Economics

The need for studying economics

- Limited resources and unlimited wants
- When we consume any item, it generates wellness / satisfaction / utility
- When satisfying power of a commodity - utility

Cardinal measurement of utility	Ordinal measurement of utility
→ Utility of a commodity is the money value, the consumer is ready to pay at the particular time	→ Can't quantity utility → Utility is relative • People who believe in it are called ordinalists
→ Utility can be quantified	

- With increase in quantity consumed of a commodity, the willingness of a consumer to pay for it, decreases gradually

Marginal Utility

$MU = \frac{\Delta TU}{\Delta C}$ → Change in total utility
→ Unit of consumption

		TU	MU
1st glass of water	→ 10/- →	10	10
2nd	→ 7/- →	17	7
3rd	→ 5/- →	22	5

→ want satisfying power of each and every commodity is marginal utility.

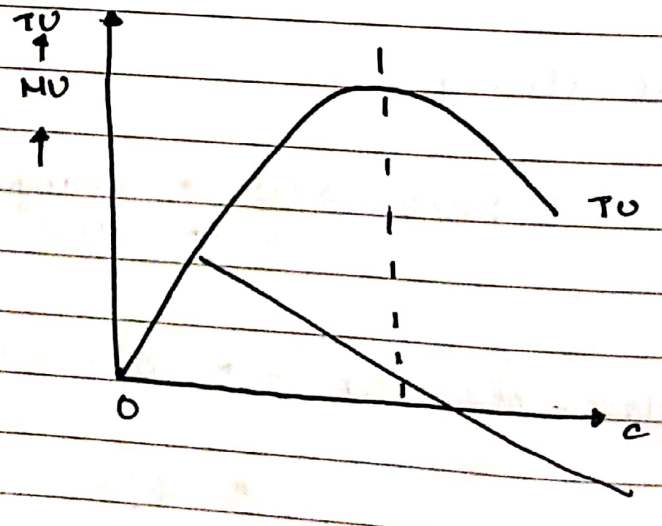
→ MU decreases with increase in quantity of commodity consumed.

Assumptions made :-

→ Consumer must be a rational human being
→ Utility is additive
  ↳ Util is it's unit
→ Consumer is yet to attend the level of satisfaction.
→ It follows law of diminishing marginal utility.

Law of Diminishing Marginal Utility

When more unit of a commodity is consumed, want satisfying power of each and every succeeding unit will decrease.



Consider x a commodity,

$$MU_x = P_x \cdot MU_m$$

↑ Price consumer is ready to pay

↑ Marginal utility of money

similarly another commodity Y,

$$MU_y = P_y \cdot MU_m$$

$$\rightarrow \quad \frac{MU_x}{MU_y} = \frac{P_x}{P_y} = MU_M$$

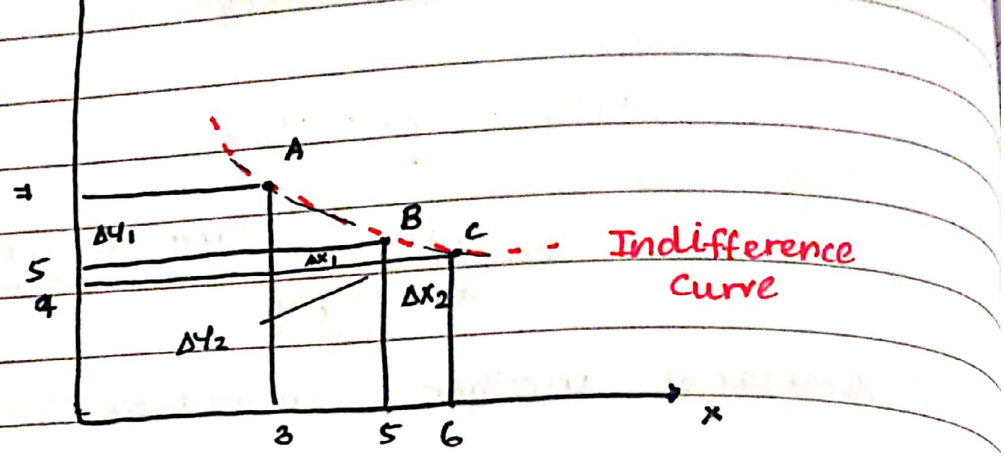
$$\rightarrow \quad \frac{MU_x}{P_x} = MU_M = \frac{MU_y}{P_y}$$

Ordinal Measure of Utility

- Utility is relative
- Money follows constant marginal utility

Assumptions made

- Consumer must be a rational human being
- Consumer is yet to attend level of satisfaction.
- Resources are limited, because of which prefrences come to picture.
- Atleast 2 commodities
- Transitivity → $A \succ B \succ C$, ⇒ $A \succ C$
- It follows law of diminishing rate of substitution.



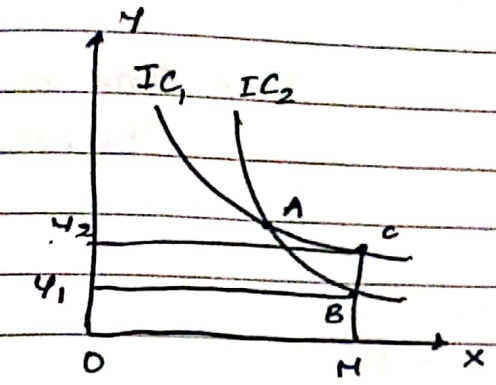
A, B, C → The combination of x, y maybe different, but they might be giving same amount of satisfaction

Between A, B, C, I may be indifferent, in terms of generation of utility

$$\frac{\Delta Y_1}{\Delta X_1} > \frac{\Delta Y_2}{\Delta X_2} > \frac{\Delta Y_3}{\Delta X_3}$$

$MRS = \frac{\Delta Y}{\Delta X}$ → Marginal rate of substitution is decreasing

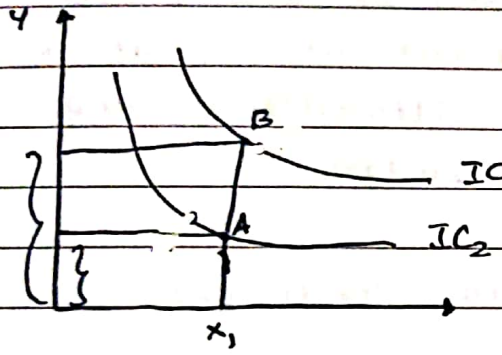
↑ Marginal rate of substitution



Here quantity of x, y is same, but level of satisfaction is diff, rather greater in C.

Thus, the consumer would obviously prefer C over B

Thus, two indifference curves never meet



Commodity at B > Commodity at A

Higher the IC, higher is the level of satisfaction

Budget Constraints

M = disposable income (After tax income)

$M = x \cdot P_x + y \cdot P_y$

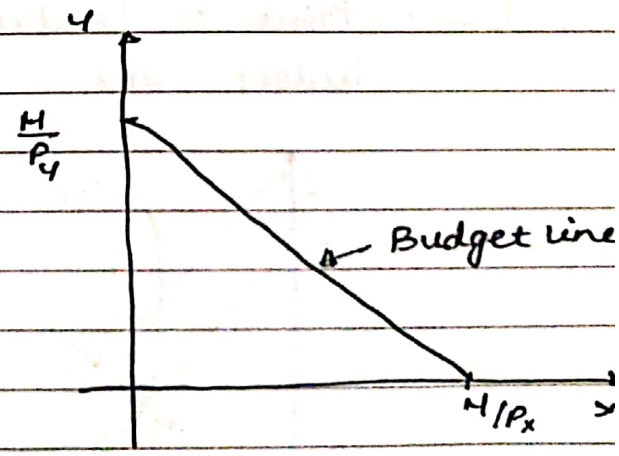
M: Money you're ready to spend x, y

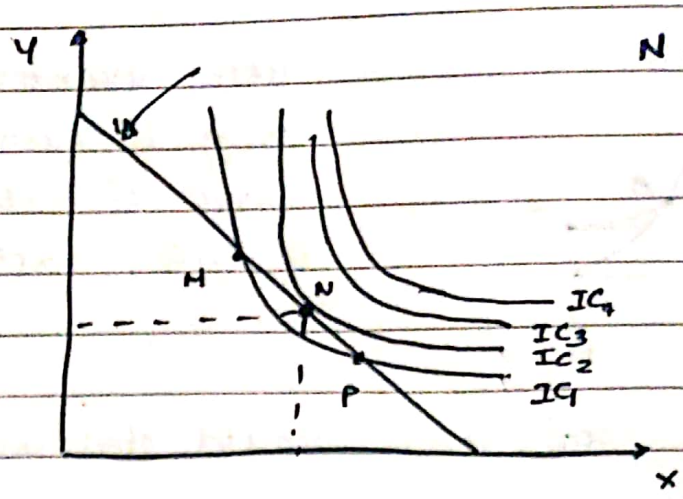
P_x, P_y: Per unit price

x, y: No. of units

$$x = \frac{M}{P_x} - \frac{P_y}{P_x} y$$

$$y = \frac{M}{P_y} - \frac{P_x}{P_y} x$$





N → Consumer Equibrium

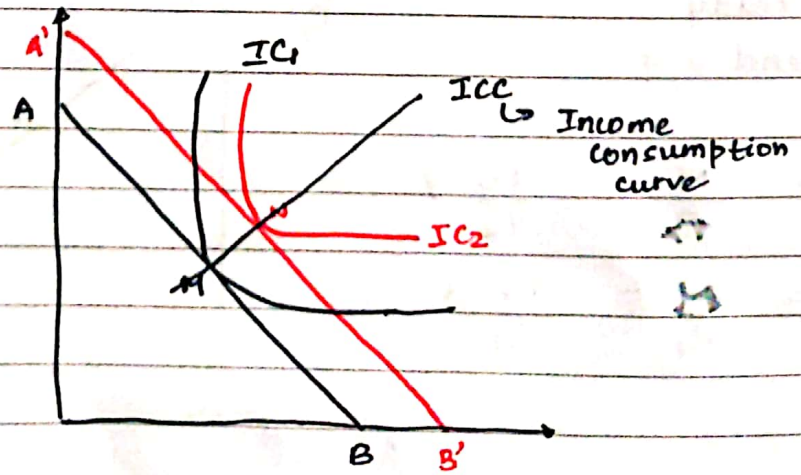
we will always try to be under the budget line, and stay have higher level of satisfaction. Thus, we will prefer "N" We are maximizing our utility at N and also level of satisfaction and staying under the budget line.

Consumer Equilibrium conditions

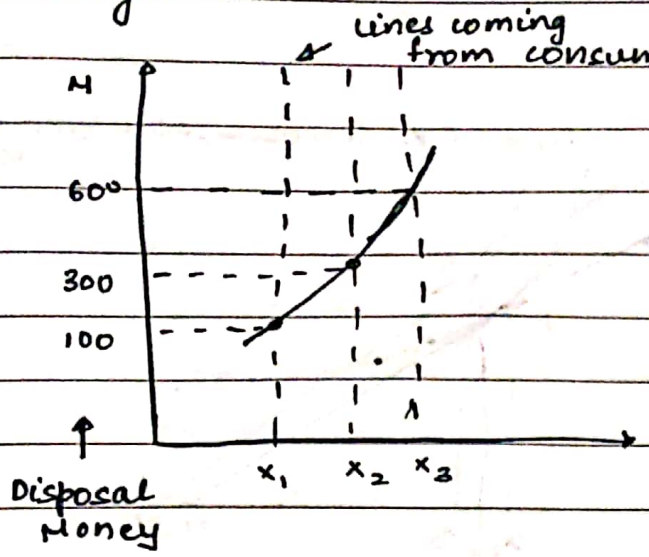
① $MRS = \frac{P_x}{P_y}$

② ① is fulfilling at highest IC curve

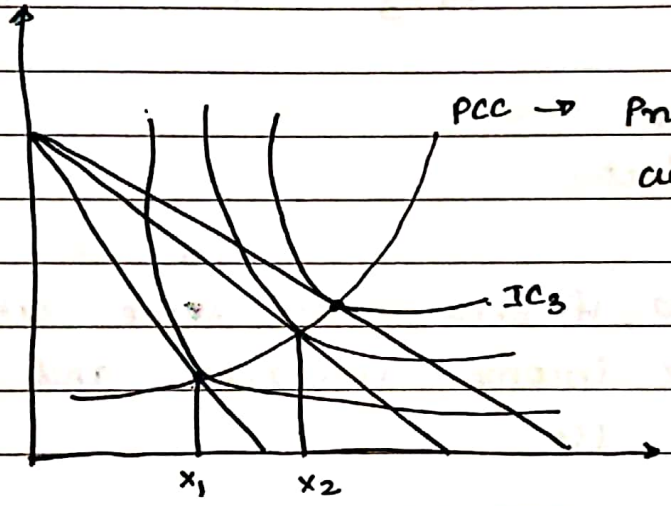
→ Point of tendancy between IC curve and budget line



CLE Angel

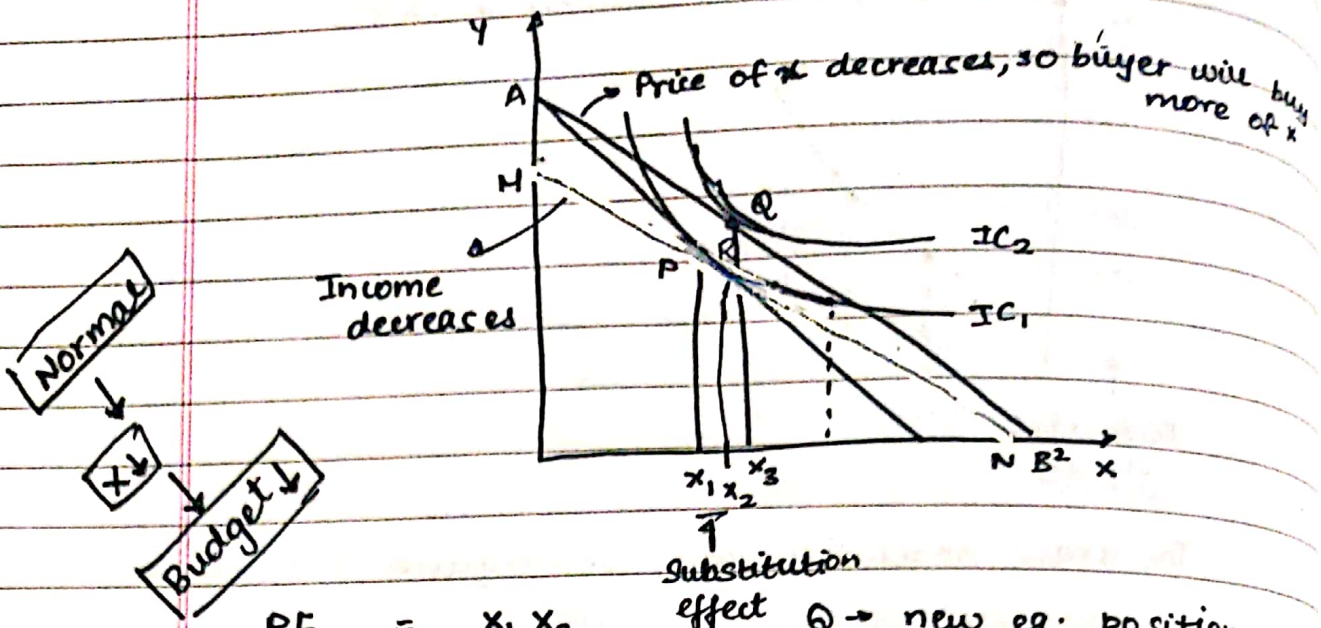


To draw Angel curve, we require ICC curve



locus of points of eq. of consumer eq., drawn due to decrease in price of commodity

Hicksian Approach



PE = $X_1 X_3$

↑

Price effect

Now, if because of some external factors our income decreases, and we come back to IC_1

X_2 → is the new eq. in IC_1 after income decreased.

The new budget line is parallel to AB'

IE = $X_2 X_3$

↑

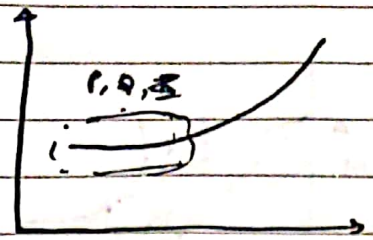
Income Effect

SE = PE - IE

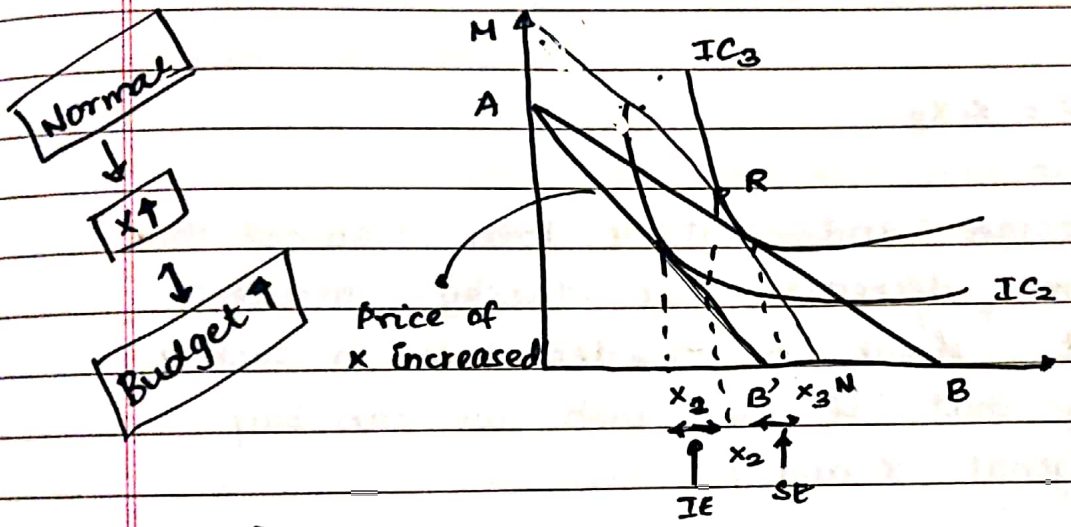
= $X_1 X_3 - X_2 X_3$

= $X_1 X_2$

→ P, Q, R is following the pattern of PCC curve mostly lie in the horizonal



Q, R follows ICC curve



PE = X_2X_3

Consider Income increases (MN)

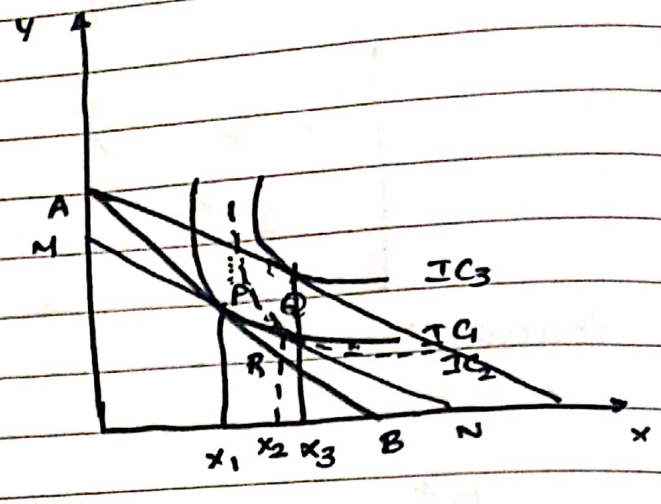
IE = X_1X_2

SE = PE - IE

= $X_1X_3 - X_1X_2$

= X_2X_3

Slutsky's Approach



PE = X_1X_3

Hicksian and Slutsky both assumed that income decreases, but Slutsky considered that, if our income decreases in such a way that if we wish we can buy orignal X and Y

MN is no more tangent to IC_1

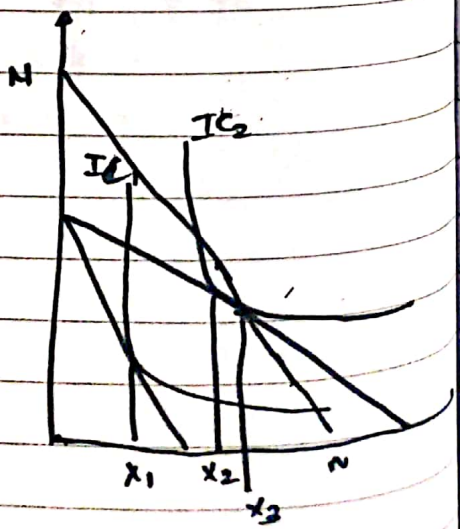
IE = X_2X_3

SE = X_1X_2

PE = X_1X_3

IE = X_1X_2

SE = X_2X_3



Demand and Supply

- Demand is desire for something, that for which we have purchasing power and willingness to pay.

Potential buyer: Having the purchasing power to buy a good

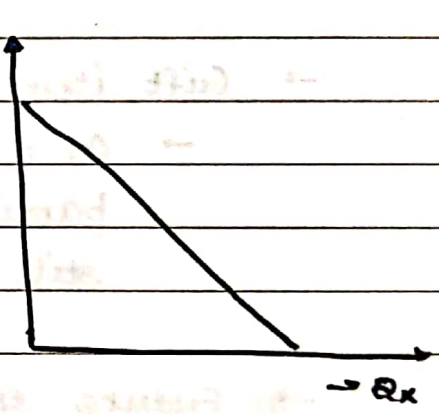
For short run, most of the parameters remain constant.

In short run, we ~~are~~ the demand is mostly dependent on price of the commodity

$Q_x = f(P_x)$

Q_x ↑ Quantity dependent on x

P_x ↑ Market price of x



Higher the P_x, lower is what we purchase

$Q_x = a - bP_x$ (or) $Q_x = a P_x^{-b}$

Can have diff forms

For long run, Q_x is dependent on various factors

$Q_x = f(P_x, I \ldots)$

I ↑ Income

Law of Demand

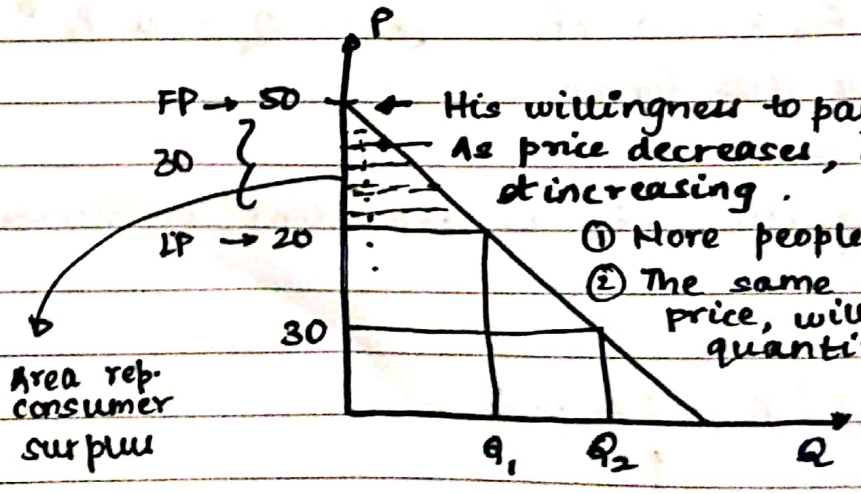
In a short run, when all other params are at a const. level, th as the price of a commodity increases, it's Q_x decreases and vice-versa.

Exceptions to law of demand

→ Giffen goods
- → It isn't any specific good
- → Maybe any essential commodity consumed by poor household that constitute a major portion of their income.

→ Gift item
- → On a special occassion, demand for a particular commodity increases, but still people are purchasing.

→ Future expectation of price rise.
- → We are expecting a price rise, th.so we buy more quantity

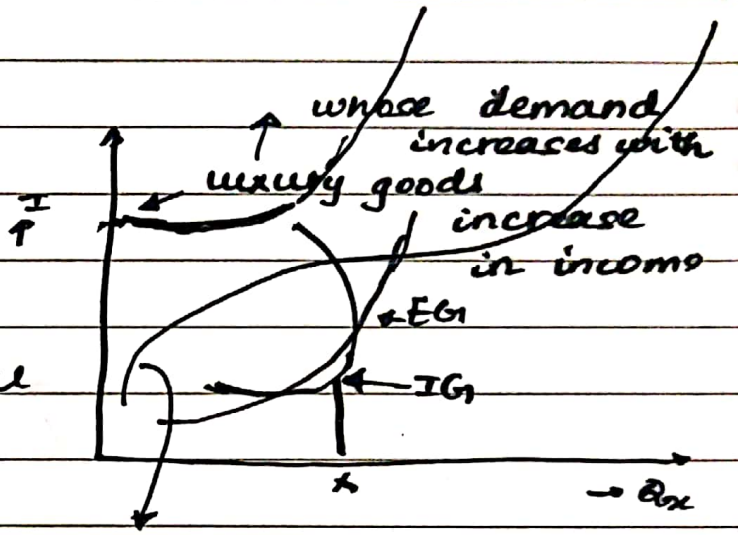


For the first person (FP), there is a surplus of 30 Rs, he was ready to pay 50 Rs, now he gets more q at a lesser price of 20 Rs, thus he's having 30 Rs. This surplus is called consumer surplus. (This depends on the person and their max amt.)

As price decreases, consumer surplus increases

Long Run Situation

$Q_x = f(P_x, I$



Essential goods
↳ Essential for survival

Inferior goods
↳ whose demand dec. with increase in demand

↳ Initially my income is less, so my target is to reach 'x', but when the income increases, then we try to replace 'x' with other commodity.

New consumer :- People who weren't buying previously, started buying.

In long-run,

Taste :- Consider Tea - Coffee.

Initially a person tea as his favourite beverage, may switch over to coffee (maybe due to price dec. in coffee) in the long run. Due to which demand for tea will go down; ~~as tea d~~

Price of compt. gds: Consider tea, sugar

If price of sugar increases, we will buy less sugar. Due to which we will consume less tea, so demand for tea decreases.

Demonstration Effect :-

- Bandwagon Effect
- Snob Effect

Consider no one has 4-wheeler
Not having a 4-wheeler, but has a purchasing power. One person has this weird thought of buying a 4-wheeler. Looking at this person, others starts buying

When item becomes a "common" item, being used by everyone. People stop using it.

Consumer Credit facility

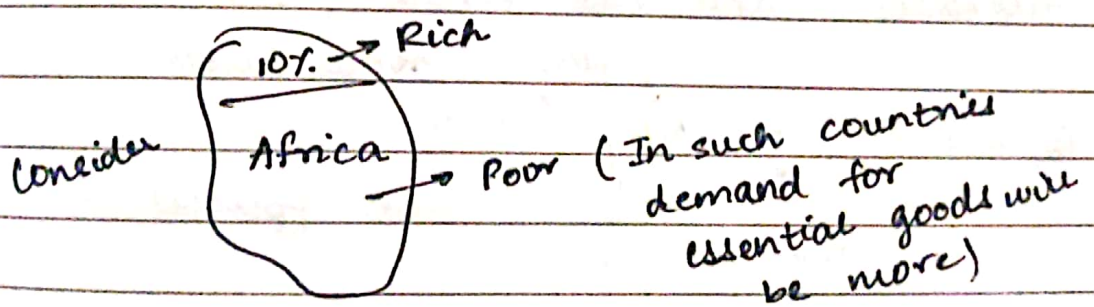
Consider two products, ① with CCF, ② without CCF

People will buy product with CCF as we may not have the money to buy the product.

This facility has a positive impact on consumer

Population

- Macro economic factor.
- In diff. populations, distribution of income is diff.

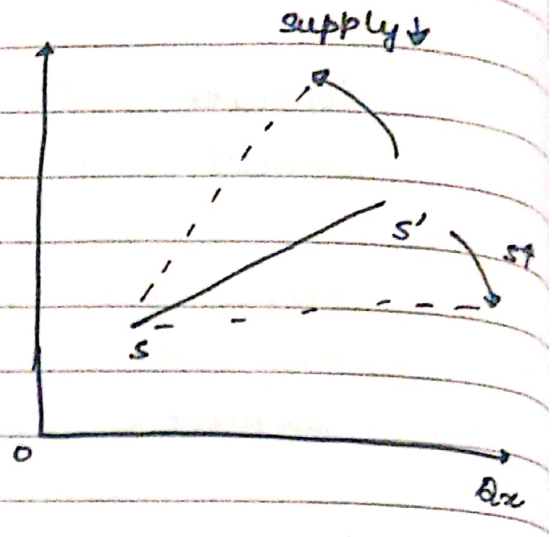


Supply :

→ $f(P_x) = Q_x$

↑

In short run, Quantity of supply



If market price is more, ⇒ supply is more.
If market price is less, supply is less

Law of supply

All other things are at certain level, if price of a commodity increase, supply increases and vice-versa, for a short run

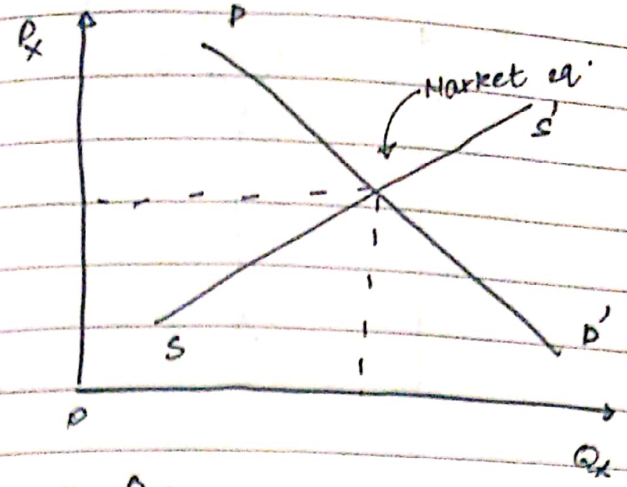
Non-economic factor

$Q_x = f(P_x, T, NE, GP..)$

↑ Technology

↑ Govt. policies

labour strike,
fire breakout,
heavy rainfall



Today → P_t → $Q_{x_{t+1}}$

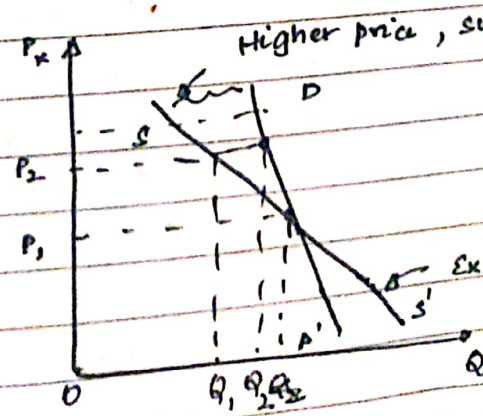
P_{t-1} → Q_x

Quanitity in supply today, is influenced by yesterdays price

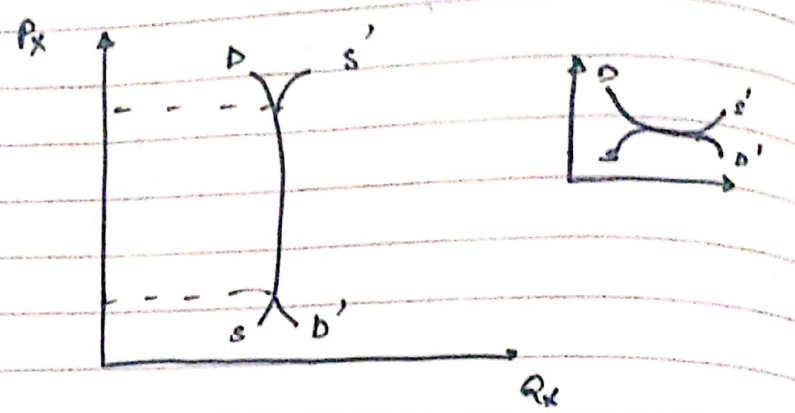
Supply is a lag fn: of price.

Quantity demanded is equal to quanitity supply ⇒ Market eq.

→ Market eq. under → static condition → stable eq.
→ Unstable eq.
↳ Dynamic condn:



If price further increases to P3, the demand and supply diff increases, thereby causing an unstable eq. which is diff. to attain its original eq.



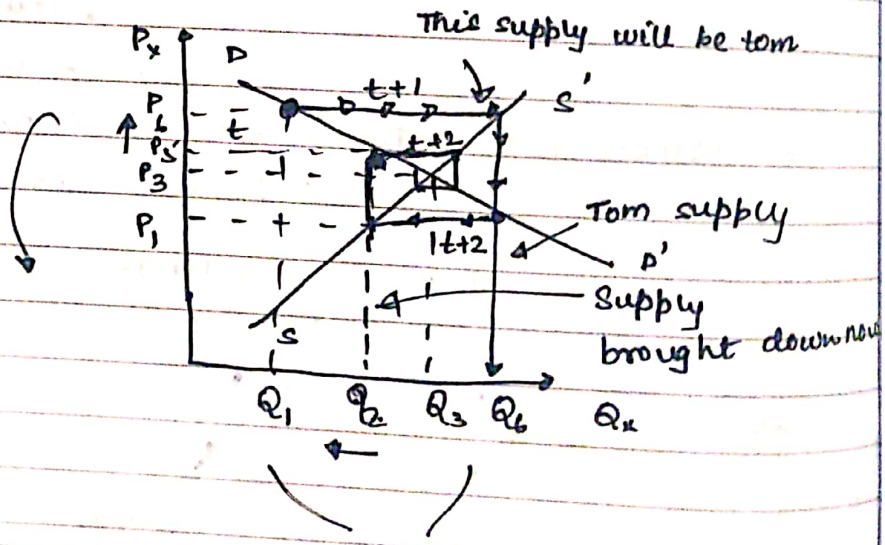
Neutral eq.

Though there is change in price, there is no change in eq.

Dynamic Condition

Cob web Theorem

① Stable eq.

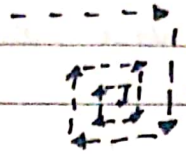


Which makes supply > demand

So it will bring down the price in such a way, it will everything

So I reduce price to P_1

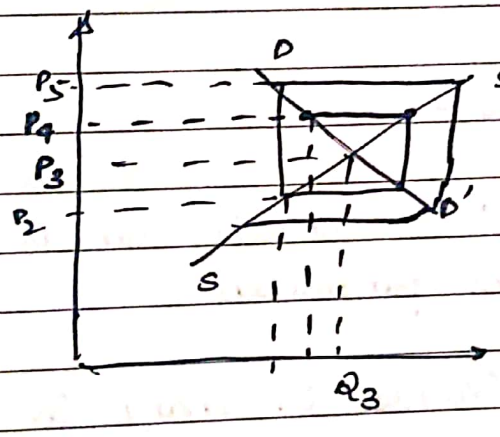
Only temporary stability is attained, but not permanent



This the pattern followed
Finally, we reach the eq. point

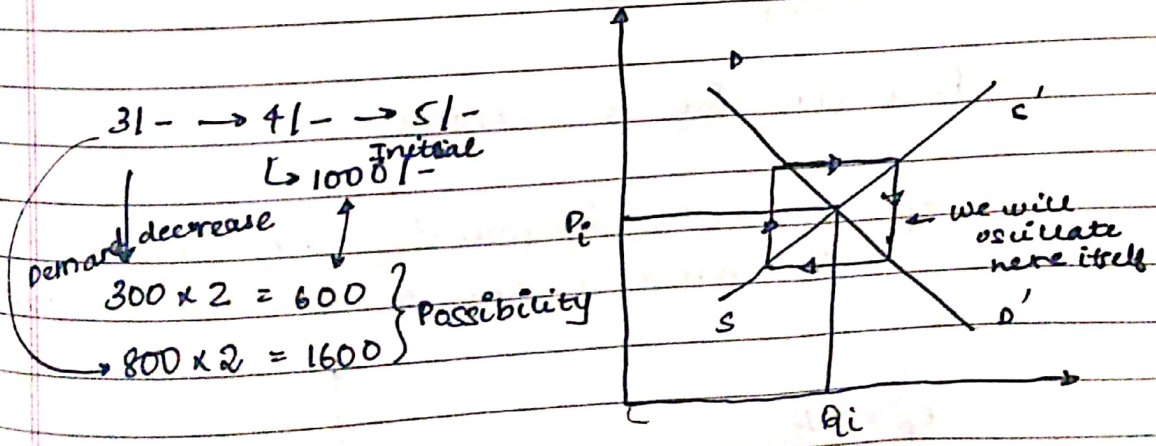
When slope of demand curve > Slope of Supply curve

② unstable Eq.



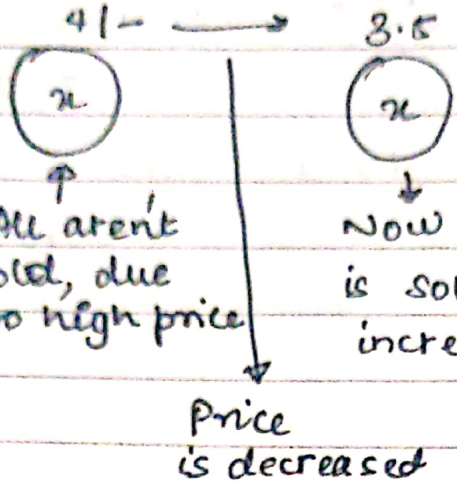
System is divergent

③ Oscilating equilibrium



Reverse strategy -

When demand is highly sensetive to price, we decrease the price, so that demand boosts and we get profit



Elasticity :-

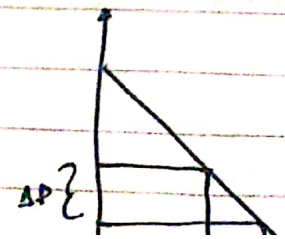
① Demand - Elasticity can be discussed w.r.t different parameters

Responsiveness in change in ~~com~~ quantity demanded for commodity w.r.t any of the parameter.

Price elasticity of demand -

$$e_p = \frac{\%\text{ change in quantity demanded}}{\%\text{ change in price of the same commodity}}$$

$$e_p = \frac{\Delta Q/Q}{\Delta P/P}$$



Arc elasticity → Measuring between two finite pts.
Considerable change in price, and resultant change in demand

Point elasticity →

$$e_p = -\frac{dQ}{dP} \cdot \frac{P}{Q}$$

consider $Q = a - bP$,

$$e_p = -b \cdot \frac{P}{Q}$$

$Q = aP^{-b}$

$$e_p = -b\,a\,P^{-b-1}\,\frac{P}{Q}$$

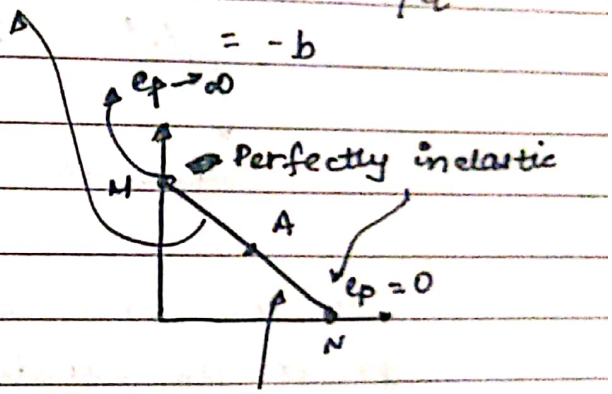
$$= -b\,aP^{-b}/Q$$

$$= -b$$

Relatively elastic
$e_p > 1$

$e_p = \frac{\text{lower segment}}{\text{Upper segment}}$

$e_p = \frac{AN}{AM}$



if A is mid-point,
$e_p = 1$ ↔ Unitary elastic

$e_p < 1$
↑
Relatively inelastic

$e_p = -0.8$ ⇒ If we increase price by 1% then decrease in quantity demanded is 0.8%.

Determinants of Price elasticity of demand

① Nature of commodity

↳ Salt (essential) → I: 20/- F: 25/-

I will still buy.

↳ AC → I: 30k/- F: 35k/-

Immediately I won't buy

② Availability of Substitutes :

A ↑ B ↑ ← Relatively inelastic

↳ NO substitute

↳ Substitute

As the price of A increases, people would prefer the substitutes and demand decreases

③ Proportion of income spent

↳ Salt (0.001%) ← Relatively inelastic

↳ AC (50%)

(we will definetly be concerned about ~~price~~ increase in price of AC)

④ Time require to adjust ← Relatively inelastic

↳ Matchbox 2/- → 3/- (Easily adapt

⑤ No. of alternative uses of a commodity

↳ Milk (Curd, yogurt, cheese)
(So, if price of milk increases, we will restrict ourselves from using it. Thus, relatively elastic)

$$e_p = -\frac{dQ}{dP} \cdot \frac{P}{Q}$$

$$TR = P \cdot Q$$

TR ↑ Total Revenue; P ↓ Market price; Q ↑ Quantity produce

TC = Total cost

$$\pi = TR - TC$$

↑ Profit

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

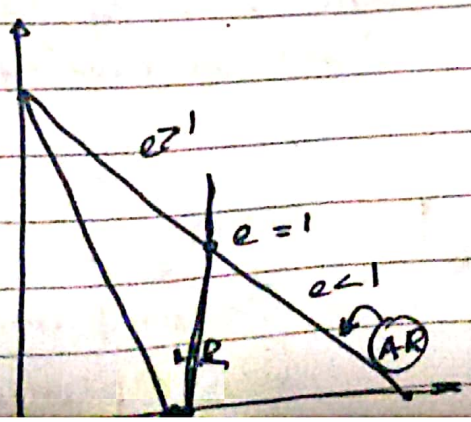
AR ↑ Avg. Rev.

$$MR = \frac{d(TR)}{dQ} = \frac{d(PQ)}{dQ}$$

MR ↑ Marginal Rev

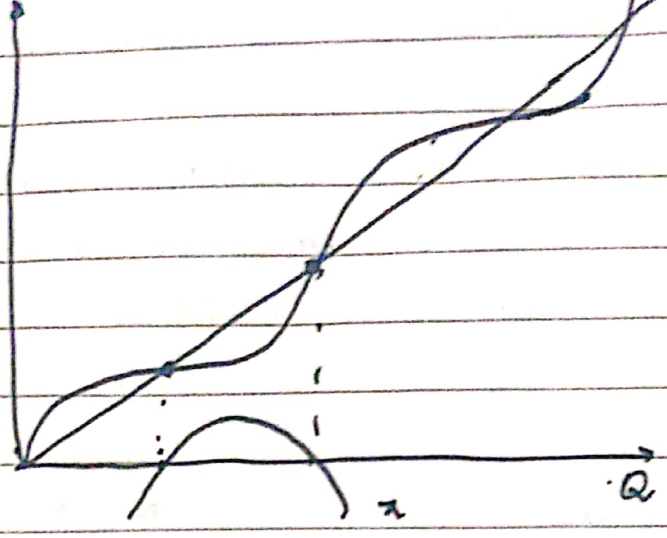
$$MR = P\left(1 + \frac{Q}{P} \cdot \frac{dP}{dQ}\right)$$

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



$Q = a - bP$

MR will have a slope twice of AR



Income elasticity of demand

$$e_i = \frac{\%\text{ change in qty demanded}}{\%\text{ change in income of consumer}}$$

$$e_i = \frac{dQ}{dM} \cdot \frac{M}{Q}$$

In normal good $e_i > 0$, inferior good $e_i < 0$

Cross elasticity of demand

$$e = \frac{\%\text{ change in qty demanded for com. A}}{\%\text{ change in price of commodity B}}$$

$$e_{c,t} = \frac{dQ_t}{dP_c} \cdot \frac{P_c}{Q_t}$$

c → coffee
t → tea

(+) $\bar{P}_t$ $P_c \downarrow$ $D_t \downarrow$ ← Though price of tea isn't decreasing.

(−) $\bar{P}_B$. $P_{butter} \downarrow$ $D_B \uparrow$

−0.8

① complementary
② complement decreas