26 March 2024 08:01 PM

Market Structure

↓

depending on degree of competition

↓ that is no. of sellers

↓

we can divide market

a) Perfect competitive market

b) Monopolistically competitive market

c) Oligopoly market

~~(d)~~ Monopoly

Perfectly competitive Market :

Properties :

① Infinitely large no. of sellers as well as buyers.

② Prices are given / constant and sellers are price takers.

③ Products are homogenous / identical in nature. i.e all products are perfect substitute to each other.

... in market.

to exit .

④ Free entry and exit of firms in market.

assumed that in SR: Supernormal profit ($\Pi > 0 \Rightarrow TR > TC$)

↓

new firms will be attracted to enter and produce more

↓

situation of excess supply

↓

To bring back the market equilibrium, the price will fall

→ TR will decrease → $TR = TC$ → $\Pi = 0$ (Normal profit)

↳ Breakeven point in LR ⇒ to avoid further loss firms will exit from the market.

Revenues curves under Perfect Competition ⇒ $P = \bar{P}$

① Total Revenue, $TR = \bar{P} \times Q$

$$\text{Slope of } TR = \frac{dTR}{dQ} = \bar{P} > 0$$

↓

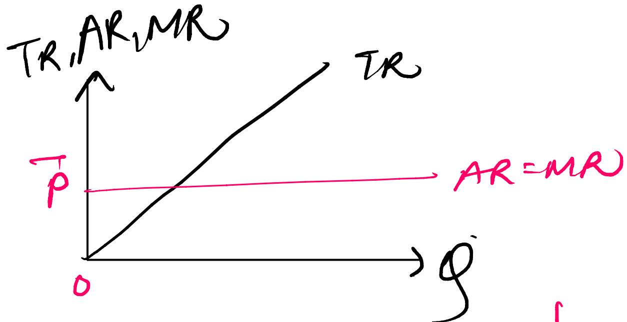
$\boxed{MR = \bar{P}}$

↳ TR curve is an upward sloping straight line through origin straight line through origin

slope of $MR = 0 \Rightarrow$ MR curve is horizontal to output axis.

and $AR = \frac{TR}{q} = \frac{\bar{P} \times \cancel{q}}{\cancel{q}} = \bar{P} = MR$

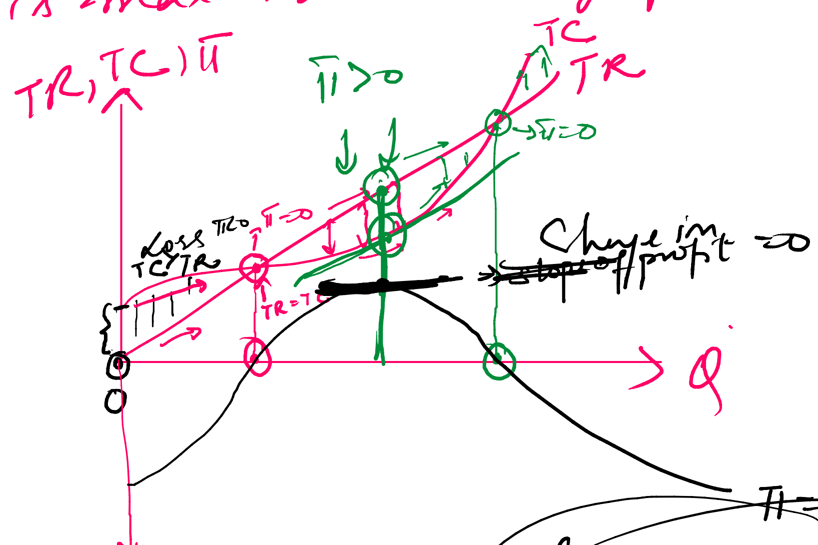
Only in PC market $AR = MR = \bar{P}$ (horizontal line).



Profit maximisation (TR − TC Approach)

Profit, $\pi = TR - TC$

Profit is max → where the gap between TR and TC is max.



$TC = TVC + TFC$

Conclude: profit is maximum where slope of TR = slope of TC

$\boxed{MR = MC}$

MR - MC ~~Approach~~

$$\Pi = TR - TC$$

for maximisation f.o.c, $\frac{d\Pi}{dQ} = 0$

$$\frac{dTR}{dQ} - \frac{dTC}{dQ} = 0$$

$$MR - MC = 0$$

$$AR = \bar{P} = \boxed{MR = MC}$$

Short-run equilibrium under a PC market.

(i) super-normal $\Pi > 0$

$TC < TR$

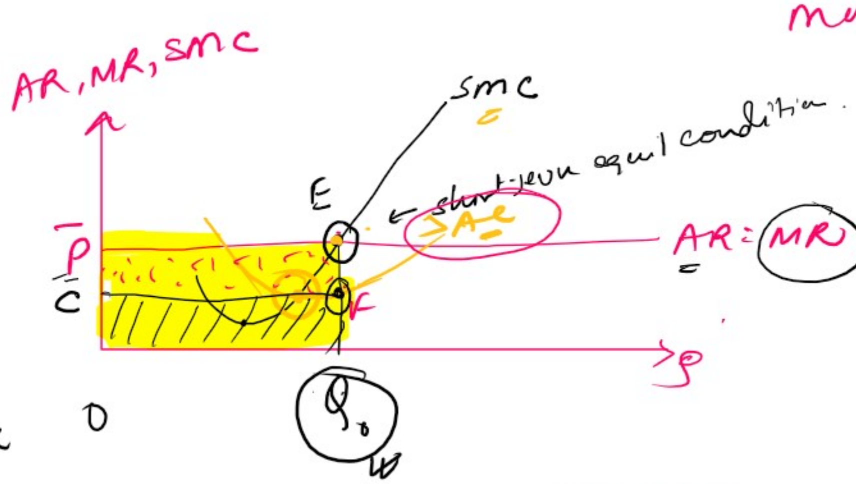
$AC < AR$

Normal $\Pi = 0$

$TR = TC$ or $AR = AC$

Loss $TR < TC$ $\Pi < 0$

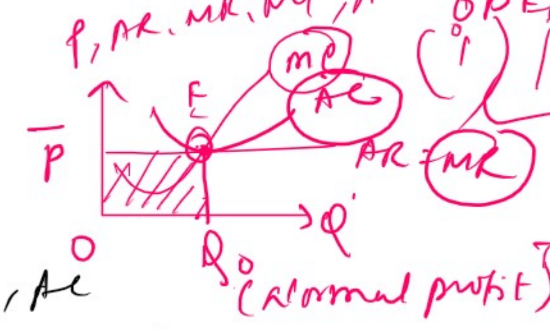
$\Rightarrow AR < AC$



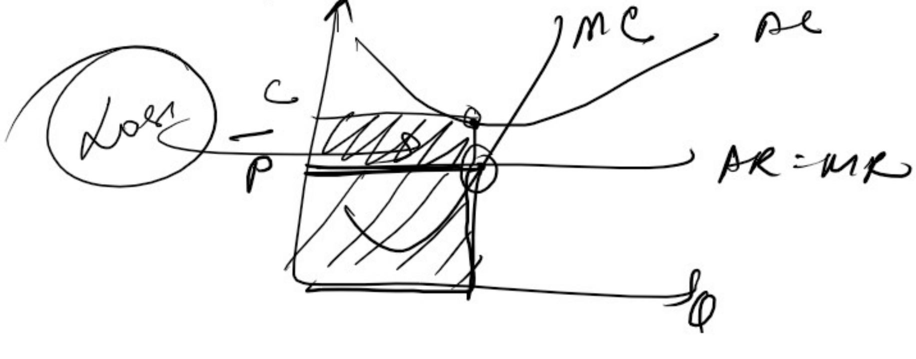
TR > TC

~~$O\bar{P}EQ_0 > OCFQ_0$~~

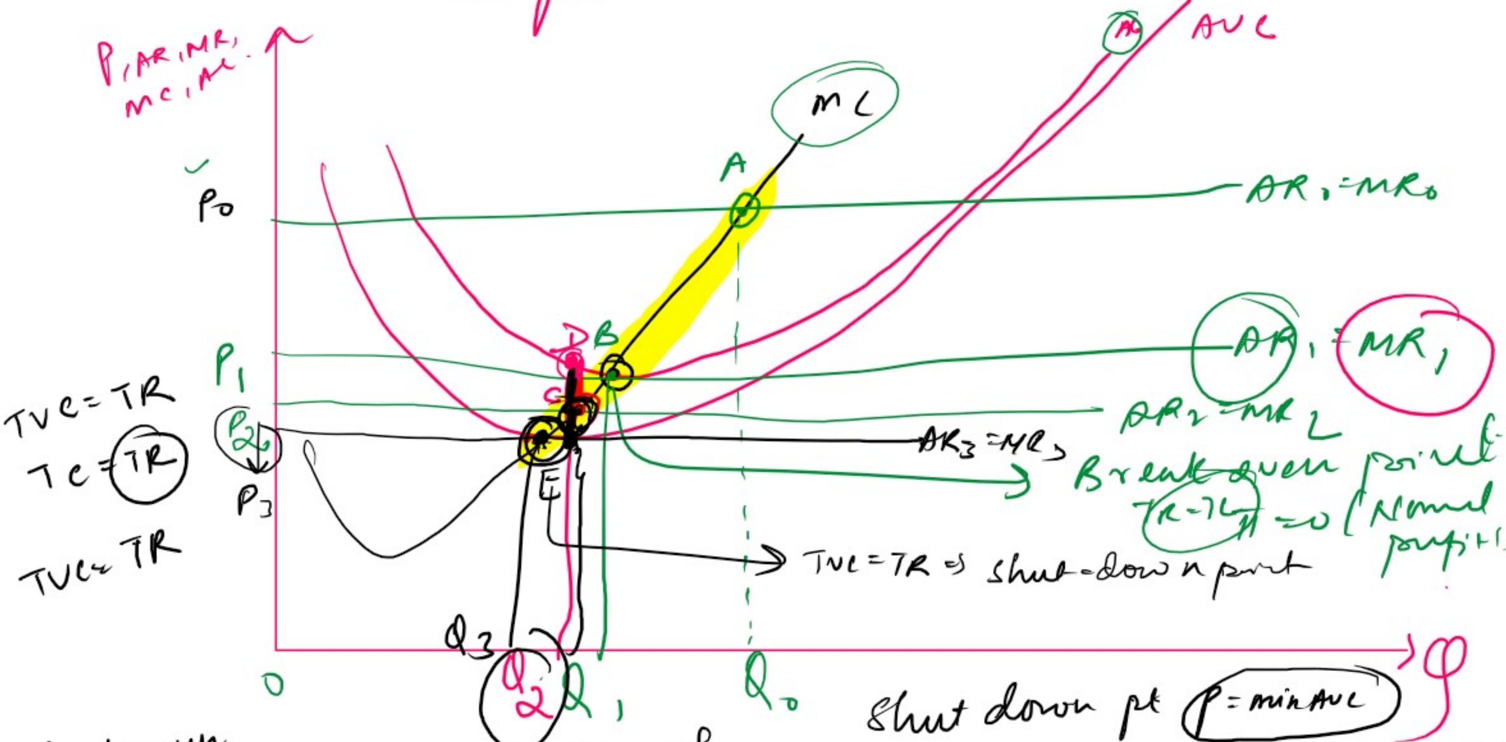
(i) $\Pi > 0 \Rightarrow C\bar{P}EF > 0$



(normal profit) $TR = TC \Rightarrow \Pi = 0$



Short-run supply curve under a PC market.



short-run supply curve is the portion of MC curve that lies above the min point of AVC curve.

Properties of monopoly market:

1. Single seller
2. Price is not const, sellers are price makers.
   Possibility of price discrimination.
3. No ~~substitute~~ substitutes ⇒ heterogeneous or non-identical or unique products.
4. Restrictions / Barrier to enter the market:

(4) Restrictions / Barrier to enter the market :

(i) copyrights, patents, licensing etc.

(ii) Economies of Scale

↓ is a situation (cost - advantage situation)

↓ when a firm enjoys increasing returns to scale

↳ AC of production falls

↓ it can sell product at a lower price which other small firms in the market cannot compete

↳ will exit the mar

only firm remains which claim of scale

Natural Monopoly

↳ L and K → Q

2L 2K → 3Q

$$\frac{TC\uparrow}{Q\uparrow} = AC\downarrow \text{ since}$$

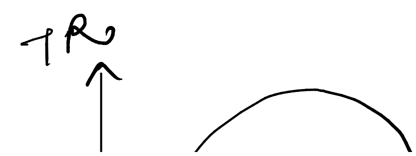
per unit cost of production decreases

Revenue curve under Monopoly market.

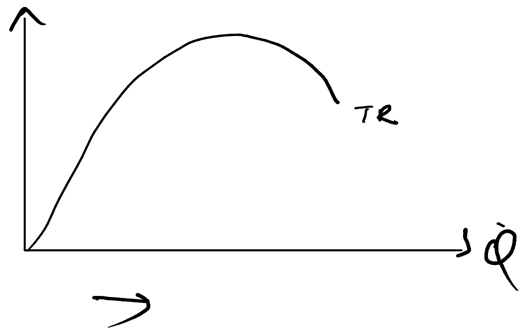
↳ TR is concave

$TR = P \times Q$

$TR = aQ - bQ^2$



$$TR = aQ - bQ$$



$$AR = \frac{TR}{Q} = P(Q)$$

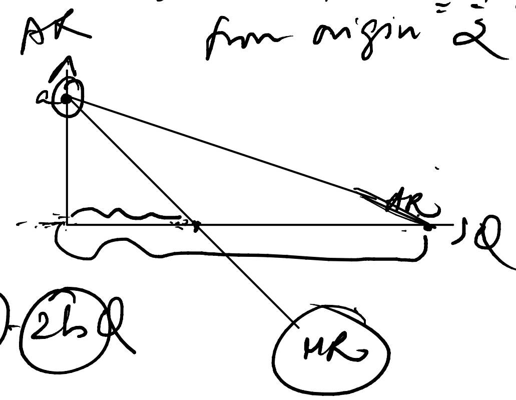
↳ demand curve

$$AR = a - bQ = P \Rightarrow \text{demand curve}$$

slope

intercept

distance of MR from origin $= \frac{1}{2}$ distance of AR from origin



$$MR = \frac{dTR}{dQ} = P + Q\frac{dP}{dQ}$$

$TR = aQ - bQ^2$ thus $MR = a - 2bQ$

Relation between AR, MR, TR and |ep|.

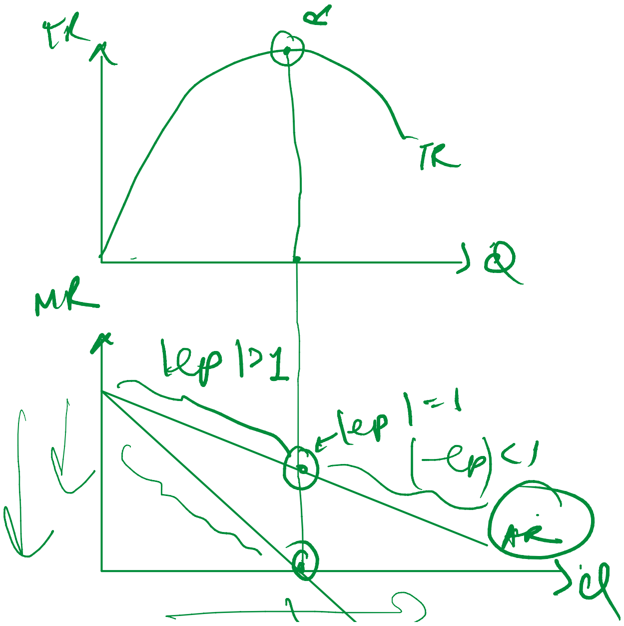
$$TR = PQ$$

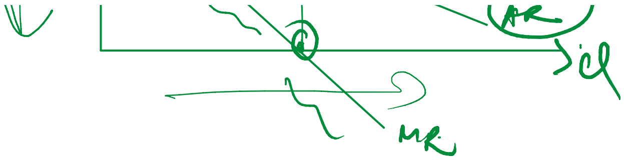
$$MR = \frac{dTR}{dQ} = P + Q\frac{dP}{dQ}$$

$$MR = P\left[1 + \frac{Q}{P}\cdot\frac{dP}{dQ}\right]$$

$$MR = AR\left[1 - \frac{1}{-\frac{P}{Q}\cdot\frac{dQ}{dP}}\right]$$

$$MR = AR\left[1 - \frac{1}{|ep|}\right]$$





$MR = P\left(1 - \frac{1}{|e_p|}\right)$

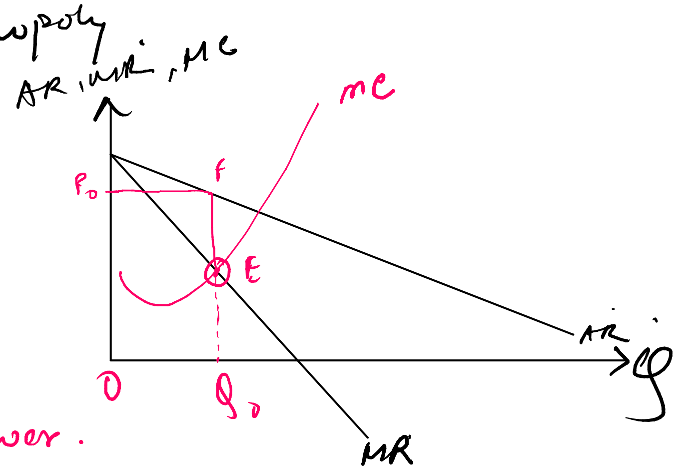
① $|e_p| = 1 \Rightarrow MR = 0$

② $|e_p| > 1 \Rightarrow MR > 0$

③ $|e_p| < 1 \Rightarrow MR < 0$

Short-run equilibrium.

condition under Monopoly



$\pi = TR - TC$

$0 = MR - MC$

$P > MR = MC$

↳ monopoly power.

Monopoly power → ability of the seller to charge a price higher than MC.

→ Lerner's index of monopoly power

$$L = \frac{P - MC}{P}$$

in equil $MR = MC$

$$\alpha = \frac{P - MR}{P}$$

$$\alpha = 1 - \frac{1}{\cancel{P}}\left\{\cancel{P}\left[1 - \frac{1}{|e_p|}\right]\right\}$$

$$\alpha = \cancel{1} - \cancel{1} + \frac{1}{|e_p|}$$

$$\alpha = \frac{1}{|e_p|}$$

$\therefore$ monopoly power is inversely related to the elasticity of demand

$\Rightarrow$ higher the elasticity $\rightarrow$ lower is the monopoly power and versa.

ex: in PC $\rightarrow$ demand curve is perfectly elastic

$e \rightarrow \infty$

$\rightarrow$ $\alpha = 0$

0 monopoly power