

10/10/22
Monday

M.E

Revenue Analysis

Unit 1 & 2

- Scope of economics
- Circular flow of economics
- Demand Analysis
- Elasticity of demand & measurement
- Cost
- Average cost & marginal cost.
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-

$$\text{Revenue} \pm P/C = \text{Cost}$$

$$\text{Revenue} = \text{Price} \times \text{Quantity}$$

Summation	Q_1, Q_2, Q_3
	P_1, P_2, P_3

$$\text{Total } R = P_1 Q_1 + P_2 Q_2 + P_3 Q_3$$

$$= \sum_{i=1}^n P_i \cdot Q_i$$

$$P = f(Q)$$

$$T.R = f(Q) \cdot Q$$

$$(TR)' = MR$$

$$MR = \frac{d}{dq} (P \times Q)$$

$$= \frac{dP}{dq} \cdot Q + P \cdot 1$$

$$MR = \left(\frac{dP}{dq} \right) Q + P$$

$$TR = P \times Q$$

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

Average is nothing
 revenue per unit
 in market.

$$\frac{MR}{AR} = \frac{P \cdot \frac{dQ}{dP}}{Q \cdot \frac{dP}{dP}} = \frac{P}{Q} \cdot \frac{dQ}{dP}$$

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

$$\frac{MR}{AR} = 1 - \frac{1}{Ed}$$

Ed = elasticity of
 demand

$$\frac{1}{Ed} = 1 - \frac{MR}{AR}$$

$$\text{or } \frac{1}{ed} = \frac{AR - MR}{AR}$$

$$ed = \frac{AR}{AR - MR}$$

similarly

$$MR = AR \left(1 - \frac{1}{ed} \right)$$

Q: if $ed = 0.6$ and Price = £10, what should be marginal revenue for selling extra unit?

$$MR = 10 \cdot \left(1 - \frac{1}{0.6} \right)$$

$$MR = 10 \left(1 - \frac{10}{6} \right)$$

$$MR =$$

Q.

$$ed_1 = 0.1$$

$$ed_2 = 1.6$$

$$ed_3 = 0.9$$

$$ed_2 > ed_3 > ed_1$$

Q. what should be minimum price?

$$-5 \cdot \frac{4}{6} =$$

$$\text{e. if price} = £20$$

$$Q: \quad ed = 2.5 \\ MP = 15$$

$$15 = AP \left(1 - \frac{2}{5}\right)$$

$$AP = \frac{150}{62} = \pounds 25$$

if we fix $\pounds 25$ price

* Cost is to be seen in respect to 25.

- 1 Average cost
- 2 Marginal cost :
- 3 Average cost revenue
- 4 Elasticity demand
- 5 Quantity produced
- 6 Nature of AP

Can Study

A

$$M.C = \pounds 10 \\ MP = \pounds 15 \\ ed = 0.5$$

B

$$M.C = \pounds 15 \\ MP = \pounds 16 \\ ed = 1.5$$

- * What is price for market A & B?
- * Which is more profitable company to invest?

for A

$$15 = AR \left(1 - \frac{1}{0.5}\right)$$

$$AR = \pounds 15$$

for B

$$16 = AR \left(1 - \frac{2}{3}\right)$$

$$AR = \pounds 48$$

\therefore Enter market B
if 100 sold

Total Revenue $\pounds 4800$

Total cost
= 100 \times 40

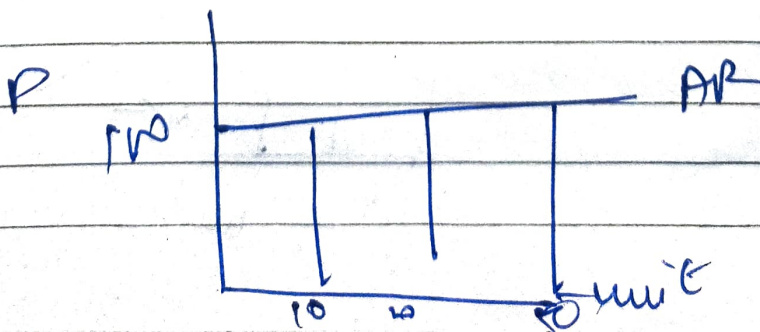
Perfect & Imperfect market

large no of sellers, substitute at same price
eg fish / meat market.

no seller can influence the price.

\rightarrow influenced by suppliers & demand.

Perfect market



always be
parallel to
x axis
Spiral

$$MR = \frac{TR_n}{TR_{n-1}}$$

for 20 units $TR = 2000$

at 10 units $TR = 1000$

$$\Delta TR_{(10 \text{ units})} = 1000$$

for 30 units $TR = 3000$

$$\Delta TR_{(20 \text{ units})} = 1000$$

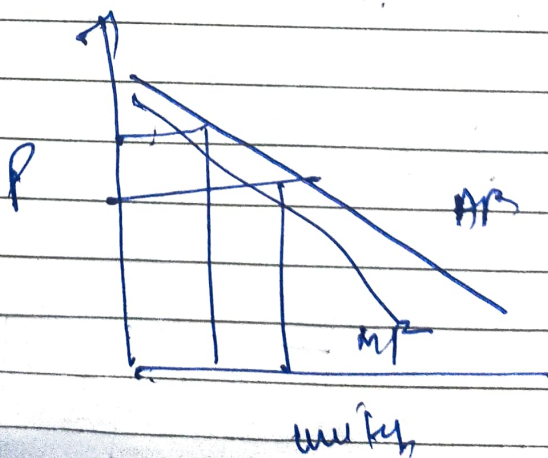
if price is fixed

$$\therefore AR = MR$$

always be coinciding in perfect market

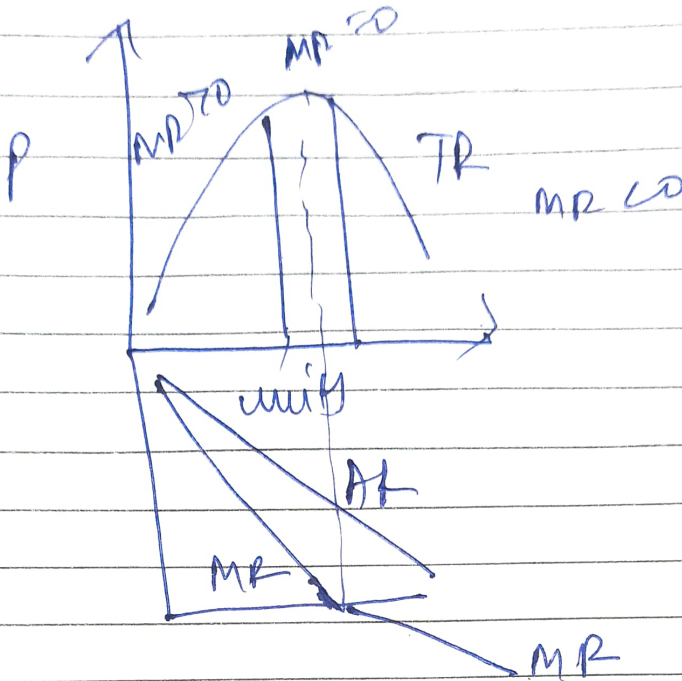
Imperfect market

- Single seller
- duopoly
- oligopoly
- monopoly



$$\text{If } \frac{d(AR)}{dq} < 0 \quad \therefore \boxed{m < AR}$$

Why??



If $MR = 0$, $TR = \text{constant}$

When MR is negative, TR is declining.

(i) $MR < AR$, imperfect

(ii) $MR = AR$, in perfect market

(iii) $MR = 0$, TR is constant

(iv) $MR < 0$, TR is falling. ($AR > MR$)