Oligopoly**

Imp

1	Pure/Perfect oligopoly	Imperfect Oligopoly
	Products are Homogenous in nature. Eg :- Aluminium	Differentiated oligopoly
	This type of oligopoly tends to produce raw material/Intermediate products. Eg :- Petroleum, Steel	Goods sold is based on <u>product differentiated</u> . Eg :- Talcum powder

2	<b>Open oligopoly</b> New firms can enter the market	<b>Closed Oligopoly</b> Entry is restricted
3	<b>Collusive oligopoly</b> Few firms come to a common understanding or act in collusion with each other, in fixing price or output or both. ↓ Cartel	<b>Competitive Oligopoly</b> Absence of such understanding & they compete with each other.
4	<b>Partial Oligopoly</b> Industry is dominated by one large firm ↓ looked upon as leader	<b>Full Oligopoly</b> Absence of such price Leadership.
5	<b>Syndicated Oligopoly</b> Firms Sell their products through a centralised syndicate.	<b>Organised Oligopoly</b> Firms organise themselves into central associations for fixing prices, output, etc.



### → Characteristics of oligopoly market:

#### 1. Strategic Interdependence:

--> Under oligopoly, each seller is big enough to influence the market.

--> A firm has to respond to its rivals action & simultaneously, the rivals also respond to firms action.

#### 2. Importance of Advertisement & Selling costs:

--> Due to interdependence of oligopolists, firms have to employ various aggressive marketing weapons to gain greater share in the market.

--> Avoid price cutting & try to compete on non-price basis.

#### 3. Group Behaviour:

↳ Theory of oligopoly is theory of Group Behaviour

--> There is no generally accepted theory of Group behaviour

Firms may form a group in  
promotion of their common interest

Group may or may not  
have a leader

### → Price-output Decisions in Oligopolistic Market

--> Oligopolistic firms can't have sure & determinate demand curve.

↳ What price & output to fix cannot be ascertained by economic analysis.

--> However, economist have established no. of price-output models of oligopoly

### 1. Ignore Interdependence & make decisions independently:

-> Demand curve becomes definite & equilibrium output is found out by equation,

$$MR=MC.$$

Total Demand 100 units  


### 2. Economist Models:

-> a] Cournot Model: Firms control variable is output & they do not collude.

-> b] Stackelbergs Model: Leader commits to an output before all other firms. The rest of the firms are followers, they choose output so as maximum profits.

-> c] Bertrand Model: Price is control variable for firms & each firms sets its price.

### 3. Cartel:

Oligopolist enter into agreement & try to pursue their common interest.

-> They jointly act as Monopoly. Eg :- OPEC

-> A group of firms that explicitly agree to co-ordinate their activities is called cartel.

-> Most cartels have only a subset of producers.



### → Price Leadership

#### 1. Live & Let Live Philosophy:

-> Dominant firm accept the presence of fringe (small) firms & sets the price to maximise its profits

-> This is called Price Leadership by Dominant Firm.

2. Price Leadership by Low-cost firm:  $\begin{cases} A - 60 - 75 \\ B - 70 - 75 \\ C - 80 - 75 \end{cases}$  Loss

-> Price leader sets the price in such a way that it allows some profits to the followers also.

#### 3. Barometric Price Leadership:

-> Old, experience or Most respected firm act as a Leader.

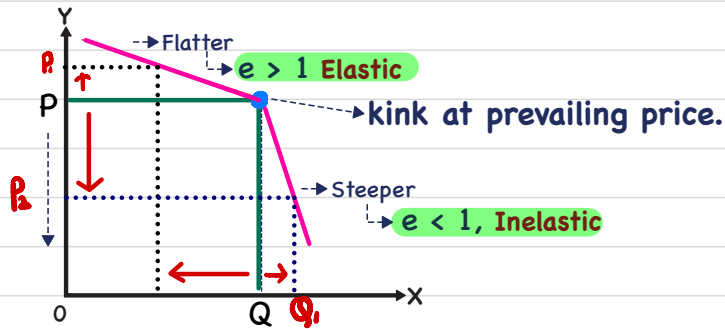
-> Makes changes in price which are best for all the firms in industry.

### → Kinked Demand Curve Imp

In oligopoly, price remain sticky or inflexible for a long time. They tend to change infrequently, even in case of declining cost.

-> Most popular explanation of this price rigidity is given by American economist, Paul A. Sweezy.

-> Hence this is called Sweezy's model.



→ Segment of demand curve above prevailing price level is **Highly Elastic**.

↳ When oligopolist increase the prices, then:

→ Competitors will not follow

→ Massive ↓ in Sales.

→ Segment of demand curve below prevailing price level is **Inelastic**.

↳ When oligopolist decrease the prices, then:

→ Its Competitors will follow

→ Little ↑ in Sales.

→ Rigid/Sticky prices are explained by **Kinked Demand curve theory**.

→ **Other Imp. Market forms:**

1. **Duopoly**: - Subset of oligopoly.

- Only 2 firms in a Market.

2. **Monopsony**: - Single buyer in the Market.

- Applicable to factor market.

3. **Oligopsony**: - Small no. of Large buyers.

4. **Bilateral Monopoly**: - 1 buyer + 1 seller

- Combination of Monopoly + Monopsony.

Chapter over :)