ECONOMICS

CH-1

UNIT - 1

Nature and Scope of Business Economics

→ **Basic Introduction**

- Economics is derived from **Greek** word **OIKONOMIA** (means **Household**)
- Till 19th century Economics was Known as **Political Economy**
- Father of Economics

1776

Adam Smith

First modern work of Economics

→ "The Wealth of Nations"

- Economics is study of processes by which the **relatively scarce resources** are allocated to satisfy **unlimited human wants**

Two fundamental facts

- **Unlimited** human wants
- **Means** to satisfy the wants are limited
  - साधन (Resources)

* Modern Economists say that **it** is a narrow definition. In day to day events there are various **economic issues**. "**Study of economics cannot ensure that all problems will be appropriately tackled, but it would enable us to examine a problem in its right perspective.**"

Global crises 2007-2008

Global crises 2007-2008
Corona Pandemic 2019-2020

→ **Business Economics**

The survival & success of any business depends on sound decisions

Various theories & techniques

(+)

Business Economics Integrates economic theory with Business Practice

* Business Economics is also Known as Managerial Economics or "Applied" Economics

It fills the gap between economic theory and Business Practice

* Business economics has close connection with Economic theory (Micro & Macro), Statistics, Mathematics, Operation Research etc

* Joel Dean defined Business Economics in terms of the use of economic analysis in "formulation of Business policies"

→ **NATURE of BUSINESS ECONOMICS**

→ NATURE of BUSINESS ECONOMICS

Business Economics is **Science** → Cause & Effect Relationship

P ↑ D ↓
P ↑ S ↑

Business Economics is an **ART** → कला

Based on **MICRO** Economics

Incorporates elements of **MACRO** analysis

Business Economics uses theory of **Markets**

CH4

Business Economics is **PRAGMATIC**

Practical

Interdisci-plinary in nature

Macro eco / Micro eco — discipline (subjects) — Maths, Stats — OR

Business Economics is **NORMATIVE** → POSITIVE नहीं है

	POSITIVE	NORMATIVE
①	What is (क्या है)	What ought (should) to be (क्या होना चाहिए)
②	It can be verified [Mercury is the largest planet]	It cannot be verified [Burger is better than Pizza]
③	It is **not suggestive** (सलाह नहीं)	It is **suggestive** (सलाह)

	(सलाह नहीं)	(सलाह)
④	Value judgements (X) (judge नहीं करेगा)	Value judgements (✓) (judge करेगा)

→ **SUBJECT MATTER OF Business Economics**

study of trees — Study of forest

MICRO economics	MACRO economics
• Study of Individual units	• Study of aggregates i.e economy as a whole
• It is also Known as PRICE theory	• It is also Known as Income & Employment theory
• Tools - Demand & Supply	• Tools - Aggregate demand & Aggregate Supply
• Examples (R)	• Examples (R)
→ Behaviour of firms	→ Employment Rate
→ Product pricing	→ Balance of Payment
→ Location of Industry	→ National Income
→ Consumer Behavior	→ General price level
→ Economic condition of section of society	→ Overall Savings and overall investments
→ Factor pricing	→ External value of currency

* SCOPE of Business Economics *

Internal Issues (Operational Issues)	External Issues (Enviornmental issues)
• This can be solved using MICRO ECONOMICS	• This can be solved using Macro Economics

- This can be solved using **MICRO ECONOMICS**
- **Demand** analysis and forecasting
- **Production** & **Cost** analysis
- **Inventory** management
- Market structure and "**pricing policies**"
- Resource allocation
- Capital and Investment decision
- "**Profit analysis**" - i.e management of profits under conditions of uncertainity
- **Risk** and **Uncertainity** analysis
  - Risk → Can be predicted
  - Uncertainity → Cannot be predicted

- This can be solved using **Macro Economics**
- Type of economic system (Capitalist, socialist & Mixed)
- Stage of Business cycle (Ch 5)
- **General trends** in National Income, employment etc
- Working of **Central Bank**
- Socio - Economic **organisations**
  eg - Trade Unions.

- Social & Political environment

X ——— X ——— X ——— X ——— X ——— X

CH-1 Unit 2

ECONOMICS

BASIC PROBLEMS OF AN ECONOMY

(CENTRAL PROBLEMS)

What to produce?
(क्या और कितना?)
- Consumer good (finished) OR Capital good (producer)

How to produce?
(कैसे?)
- Labour intensive technique OR Capital intensive technique

For whom to produce?
(किसके लिए?)
- which section of the society (Rich or Poor)
- DISTRIBUTION problem

What provisions should be made for economic growth
- How much saving & investment should be made for future progress

✳ CAPITALIST ECONOMY ✳

- Free Market

✳ CAPITALIST ECONOMY ✳

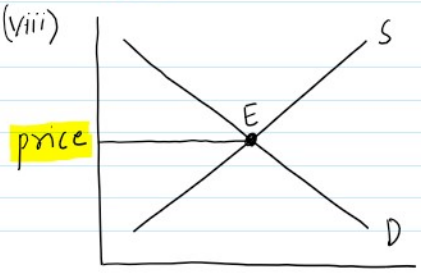
Free Market economy OR Laissez-Faire

US economy, Hong Kong, South Korea etc

policy of leaving things to take their own course

FEATURES

(i) Right to private property
(ii) Freedom of enterprise
(iii) Freedom of economic choice
(iv) Profit Motive
(v) Consumer SOVEREIGNITY "is KING"
(vi) High competition.
(vii) NO Government
(viii)



MERITS

(i) Self Regulating price mechanism
(ii) Greater efficiency & incentive to work
(iii) Economic growth is faster
(iv) "Optimum" allocation of Resources
(v) Consumers are benefitted
(vi) Freedom of choice
(vii) Rewards men of initiative and punishes inefficient.
(viii) Democratic framework is there.

"सबको आज़ादी"

DEMERITS

(i) INEQUALITY - Two classes of society

HAVES HAVE-NOTS

(ii) Property Rights > Human Rights

(iii) Demand pattern doesnot represents real needs of society.
(iv) NO security of employment
(v) Consumer Sovereignity is a MYTH

(vi) Less merit goods education, health etc.
(vii) Economic Instability & formulation of "Monopolies"

✳ SOCIALIST ECONOMY ✳

(Command Economy or Centrally Planned Economy)

Eg :- North Korea, CHINA, Earlier USSR

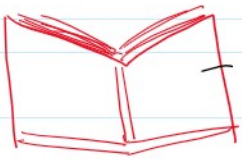
Propounded by Karl Marx and Frederic Engels

1848

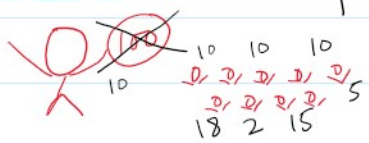
Communist

Earlier USSR

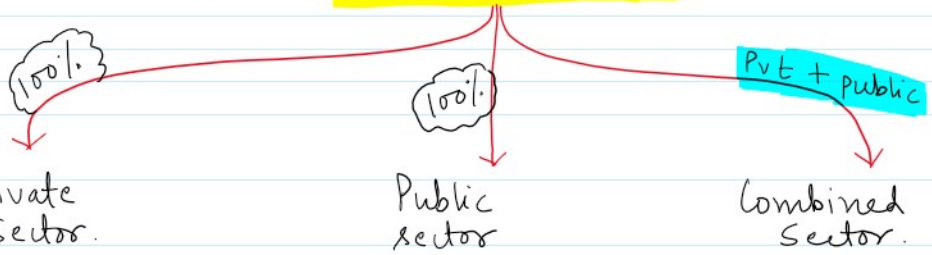
1848



Communist Manifesto

Features	Merits	Demerits
(1) Collective ownership 	(1) Equitable distri-bution of wealth.	(1) Inefficiency, corruption, Red tapism etc
(2) Economic Planning (5 years Plans)	(2) Balanced economic growth	(2) Less freedom of choice.
(3) NO consumer choice.	(3) No wastage of resources on advertisement	(3) No incentive for hardwork in form of profit
(4) Relatively equal income distribution.	(4) Less unemployment & less business fluctuation.	(4) Administered prices.
(5) Absence of competition	(5) Ensures Right to work and freedom from hunger.	(5) State "monopolies"
(6) Minimum Role of Price Mechanism.	(6) Labourers are protected against exploitation	
(7) Social welfare motive		

* MIXED ECONOMY *



Benefits of Capitalist (+) Socialist

However it is not always a golden path

* HOW TO SOLVE PROBLEMS ??

	WTP ?	HTP ?	FWTP ?
	On the basis	Least lost	who have

	WTP ?	HTP ?	FWTP ?
→ Capitalist	On the basis of consumer's preference	Least cost of production	who have buying capacity
Socialist	Government decides	Government decides	Government decides.

ECONOMICS

CH 2

Unit 1 : Theory of Demand & Elasticity of Demand (Imp.)

① Demand : Desire (+) means to purchase (+) willingness to use those means for that purchase
(माँग) (इच्छा) (साधन)

Price (₹)	Units (Qty)
Given price ---- ₹ 10	50 units → Quantity demanded
₹ 1000	40 units
₹ 5000	20 units

is a FLOW concept

DEMAND

② Factors affecting Demand (Determinants of demand)

(i) Price of the Good (P_x)

P_x ↑ D_x ↓

Inverse Relation

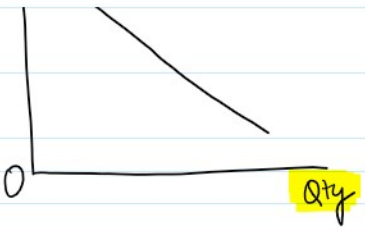
P_x — independent

D_x — dependent

Price

Negatively sloped
(Downward sloping)

Negatively sloped
(Downward sloping)



(ii) Price of Related Good (P_R)

There are two types of Related Goods

Substitute goods

(Motor cycle)

Price (Motor cycle) ↓ Demand (car) ↓

DIRECT relation

(Positive)

Complimentary goods

(petrol)

Price (petrol) ↑ Demand (car) ↓

INVERSE relation

(Negative)

(iii) INCOME of the consumer (Y)

Normal Good

Superior Quality → Wheat, Color TV

(High income group)

Y ↑ D ↑

Positive Income effect

Inferior good → Bajra, B&W TV

Inferior (Cheap) Quality

(Low income group)

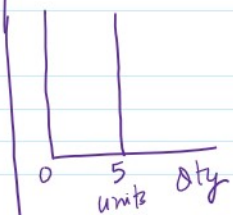
Y ↑ D ↓

Negative Income effect

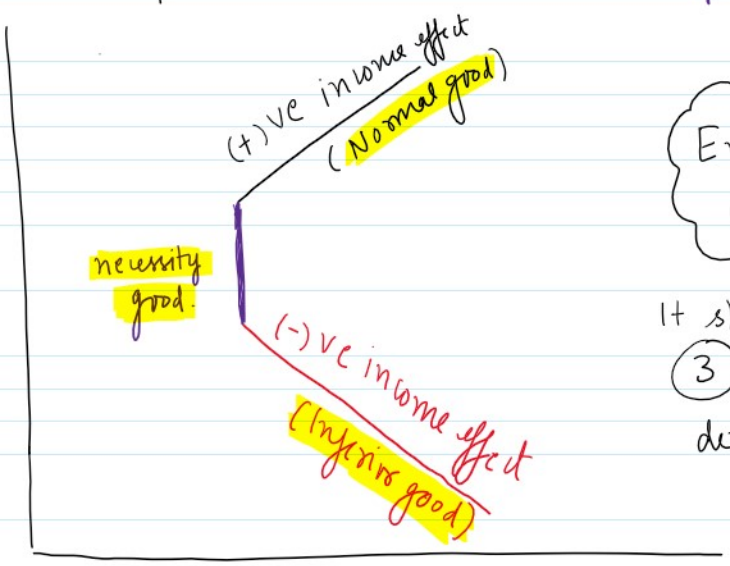
Necessity good

SALT, etc

NO change in demand



effect



Engel's curve

It shows (3) different demand curves

(iv) **Taste & Preference (T)**

Favourable Taste D (↑)

Unfavourable Taste D (↓)

(a) **Demonstration effect** - आपने पड़ोसी को देख कर आप Mobile खरीद रहे हो.

FOMO — Fear of Out Missing

(b) **Bandwagon effect** - सब ले रहे है तो हम भी खरीद लेते है. (its in Fashion)

अतरंगी

(c) **Snob effect** - When product is too common then D ↓

(d) **Veblen effect** - Conspicuous Consumption

"Very expensive"

(Diamonds, expensive car etc)

(5) **Others (O)**

(i) Population (↑) Demand (↑)

(ii)* Consumer expectation about future prices

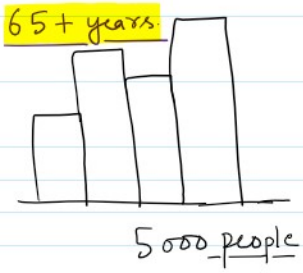
future में onion P↑ P↑

"Onion"

आज D (↑)

D (↑)

(iii) Age Distribution



(iv) National Income ← distribution

**

Equal

Rich : साधन (✓)
Poor : साधन (✓)

Demand (↑)

Unequal

Rich : (साधन)^3 (✓)
Poor : साधन (X)

Demand (↓)

(3) $Q_x = f(P_x, P_R, Y, T, O)$

Quantity of Good X — Dependent

is — function of — Price of Good X — Price of Related Good — Income — Taste / preference — Other factors

INDEPENDENT VARIABLE

Demand Function

$y = f(x)$

$y = x^2 + 1$

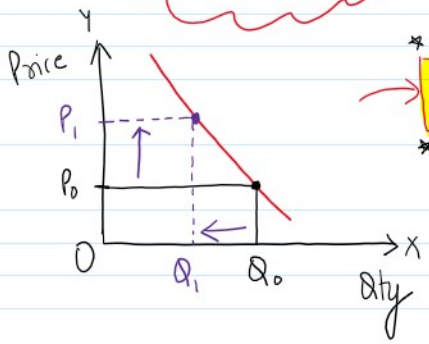
dependent: 10, 5, 2

Independent: 1, 2, 3

(4) Demand Curve & Demand Schedule

Graphical — Tabular

Graphical



INVERSE relation

Tabular

Price (₹)	Qty (units)
₹ 10	500
₹ 8	700
₹ 6	1000
₹ 3	1500

P (↓) Q (↑)

(5) Law of Demand

$$Q_x = f(P_x, P_R, Y, T, O)$$

NO CHANGE ASSUMPTION

INVERSE

→ ALFRED MARSHALL

→ P_R, Y, T, O do not change → CETERIS PARIBUS

being other things constant

→ Law of Demand is QUALITATIVE Statement

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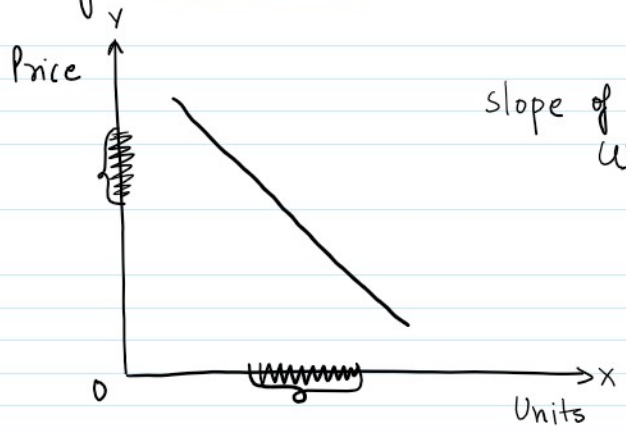
(6) Market demand Curve & Market demand Schedule

Price	Qty (A)	Qty (B)	Qty (C)	Market demand
₹ 1	100 units	140 units	160 units	400 units
₹ 2	80 units	110 units	130 units	320 units
₹ 3	60 units	80 units	100 units	240 units
₹ 4	40 units	50 units	60 units	150 units
₹ 5	20 units	30 units	20 units	60 units

Individual Individual Individual

* Market demand curve is always flatter as compared to Individual demand curve.

(7) Straight line demand Curve



slope of demand curve $= (-)\frac{\Delta P}{\Delta Q}$

Slope is always Negative

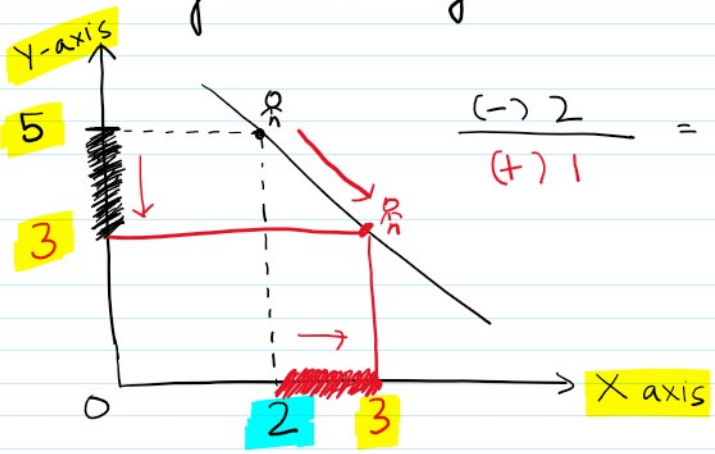
ΔP = Change in Price

ΔQ = Change in Quantity

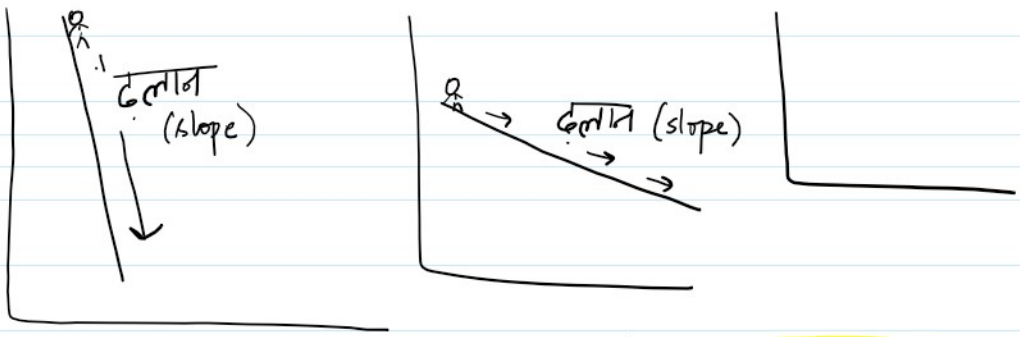
$\frac{(-)\text{ve}}{(+)\text{ve}} = (-)\text{ve}$

or

$\frac{(+)\text{ve}}{(-)\text{ve}} = (-)\text{ve}$



$\frac{(-)\ 2}{(+)\ 1} = (-)\ 2$

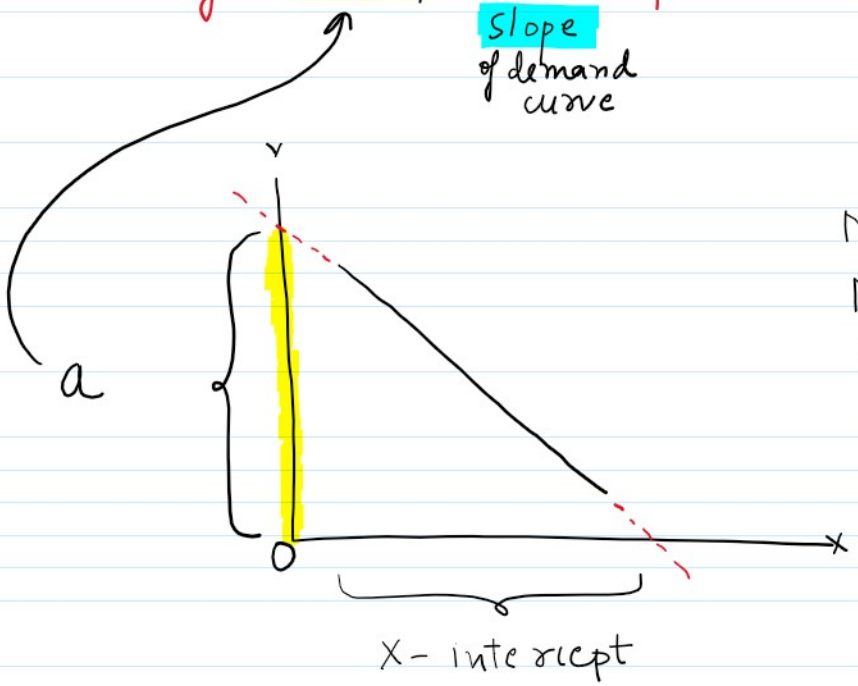


slope (ढलान) = $\frac{\text{Change in Y-axis}}{\text{Change in X-axis}}$

slope (ढलान) = $\frac{\text{Change in Y-axis}}{\text{Change in X-axis}}$

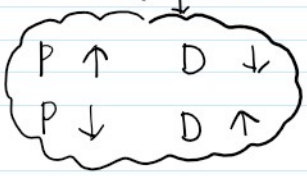
→ $Q = a - bp$ (✓)

Quantity — Y-intercept — Slope of demand curve — price



NO
NO
NO

(*) (8) Why does law of demand Operate ??? Imp



WHY ??

(i) MARSHALL

Law of diminishing Marginal Utility
- When a consumer consumes more & more of good, his utility (satisfaction) goes on decreasing.

Marshall:

Price	Burger (Units)	Utility	Law
₹100	1	50 utils	
₹85	2	40 utils	satisfaction ↓
₹60	3	25 utils	" "
₹15	4	5 utils	" "

₹15 ← 4 — 5 utils " "

₹1 ← 5 — 0 util

INVERSE Relation.

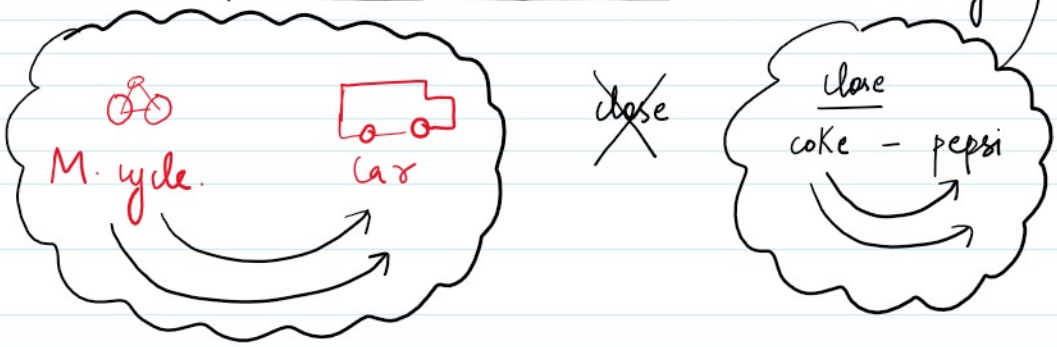
(ii) JR Hicks & Allen.

Price effect = Substitution effect (+) Income effect

(a) Substitution effect.
(eg Tea, coffee)

Price Tea (↓) → Substitution effect. → Coffee drinker → Switch to Tea → Demand Tea (↑)

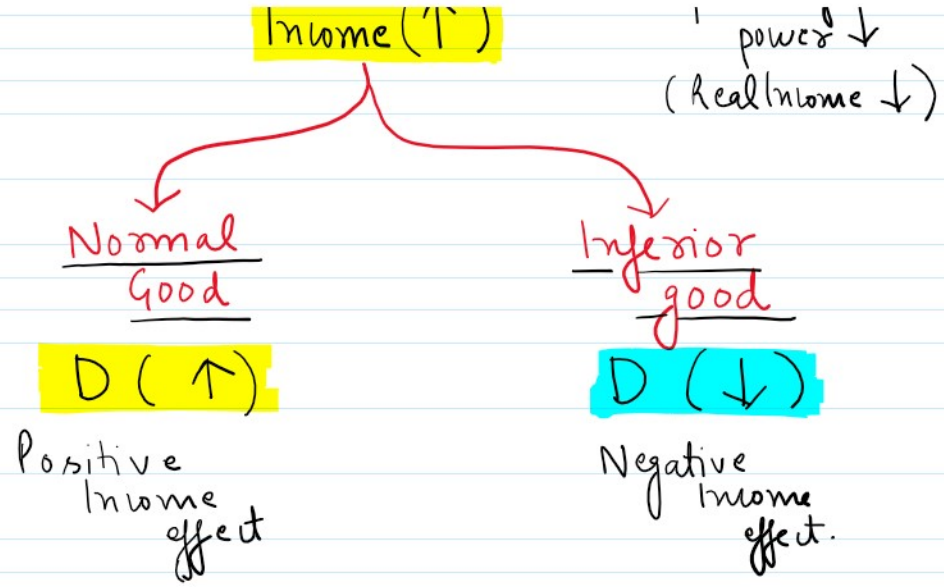
* Substitution effect is always POSITIVE
* Substitution effect is stronger when :-
  a) goods are close substitute
  b) low cost of Switching
  c) Lower inconvenience while switching.

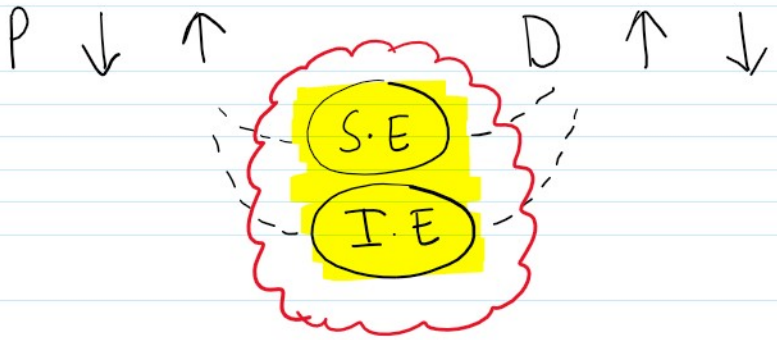


b) Income effect

Price (↓) → Real Income (↑)

₹100 income
price ~~₹50/-~~ ₹100
purchasing power ↓
(Real Income ↓)





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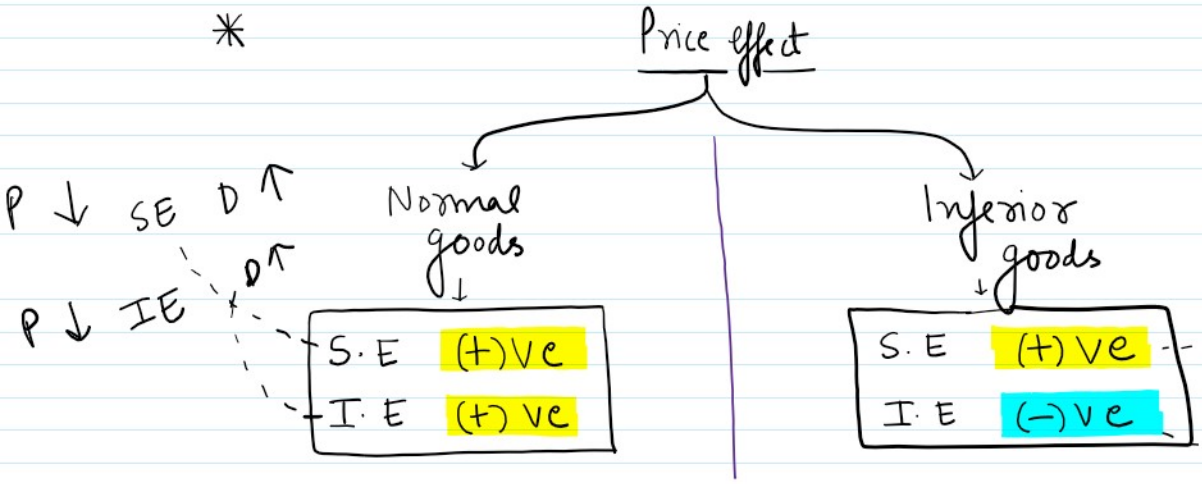
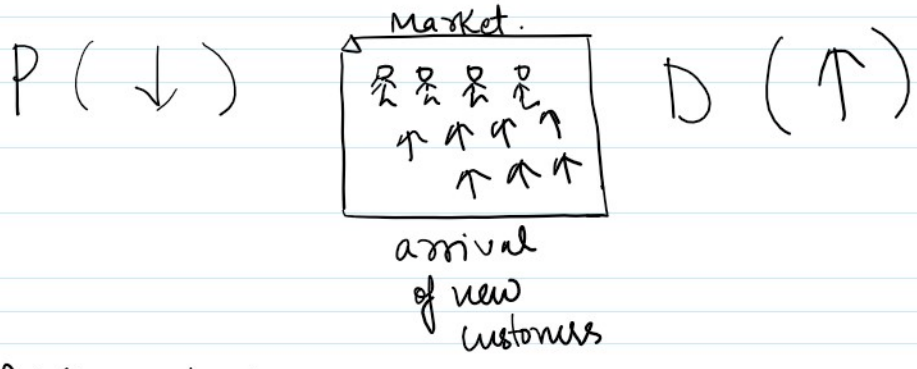
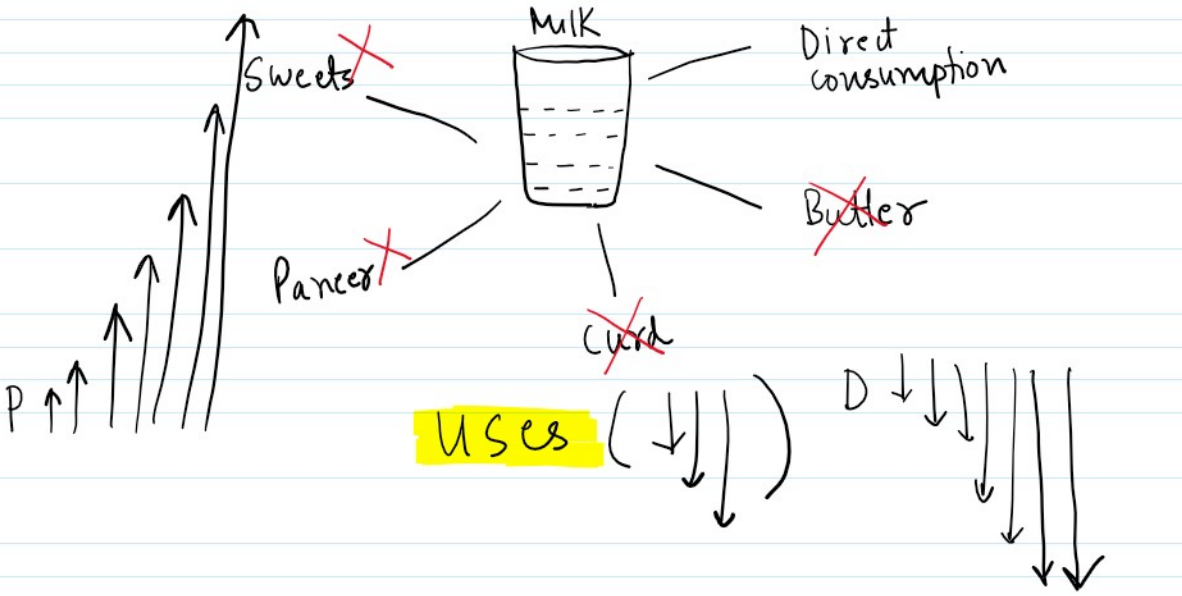


(iii) Arrival of new customers



customers

(iv) Different Uses (Milk, electricity)



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* Exceptions of Law of Demand

(जो Law of demand follow नहीं करते)

P ↑ D ↑ P ↓ D ↓

(i) Conspicuous goods (Snob goods or Veblen goods)

P ↑ D ↑

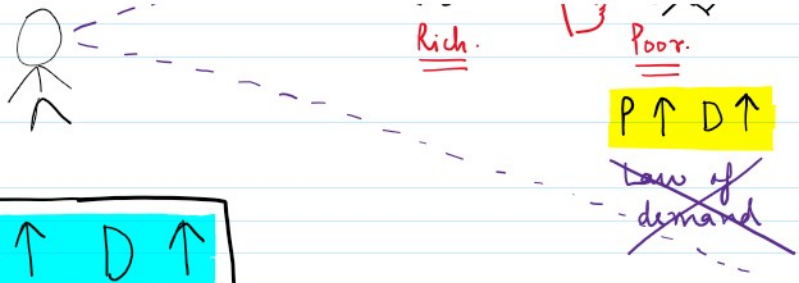
eg Very expensive goods (prestigious goods)

like Diamonds

(ii) "Giffen" Goods

→ Sir Robert Giffen (Scottish Economist)

→ Meat & Bread



→ P ↑ D ↑

(R)* All Giffen goods are inferior goods but all inferior goods are not Giffen

??

e.g:- Inferior — Toned Milk :- P ↑ D ↓

Superior — (Full cream Milk)

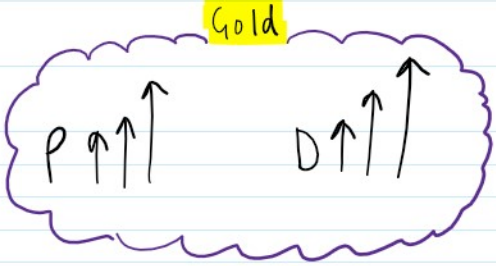
(iii) महँगी Conspicuous necessities

TV, Mobile, AC ← ज़रूरत

P ↑ Demand do not change

(iv) future rise in prices. e.g. future में और costlier हो जाएगा

Gold

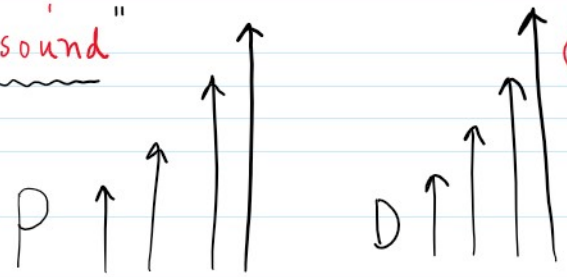


Shares ✓
Bitcoin — ↑↑

(v) Irrational Behavior, Speculative Goods

"Unsound"

Shares → BUY
Bitcoin → SELL



$$D_x = f(P_x, P_R, Y, T, O)$$

$D_x = f(P_x, P_R, Y, T, O)$

(आय)

Papa

Mother

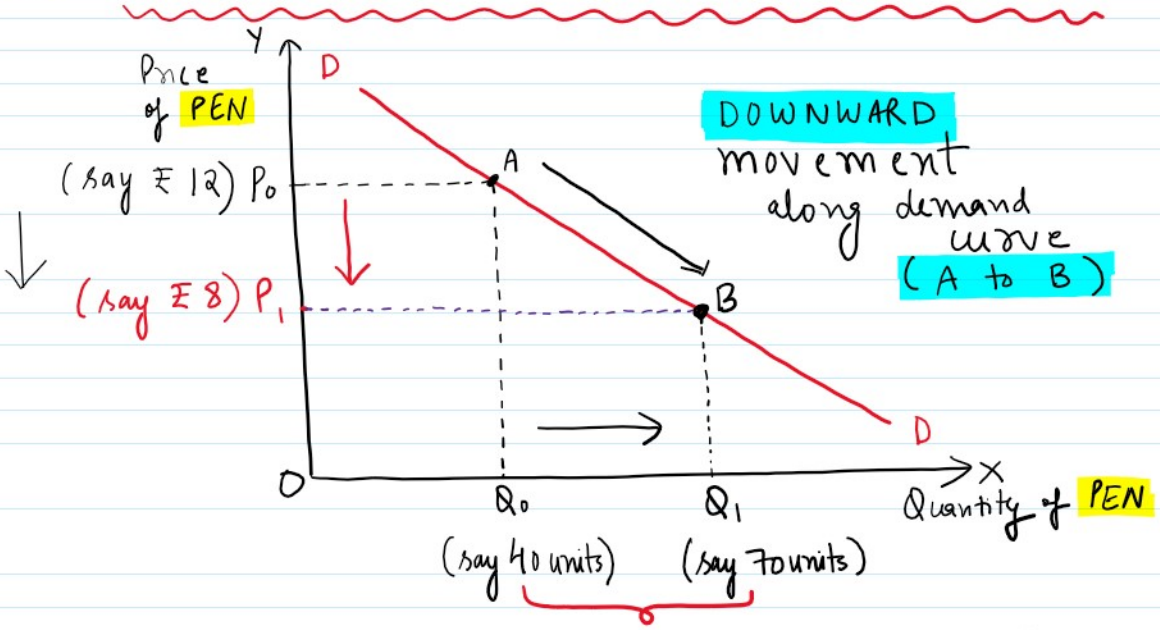
Bro
Sis

GF
BF

दोस्त

Change in Quantity demanded	Change in Demand
↓	↓
Quantity is affected due to Change in Price	Quantity is affected due to change in factors other than P_x (P_R, Y, T, O)
Types : a) Expansion b) Contraction	Types a) Increase b) Decrease

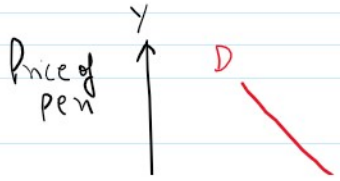
* EXPANSION & CONTRACTION



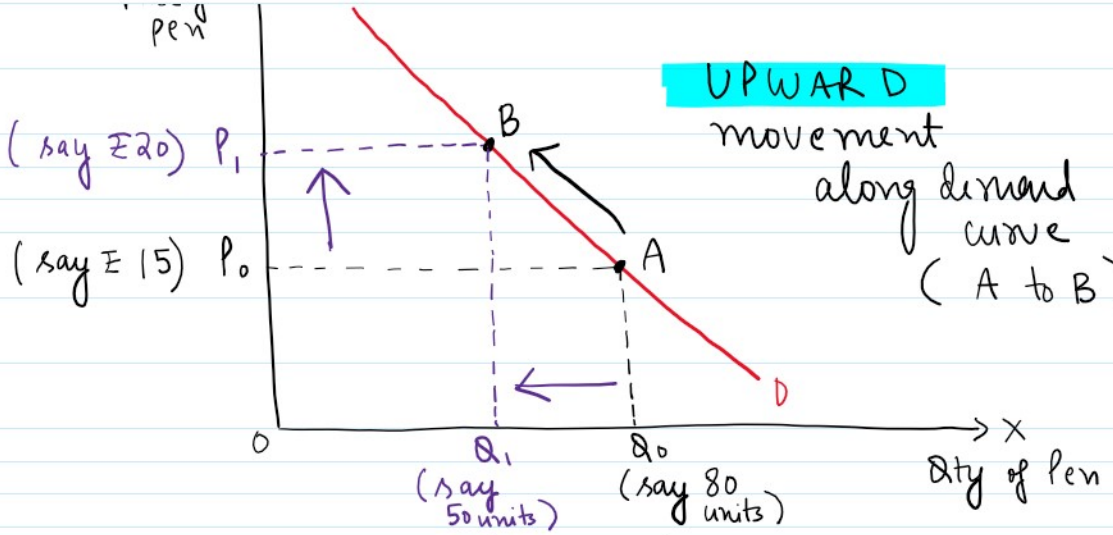
DOWNWARD movement along demand curve (A to B)

EXPANSION in Demand

Increase in Quantity Demanded



UPWARD



UPWARD movement along demand curve (A to B)

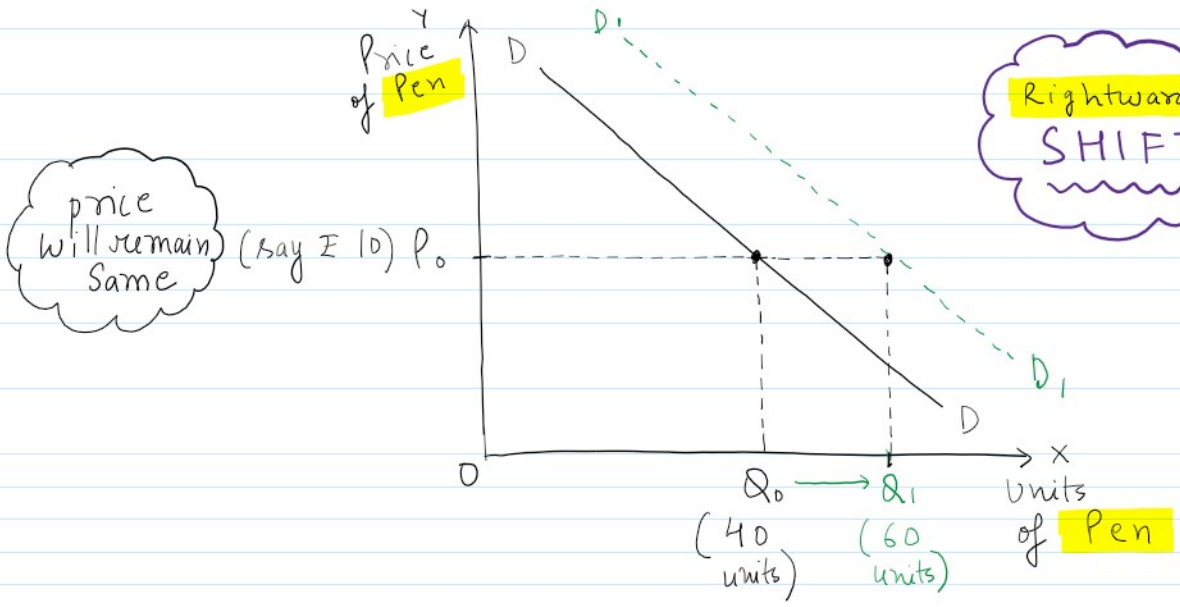
CONTRACTION

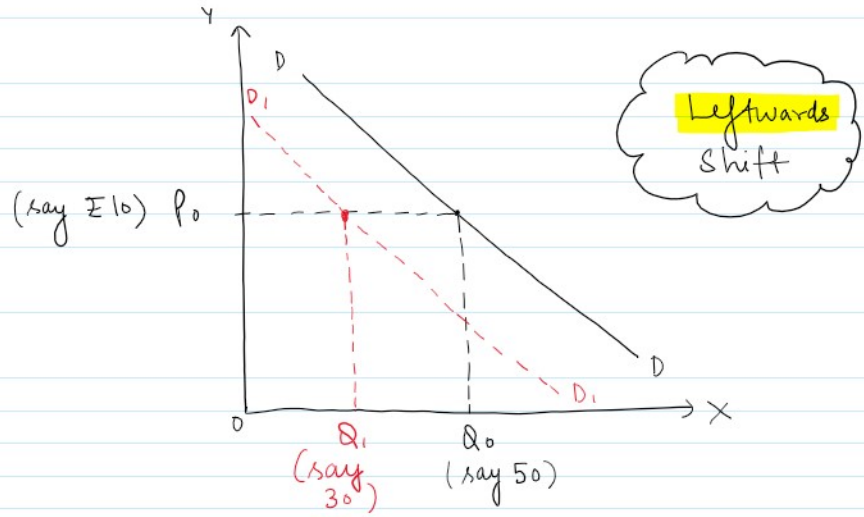
Decrease in Quantity Demanded

Increase in demand	Decrease in demand
P_x remains Same	P_x remains Same
(i) = Rise in Price of Substitute good.	(i) Fall in Price of Substitute good
(ii) = Fall in Price of complementary goods	(ii) Rise in price of complementary goods
(iii) Increase in Income (Normal good)	(iii) Decrease in Income (Normal good)
(iv) Fall in Income (Inferior good)	(iv) Rise in Income (Inferior good)
(v) Favourable change in Taste	(v) Unfavourable change in taste
(vi) Increase in population	(vi) Fall in population
(vii) Future expectation of Rise in price.	(vii) Future expectation of Fall in price
(viii) Number of consumer	(viii) Number of consumer decreases.

(viii) Number of consumer increases

(viii) Number of consumer decreases.





✳ ELASTICITY OF DEMAND ✳

3114

→ Elasticity of demand means change in demand due to change in variable like price of the good (P_x), Price of related good (P_R), Income of consumer (Y) or Advertisement expenditure.

→

	Elasticity	formula
(i)	Price elasticity (always negative)	$\frac{\%\text{ change in Quantity}}{\%\text{ change in Price of good } (P_x)}$
→ (ii)	Cross elasticity	$\frac{\%\text{ change in Quantity}}{\%\text{ change in Price of Related Good } (P_R)}$

→ (ii)	Cross elasticity	% change in Price of Related Good (PR)
→ (iii)	Income elasticity	% change in Quantity / % change in Income (Y)
→ (iv)	Advertisement elasticity	% change in Quantity / % change in Advertisement

$$\% \text{ change} = \frac{\text{New} - \text{old}}{\text{old}} \times 100$$

$$= \frac{\text{नया} - \text{पुराना}}{\text{पुराना}} \times 100$$

$$\frac{87-72}{72} \times 100$$

eg :- class XI => 72

class XII => 87

% change = 20.833%

→ Elasticity of demand has (5) degrees :-

(i) $E_d > 1$ - % change in (N) Q > % change in (D) Variable

(ii) $E_d = 1$ - % change in (N) Q = % change in (D) Variable

(iii) $E_d < 1$ - % change in (N) Q < % change in (D) Variable

(iv) $E_d = 0$ - % change in (N) Q = 0

(v) $E_d = \infty$ - % change in (D) Variable = 0

$\frac{19}{17}$ $\frac{57}{14}$

$\frac{55}{68}$ $\frac{66}{66}$

Fraction => $\frac{N}{D}$

N > D ☞ answer > 1

N < D ☞ answer < 1

N = D ☞ answer = 1

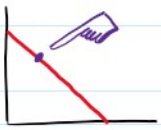
N is Zero ☞ Ans = 0

D is Zero ☞ Ans = ∞

* METHODS *

(Price Elasticity)

① Point elasticity - Use this method when the change is negligible i.e Minimal



eg 

₹ 100,00,00,000 ~~₹~~
₹ 99,99,99,999

$$E_d = \frac{\%\text{ change in Quantity}}{\%\text{ change in Price}}$$

$$E_d = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

Q_1 = New Qty P_1 = New Price

Q_0 = old Qty P_0 = old Price

$$E_d = \frac{\Delta Q}{\Delta P} \times \frac{P_0}{Q_0}$$

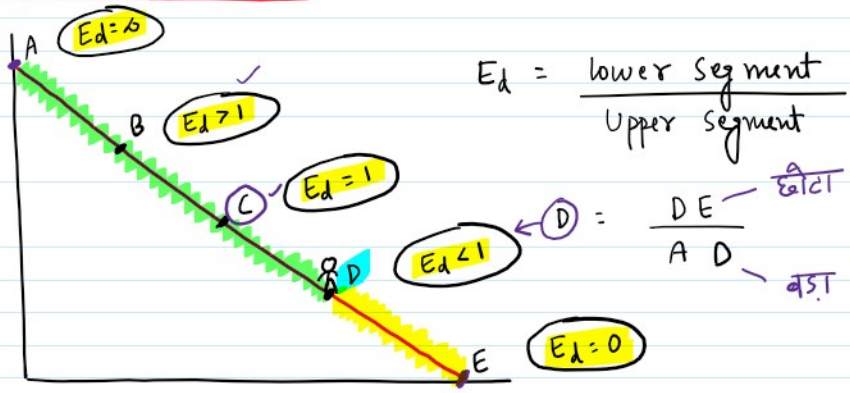
ΔQ : change in Quantity

ΔP : change in Price

slope of demand curve $= \frac{\Delta P}{\Delta Q}$

$$E_d = \frac{1}{\text{slope of demand curve}} \times \frac{P_0}{Q_0}$$

(2) Geometric Method (Linear Demand curve)

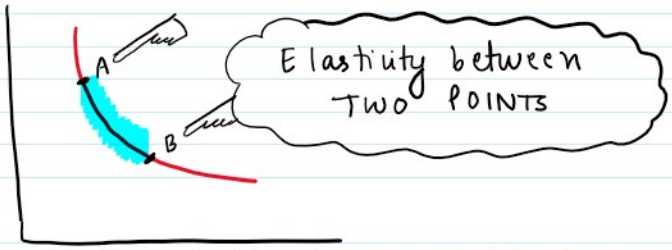


$$E_d = \frac{\text{lower Segment}}{\text{Upper Segment}}$$

(D) = $\frac{DE}{AD}$ — DE: छोटा, AD: बड़ा

(3) ** (8/10)

ARC Method (Non-linear demand curve)



$$E_d = \frac{Q_0 - Q_1}{Q_0 + Q_1} \times \frac{P_0 + P_1}{P_0 - P_1}$$

(4) ** Total Expenditure / Total Outlay / Total Revenue method

$$T.E = P \times Q$$

	Case (1)		Case (2)		Case (3)	
Price	₹1	₹2	₹3	₹4	₹5	₹6
Qty	6 units	5 units	4 units	3 units	2 units	1 unit
T.E	₹6	₹10	₹12	₹12	₹10	₹6
	P(↑) TE(↑)		P(↑) TE do not change		P(↑) TE(↓)	
	SAME Direction				OPPOSITE Direction	
	$E_d < 1$		$E_d = 1$		$E_d > 1$	

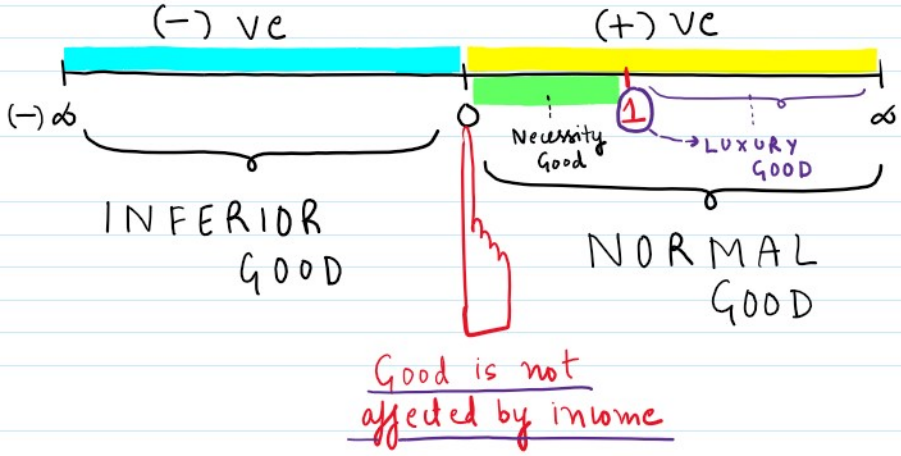
$E_d < 1$ | $E_d = 1$ | $E_d > 1$

Q1- P (↑) ; $E_d > 1$; TE (↓)

Q2- P (↓) ; $E_d < 1$; TE (↓)

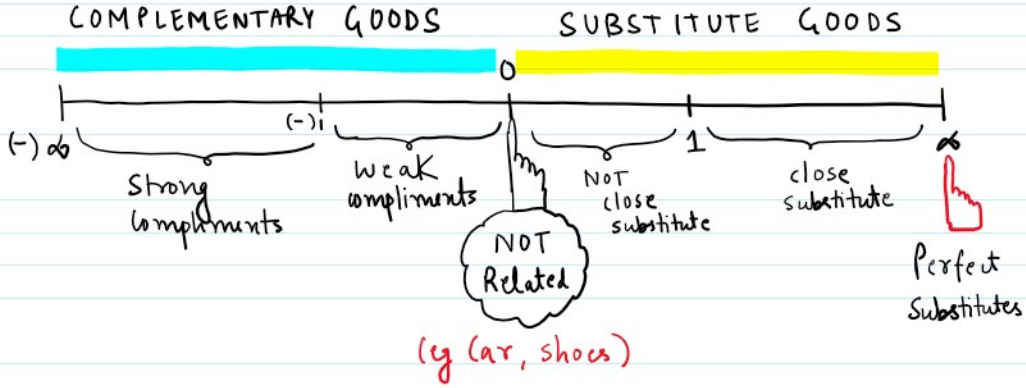
Q3- TE (↓) $E_d > 1$ P (↑)

* Income elasticity *



Good is not affected by income

* CROSS ELASTICITY *



(eg Car, shoes)

* Factors affecting Elasticity of Demand *

Elastic $E_d > 1$
Inelastic $E_d < 1$

(i) **Availability of Substitutes**

Goods having close substitutes — $E_d > 1$

P↑ demand ☐☐☐ [demand आसानी change]

demand ↑ ☐☐☐ [demand आसानी change]

(ii) Number of uses

eg Milk
- → D.C
- → Sweet
- → Paneer
- → Butter
- → Curd
- → etc

$E_d > 1$

Book → पढ़ाई

$E_d < 1$

(iii) Share in Consumer's Budget

₹10,000

High share: Shoes ₹9,499 — $E_d > 1$

Low share: Match box ₹10 — $E_d < 1$

(iv) Time Period
- → Long (1 year) : $E_d > 1$
- → Short (1 second) : $E_d < 1$

(v) Nature of Good
- → LUXURY : $E_d > 1$
- → Necessity : $E_d < 1$

(vi) Other factors

a) Consumer habits → $E_d < 1$

b) Tied demand

printer → cartridge — $E_d < 1$

c) Minor complementary goods

5,00,00,00,00,000

perfume ₹5,00,000

$E_d < 1$

d) Price Range → EXTREMES

Very high : Diamond } inelastic

d) Price range → Elasticities

Very high : Diamond
Very low : Match box
} inelastic Ed < 1

---

* Demand Forecasting *

(Important in process of planning & decision making)

Types

- MACRO level → National Income, Index of Industrial Production
- Industry level → demand of cement in India
- Firm level → demand of Ambuja Cement
- Long term ≥ 1yr
- Short term < 1yr

* Demand distinctions *

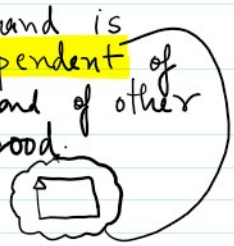
(i) Producer good (Machine) vs Consumer good (Bread)

(ii) Durable (Non Perishable) (Fridge) vs Non Durable (Perishable) (Milk)

(iii) Derived demand vs Autonomous demand

Derived demand → product is demanded consequent on purchase of parent product
{ eg - Bricks required for construction of Building }

Autonomous demand → demand is Independent of demand of other good.



(iv) Industry demand (demand of cement in India) vs Firm demand (demand of Ambuja cement)

in India

Ambuja cement

(v) Short Run demand vs Long Run demand

< 1yr

≥ 1yr

Imp.

* Factors affecting Demand of "Consumer goods"

Non durable (Bread)

Durable Car

→ Income (↓)

→ Price (↓)

→ Demography

Characteristic of population

Imp.

→ Social Status

→ "Roads" for automobiles.

→ Family Members.

→ Replacement demand

* factors affecting Demand of Producer goods

(Machine)

→ Growth prospects :) D ↑

→ R Consumption of Capital good (Machine) per unit of "installed capacity"

P 1

5000 hrs

electricity.
₹2/unit

P 2

6000 hrs

electricity
₹4/unit

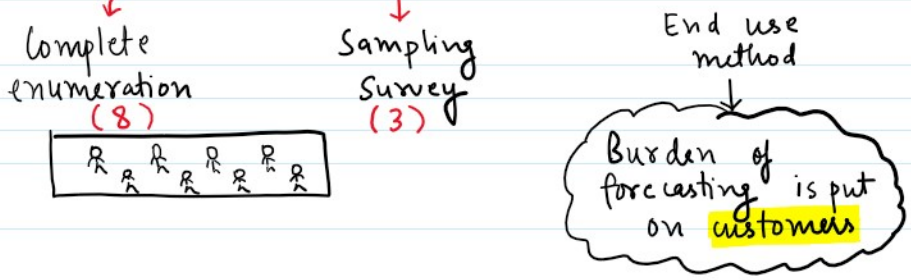
→ Price of Labour (↑) Demand of Machine (↑)

→ Price of complementary goods (Nuts, bolts, tools etc ↑) Demand of Machine (↓)

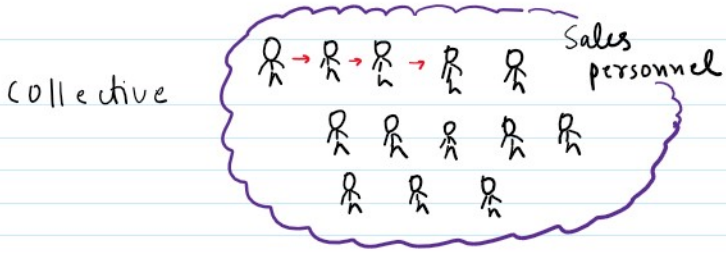
→ Interest Rates (on Borrowings) (↓) Demand of Machine (↑)

* Methods of Demand Forecasting *

(i) Survey of Buyer's Intention

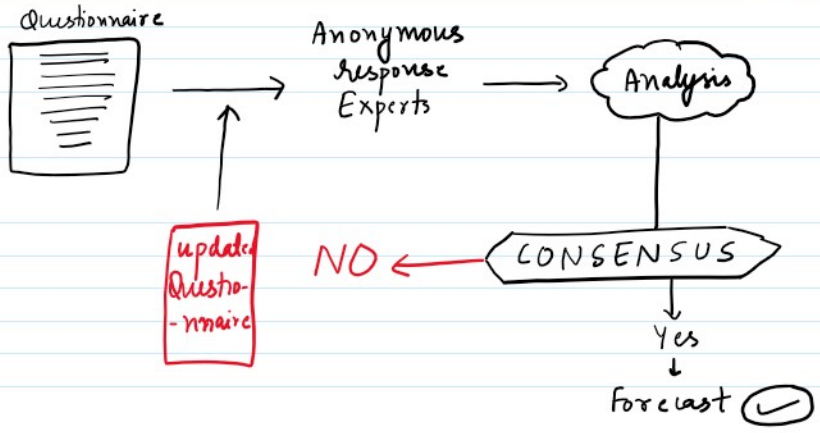


(ii) Collective Opinion method OR Sales Force method OR Grass Roots approach.



(iii) Expert Opinion Method

Delphi Technique — OLAF HELMER

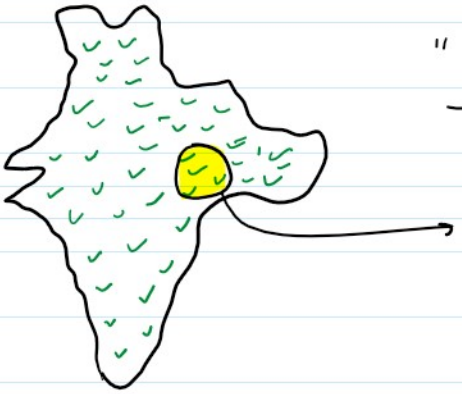


(iv) Statistical methods (Name only)

- Time Series (Trend Projection Method)
- Regression Analysis

(v) Controlled Experiments

(v) **Controlled Experiments**



"PILOT SURVEY"

controlled experiments

(vi) **Barometric Methods**

→ Based on past experience, trying to predict future

आगे - आगे | साथ साथ | बाद में

Leading Indicators → Advance orders for Capital Goods

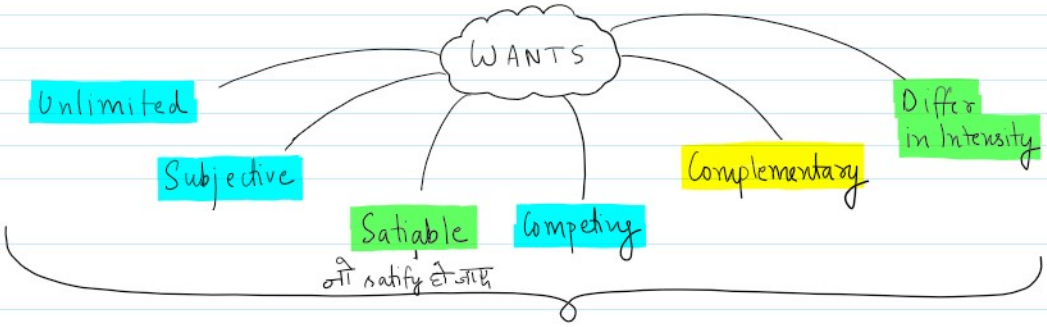
Co-incidental indicators → Figure of "Retail" "Sales"

Lagging indicators → electricity Bill

(R)

ECONOMICS

CH 2 Unit 2 : **Consumer Behavior**



Necessaries → essential for living (eg. FOOD)

COMFORTS (lies between necessaries & luxuries)

LUXURIES → Not essential for living eg. Ferrari

essential for living (eg. FOOD)

(lies between necessaries & luxuries)
eg Good House

for living
eg. Ferrari

→ **Utility**

- → Satisfaction
- → Satiety
- → ~~Usefulness~~

eg : Alcohol, Cigar
↓
Utility (✓)
Usefulness (X)

Utility is "Ethically NEUTRAL"

→ **Theory of Consumer Behavior**

CARDINAL	ORDINAL
(Alfred Marshall)	(Hicks & Allen)
↓	
Quantifiable ✓	Quantifiable X
1 Burger => Satisfaction	Ranks (preference) ✓
↓	
Measure ✓	Burger > Pizza
Numeric ✓	

✳ **M U Analysis** (Alfred Marshall)

(1) **Assumptions** :-

a) Consumer is **Rational** – who seek Maximum Satisfaction.

b) Utility is cardinal

c) Money is measuring rod of utility

d) Continuity in consumption i.e no time gap between consumption

Burger 1 2 3 4 5 6 7 ---
8 am 8:03am 8:10am ✓ ✓ ✓ लगातार

e) Homogeneous product

e) Homogeneous product

f) Good should be divisible in nature
i.e Quantifiable

(1) (2) (3) (4)

(2) Total Utility & Marginal Utility

कितना मज़ा आया

Burger (Units)	Marginal Utility (MU)	Total Utility (TU)
1	10 utils	10 utils
2	8 utils	18 utils
3	5 utils	23 utils
4	0 utils	23 utils
5	(-) 3 utils	20 utils.

Satisfaction — 1, 2, 3
Satiety (saturation) — 4
Dissatisfaction — 5

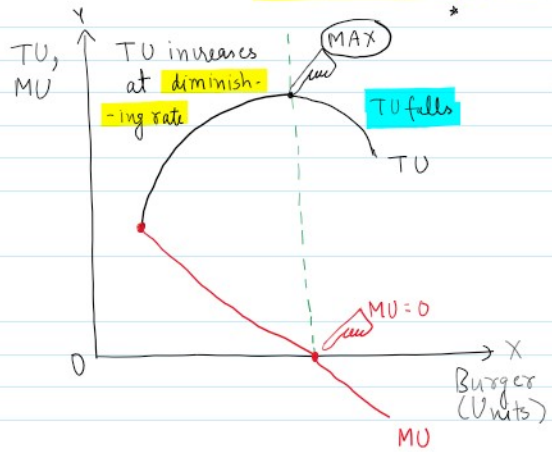
- **Law of Diminishing Marginal Utility**
  - Units ↑ MU ↓

- $TU = MU_1 + MU_2 + MU_3 + \dots MU_N$
  $= \Sigma MU$

- $MU_N = TU_N - TU_{N-1}$

$$MU = \frac{\Delta TU}{\Delta \text{units}}$$

∴ MU is SLOPE of TU



(i) When MU > 0 (+)ve ; then TU increases at diminishing rate

(ii) When MU = 0, then TU is MAX

(iii) When MU < 0 (-)ve, then TU falls

- **Limitations / Exceptions of Law of DMU**

→ Prestigious goods
→ Hobbies

Units ↑ MU ↑

→ Hobbies

→ Habits etc

Units | MU

Q1-

Units	TU	MU	
1	8	8	
2	13	5	13 − 8
3	16	3	16 − 13
4	16	0	16 − 16
5	15	−1	15 − 16
6	12	−3	12 − 15

Unit 1 TU = MU

Q2-

Units	TU	MU
1	10	10
4	40	10

Unit 1 TU = MU

$$\frac{\Delta TU}{\Delta \text{units}} = \frac{40-10}{4-1} = \frac{30}{3}$$

Q3-

Units	MU	TU	
Burger → 1	5	5	5
Burger → 5	4	21	21
8	3	30	30
15	2	44	44
25	1	54	54

1 unit TU = MU

WN

$$MU = \frac{\Delta TU}{\Delta \text{units}}$$

$$4 = \frac{x-5}{5-1}$$

$$4 = \frac{x-5}{4}$$

$$16 = x - 5$$

$$21 = x$$

$$3 = \frac{x-21}{8-5}$$

Q4-

Units	MU	TU
3	10	43
Burger → 7	22	x

$$22 = \frac{x-43}{7-3}$$

$$22 = \frac{x - 43}{4}$$

$$88 = x - 43 \Rightarrow x = 131$$

Alfred Marshall

* Consumer's equilibrium *

Consumer gets maximum satisfaction by spending his entire income

Single commodity
(eg. Burger)

$MU = P_x$

It can be MU_x → Marginal Utility of Good X

or MU_M → Marginal Utility in terms of money

Two commodities
(eg Burger & Pizza)

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

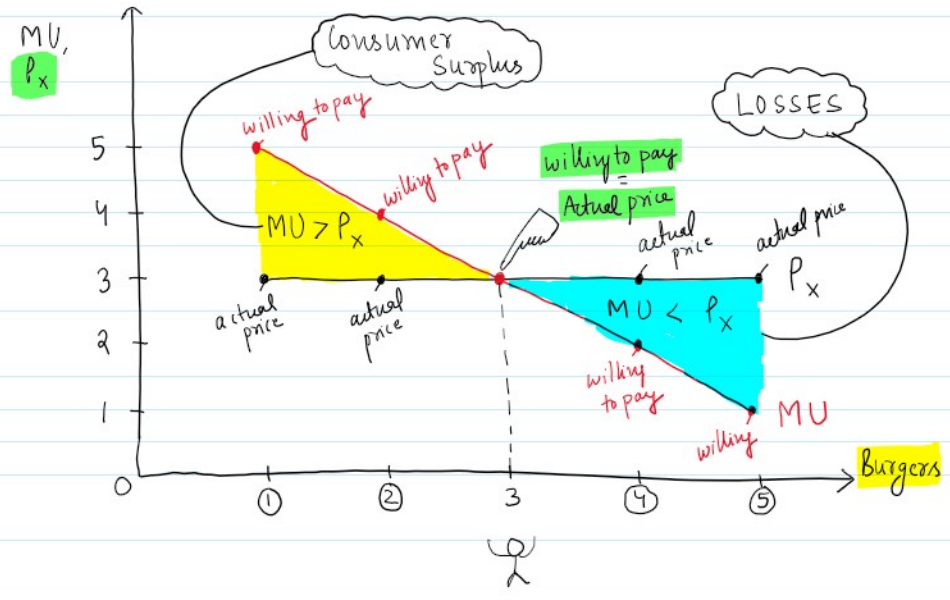
Law of Equi-Marginal Utility

NO Diagram | NO schedule

Marshall

Price of Good X (Burger) ↑ — willing to pay (कितने ₹ pay करना चाहते हैं) ↑

Burgers (Units)	P_x (Actual Price)	MU	Consumer Surplus	
1	₹ 3	₹ 5	2	MU > P_x
2	₹ 3	₹ 4	1	MU > P_x
3 (C·E)	₹ 3	₹ 3	0	
4	₹ 3	₹ 2	(−) 1	MU < P_x
5	₹ 3	₹ 1	(−) 2	MU < P_x



* Consumer Surplus

= MU (−) P_x

= willing to pay (−) Actual price

→ This concept is based on law of Diminishing Marginal Utility

→ At consumer's equilibrium, Consumer Surplus is Zero

→ Application

- helps business managers — willing ₹ 6, price = ~~₹10~~ = ₹5
- helps finance minister — Liquor willing ₹ 10000, price ₹ 2000 (Huge Tax)

→ LIMITATIONS

- Hypothetical
- Affected by various factors.

Two commodities

(Burger & Pizza)

Let us assume

Price of Burger (P_x) = ₹ 1

Price of Pizza (P_y) = ₹ 2

Money Income (M) = ₹ 13

Burgers	MU_x	$\frac{MU_x}{P_x}$	Pizza	MU_y	$\frac{MU_y}{P_y}$
1	10	10	1	40	20
2	9	9	2	36	18
3	8	8	3	32	16
4	7	7	4	28	14
5	6	6	5	24	12
6	5	5	6	20	10

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = 10$$

10 20 10

$\frac{10}{1} = \frac{20}{2} = 10$

1 Burger and 6 Pizza.

Total expenditure = ₹1 (+) ₹12 = ₹13 = Money Income

* **Consumer's equilibrium**

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

or $\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$

Q1 :) If $\frac{MU_x}{P_x} > \frac{MU_y}{P_y}$ then

consumer will INCREASE the consumption of Good X

Sol:-

$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$

10 → 10

2 → 2

Good X consumption ↑ increase

L D M U

8 = 5

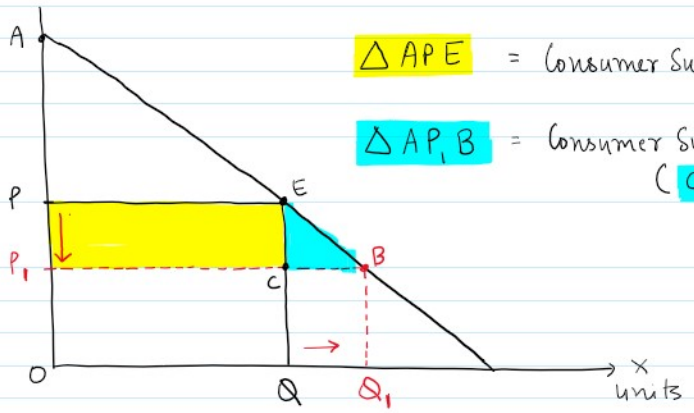
5

Q2 → If $\frac{MU_x}{MU_y} < \frac{P_x}{P_y}$ then consumer will DECREASE the consumption of "Good X"

$\frac{MU_x \downarrow\downarrow\downarrow}{P_x} = \frac{MU_y}{P_y}$

* **Application based on consumer Surplus**

* Application based on Consumer Surplus



△APE = Consumer Surplus (CS)

△AP₁B = Consumer Surplus (CS_1)

$CS_1 (-) CS_0 = PP_1BE$

Increase in Consumer Surplus = PP_1CE + ECB

When price falls

existing buyers को ज्यादा खरीदते हैं

New Buyers

Q1 - MU curve is also **Demand** curve

Q2 - Area under MU curve is **TU**

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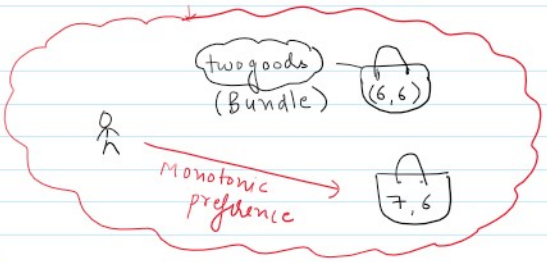
* HICKS AND ALLEN *
(IC analysis)

(1) Assumptions

(i) Consumer is Rational

(ii) Consumer has **monotonic preference**



(iii) Choices are **transitive**

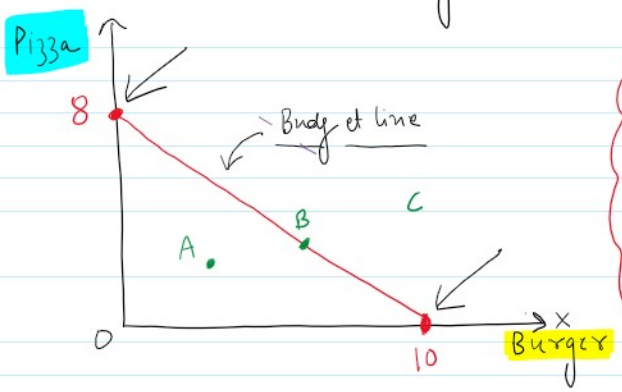
1) Burger ① > Pizza ②

2) Pizza > Momos ③

Burger > Momos ✓

Burger — Momos

(2) **Budget line** - shows all combinations of two goods which the consumer can buy spending his entire given income.



Assume

Price Burger = ₹ 4

Price Pizza = ₹ 5

Money Income = ₹ 40

☞ A Not spending the entire income

☞ B Spending the entire income

☞ C Unattainable

Q1 - Money Income = ₹ 80

P_x = ₹ 5

P_y = ₹ 4

Slope = $\frac{5}{4}$ = 1.25

Write (i) 4 Bundles which are unattainable

(ii) 5 Bundles which at below Budget line level.

(iii) 3 Bundles exactly on Budget line.

16 × 5 = 80

1 × 4 = 4

Sol:- (i) (16, 1) (25, 5) (30, 10) (35, 40)

(ii) (2, 1) (1, 1) (5, 4) (6, 2) (4, 3)

(iii) (8, 10) (4, 15) (12, 5)

→ **Budget line equation**

$$P_x \cdot Q_x \; (+) \; P_y \cdot Q_y = M$$

P_x : Price of Good X; Q_x : Qty of Good X; P_y : Price of Good Y; Q_y : Qty of Good Y; M : Money Income

$P_x \cdot Q_x$: Expenditure on Good X; $P_y \cdot Q_y$: Expenditure on Good Y

TOTAL EXPENDITURE = Money

TOTAL EXPENDITURE = Money Income

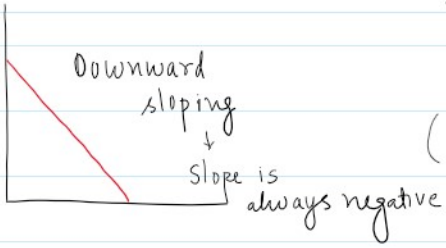
→ **Budget Constraint**

$P_x \cdot Q_x \; (+) \; P_y \cdot Q_y \leq M$

OR $P_x \; Q_x \; (+) \; P_y \; Q_y \not> M$

(Total expenditure cannot exceed Money Income)

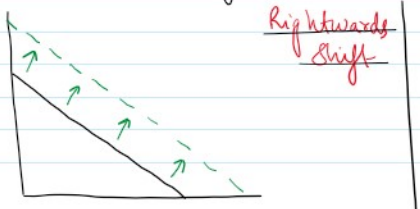
→ Slope of Budget line $= \frac{P_x}{P_y}$



(Ratio of Prices of two goods)

Market Rate of Exchange (MRE)

→ Shift in Budget line



It means that consumption of both goods can be increased

Reasons

(1) Increase in income

(2) Decrease in prices of goods.

It means that consumption of both goods decreased.

Reasons

(1) Decrease in Income

(2) Increase in prices of goods.

Q → Show the effect of following on budget line :-

=

(1) Price of Good X falls

(2) " " " X Rise

(3) " " " Y falls

(4) " " " Y

~~(2)~~ " " " X Rise

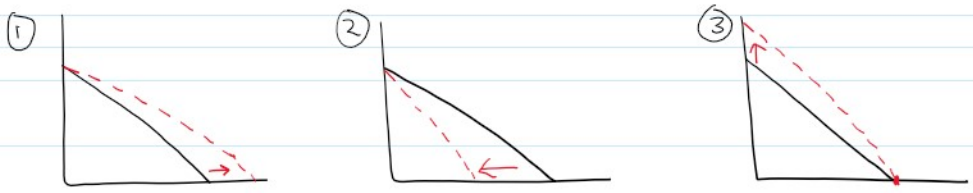
~~(3)~~ " " " Y falls

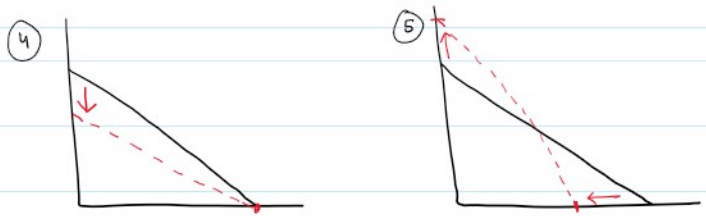
~~(4)~~ " " " Y rise

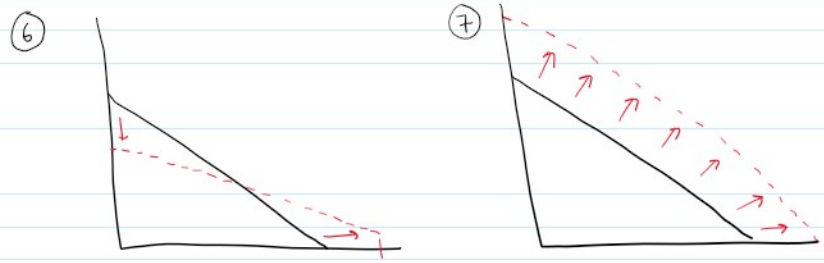
~~(5)~~ " " " X महँगा rise & Good Y सस्ता falls

~~(6)~~ " " " " सस्ता falls & Good Y महँगा rise

~~(7)~~ Price of both goods fall & income increases.
सस्ता

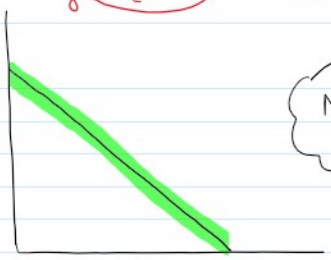






(8) Price of both goods as well as income decreases.
"सस्ता" = कम

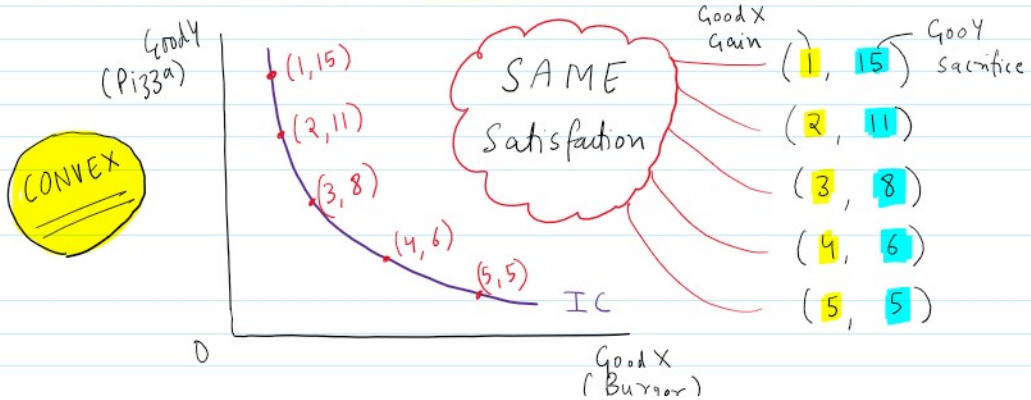
Sol:-



No effect.

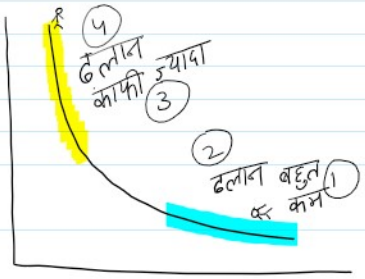
V. good ☆

(3) Indifference Curve — ISO-UTILITY CURVE — IC



CONVEX

→ Slope of IC = Marginal Rate of Substitution (MRS_{xy})



$$\Rightarrow MRS_{xy} = \frac{\Delta \text{Goods Y}}{\Delta \text{Goods X}}$$

$$= \frac{\Delta \text{Goods Sacrificed}}{\Delta \text{Goods Gained}}$$

or $$MRS_{xy} = \frac{MU_x}{MU_y}$$

→ Why IC is CONVEX ??

Because of "DIMINISHING" MRS

Good X	Good Y	"MRS"
1	15	–
2 (+1)	11	4 ÷ 1 = 4
3 (+1)	8	3 ÷ 1 = 3
4 (+1)	6	2 ÷ 1 = 2
5 (+1)	5	1 ÷ 1 = 1

हलचल कम

Q1 - IC is concave because of INCREASING MRS

Q2 - IC is straight line because of CONSTANT MRS

→ Properties of Indifference Curve

① IC is downward sloping and convex to the origin

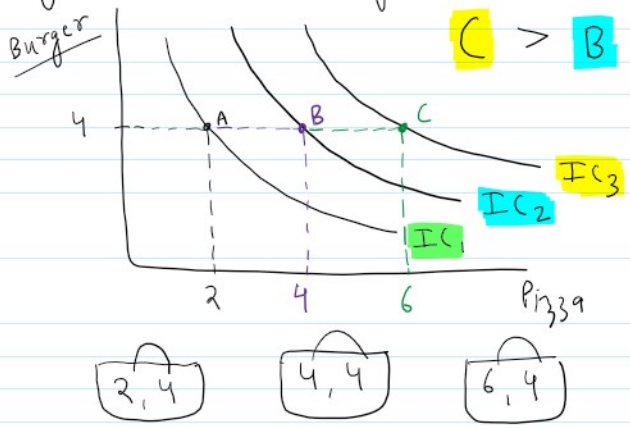
- downward sloping → because to gain one unit of Good X, we have to sacrifice some units of Good Y.
- convex → because of Diminishing MRS

② Two Indifference curves never intersect eachother

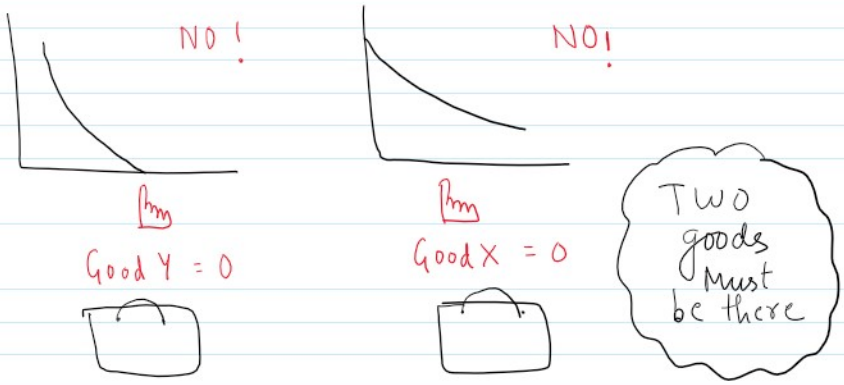
② Two Indifference curves never intersect eachother

③ Higher the IC, higher the satisfaction.

C > B > A

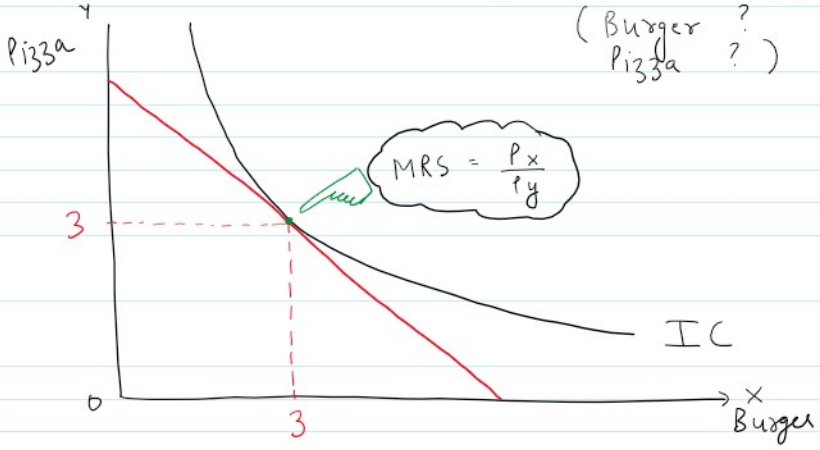


④ IC donot touch either of the axis



→ Consumer's Equilibrium by Hicks & Allen.

(Burger ? Pizza ?)



* Condition I

Slope of IC = Slope of Budget line

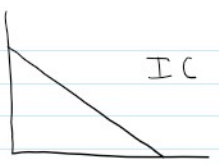
$$MRS = \frac{P_x}{P_y}$$

$$\frac{MU_x}{} - \frac{P_x}{}$$

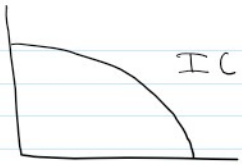
$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

When Budget line is TANGENT to IC

Condition 2 : MRS should be diminishing i.e "IC should be convex"



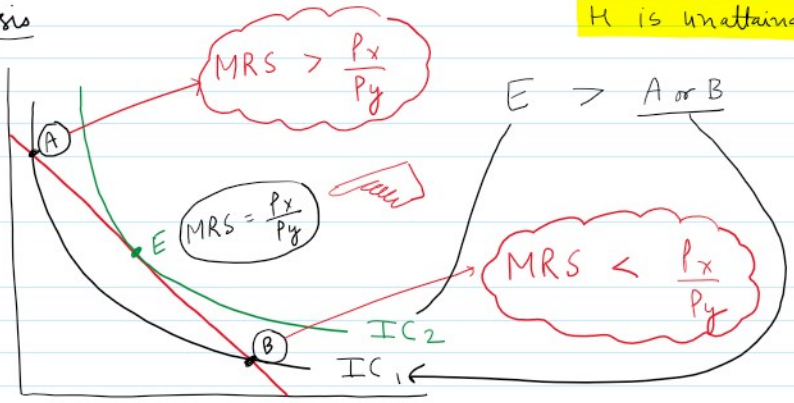
NO !!

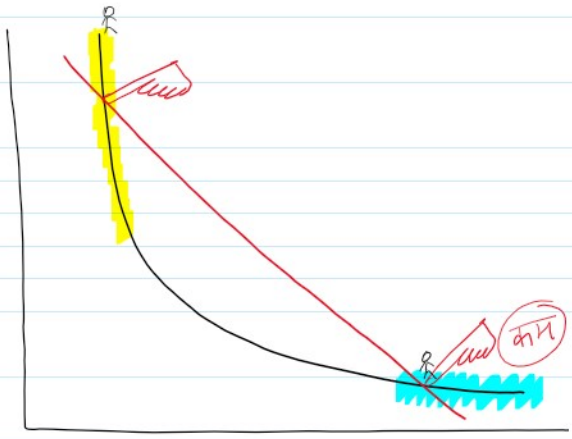


NO !!

* Analysis

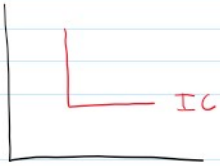
H is unattainable

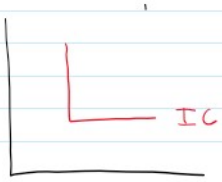




Q1- If two goods are perfect substitutes then IC is Straight line

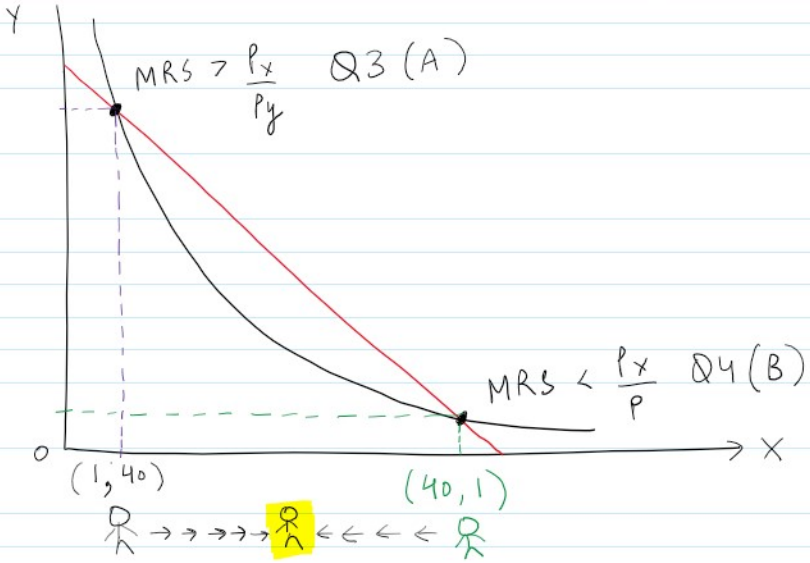
Q2- If two goods are perfect complementary goods then IC is L-shaped / Right angled





Q3- If MRS > $\frac{P_x}{P_y}$ then consumer will INCREASE the consumption of Good X.

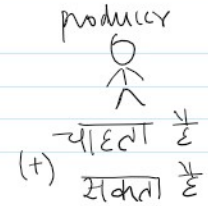
Q4- If MRS < $\frac{P_x}{P_y}$ then consumer will DECREASE the consumption of Good X.



ECONOMICS

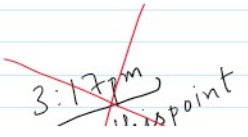
CH 2 Unit 3 SUPPLY { कम producer ₹ }

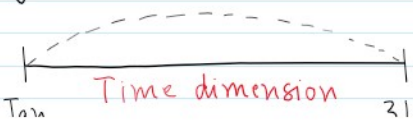
① Supply :- Amount of goods or services that a producer is willing and able to offer to the market at various prices during a given period of time



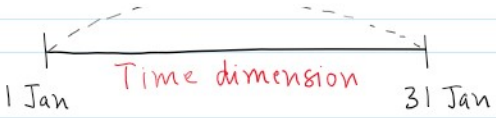
	₹ 10	1 phone
	₹ 1000	10 phone

· Supply is a FLOW concept





~~3:17pm At this point~~



(2) FACTORS affecting Supply (Determinants of supply)

(a) Price of the commodity (P_x)

$P_x (\uparrow)$ $S_x (\uparrow)$ or Vice Versa

DIRECT relation

(ii) Price of Related (competitive) Good (P_R)

BLUNDER

Related Good ??

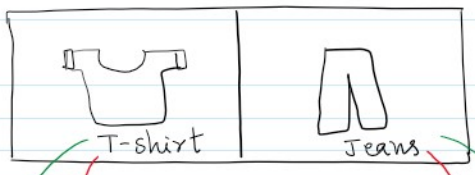
Substitute good → Tea, Coffee / Coke, Pepsi

Complementary good → Car + Petrol. / Pen + Ink.

→ Demand chapter → V. Good

producer

(Two goods produce)



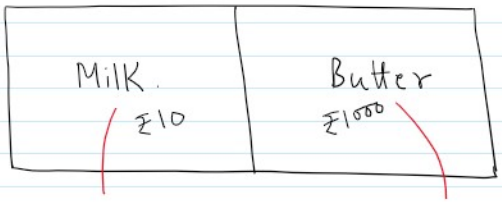
Good concerned — Related Good

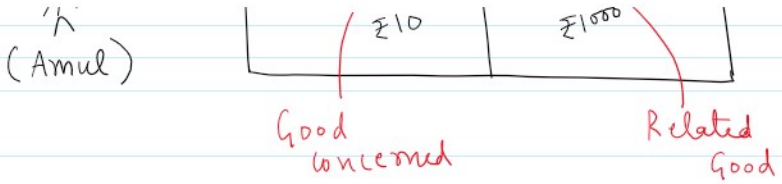
Related Good — Good concerned

eg :-

producer.

(Amul)





How Price of Butter (P_R) will affect supply of Milk (S_x) ??

→ Price of Butter (↑) Supply of Milk (↓)

Inverse relation

(iii) COST of "factors of Production" (F) — Inputs

Labour (Inputs) ₹100 → □

(Labour) ₹150 → □ Supply ??

COST (↑) Supply (↓)

Inverse Relation

(iv) Technology (T)

- Advanced Technology : COST (↓) Supply (↑)
- Obsolete technology : COST (↑) Supply (↓)

(v) Excise Duty : Tax on Manufacture (production)

(production)

पहले

Govt officer → ☐ COST = 100
Tax 20% = 20
120 लाभ

अब

Govt officer → ☐ COST = 100
Tax 50% = 50
150 लाभ

☹ Supply ↓

profit ↓

Exise duty (↑) S_x (↓)

Inverse

(vi) **Subsidy** - financial assistance provided by government

पहले

☐ COST 100
G. officer → Subsidy (20)
80

अब

☐ Cost 100
G. officer → Subsidy (50)
50

☺

Subsidy (↑) Supply (↑)

DIRECT relation

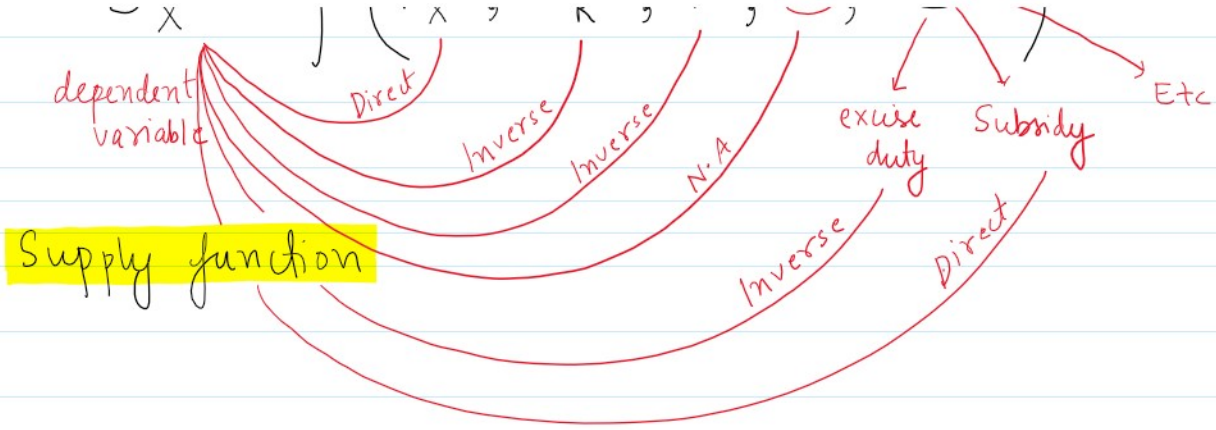
(vii) **Number of firms**

→ (very large) 5000 — perfect — S_x ↑

→ (single) — Monopoly — S_x ↓

(3) $S_x = f(P_x, P_R, F, T, \bigcirc)$

dependent — direct — Etc



(4) $S_x = f(P_x, P_R, F, T, O)$

ASSUME

CONSTANT

" being other things constant "

Direct relation

LAW OF SUPPLY

CETERIS PARIBUS

* Law of Supply is a QUALITATIVE statement.

✗ Quantitative – कितना ?

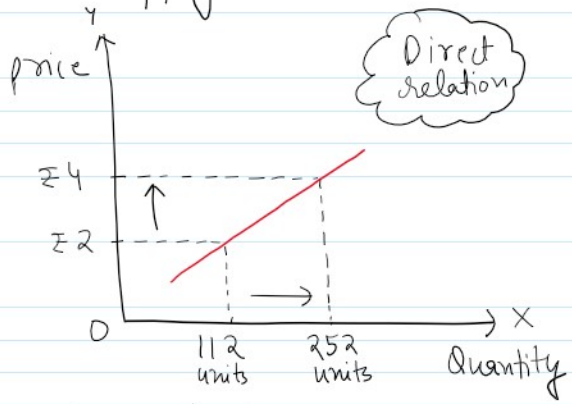
✓ Qualitative – Relation (रिश्ता)

$P_x \uparrow \; S_x \uparrow$

$P \uparrow 2 \quad S_x \uparrow ??$

(5) Supply Schedule and Supply Curve

Price	Quantity
₹1	100 units
₹2	112 units
₹3	250 units
₹4	252 units
₹5	950 units



Upward sloping curve

(6) Change in Quantity Supplied | Change in Supply

(6)

Change in Quantity Supplied

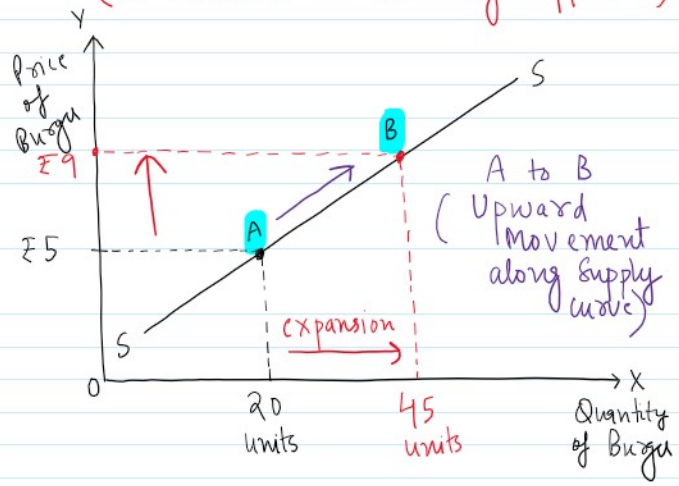
$$S_x = f(P_x, P_R, F, T, O)$$

It is of two types :-

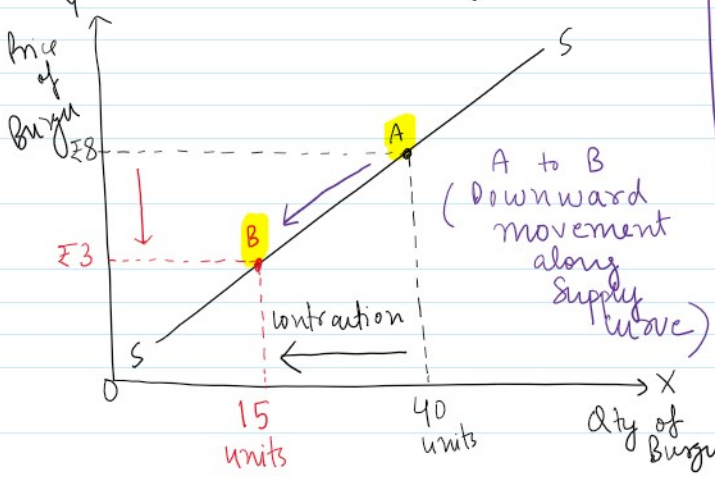
a) Expansion in Supply

b) Contraction in Supply

a) Expansion in Supply
(or Increase in Quantity Supplied)



b) Contraction in Supply
(Decrease in Quantity Supplied)



Change in Supply

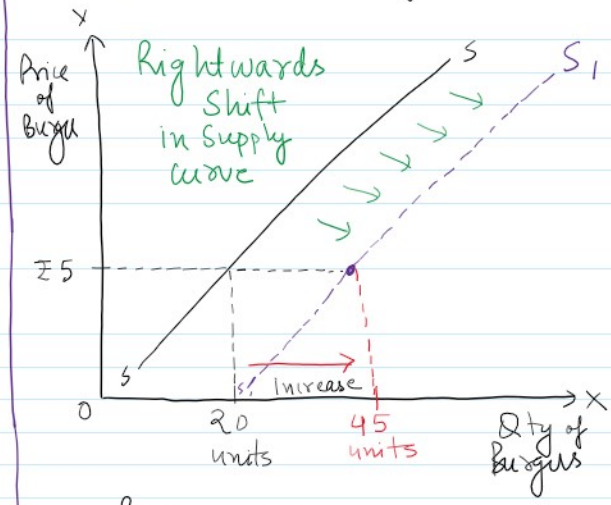
$$S_x = f(P_x, P_R, F, T, O)$$

It is of two types :-

a) Increase in Supply

b) Decrease in Supply

a) Increase in Supply



Reasons :-

(i) Decrease in P_R

(ii) Decrease in F

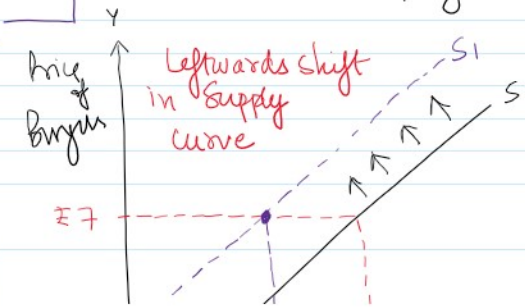
(iii) Decrease in Excise duty

(iv) Advancement in Technology

(v) Increase in Subsidy

(vi) Increase in Number of firms etc

(b) Decrease in Supply



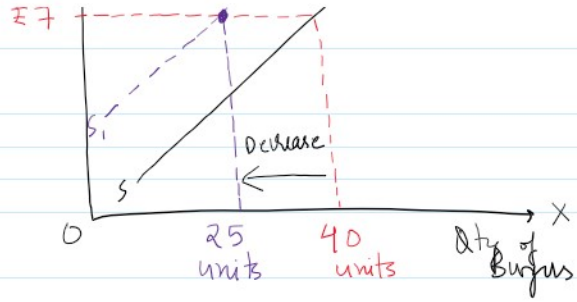
(1) Increase in P_R

(2) " " F

(3) " " Excise duty

(4) obsolete technology

(3) " " Excise duty of
(4) Obsolete technology
(5) Decrease in Subsidy
(6) " in No. of firms
etc



(7) Price elasticity of Supply (E_s)

$$E_s = \frac{\%\text{ change in Quantity}}{\%\text{ change in Price}}$$

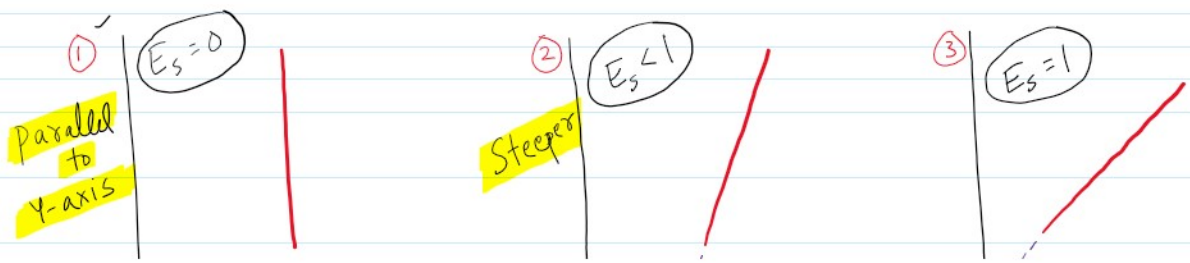
$$\%\text{ change in Quantity} = \frac{Q_1 - Q_0}{Q_0} \times 100$$

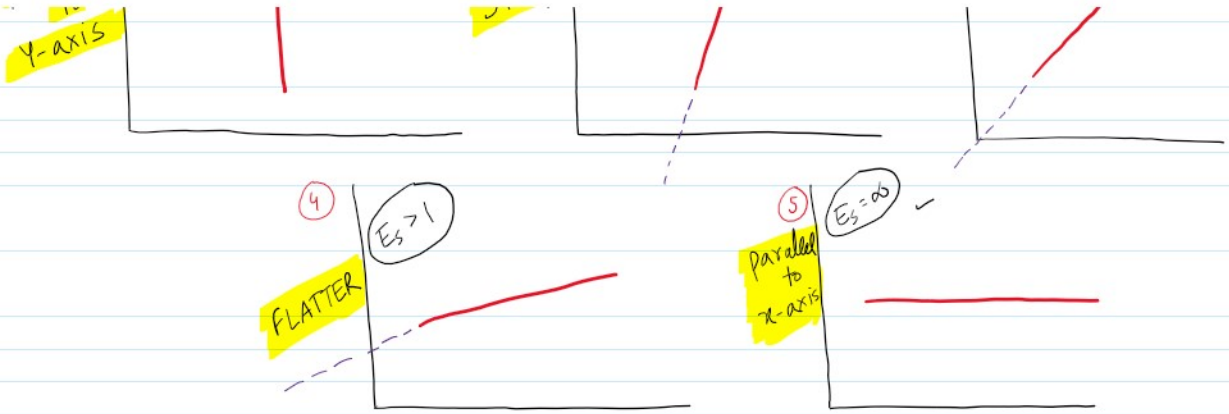
Q_1 = New Quantity
Q_0 = old Quantity

$$\%\text{ change in Price} = \frac{P_1 - P_0}{P_0} \times 100$$

P_1 = New Price
P_0 = old Price.

(i) $E_s = 0$	Perfectly Inelastic	% Δ in Q = 0
(ii) $E_s < 1$	Less than elastic (or Inelastic)	% Δ in Q < % Δ in P
(iii) $E_s = 1$	Unitary elastic	% Δ in Q = % Δ in P
(iv) $E_s > 1$	More than elastic (or Elastic)	% Δ in Q > % Δ in P
(v) $E_s = \infty$	Perfectly Elastic	% Δ in P = 0





Q :- Price of a good rises from ₹ 7.50 to ₹ 8.25 and its quantity supplied rises from 475 units to 617.5 units. Find E_s

Sol:-

$$\% \text{ change in Quantity} = \frac{Q_1 - Q_0}{Q_0} \times 100$$

$$= \frac{617.5 - 475}{475} \times 100$$

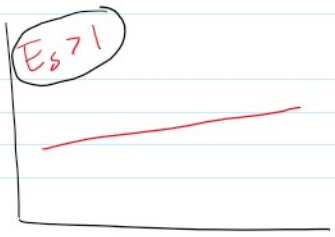
$$= 30\%$$

$$\% \text{ change in Price} = \frac{P_1 - P_0}{P_0} \times 100$$

$$= \frac{8.25 - 7.50}{7.50} \times 100$$

$$= 10\%$$

$$\therefore E_s = \frac{\% \text{ change in Quantity}}{\% \text{ change in Price}} = \frac{30\%}{10\%} = 3$$



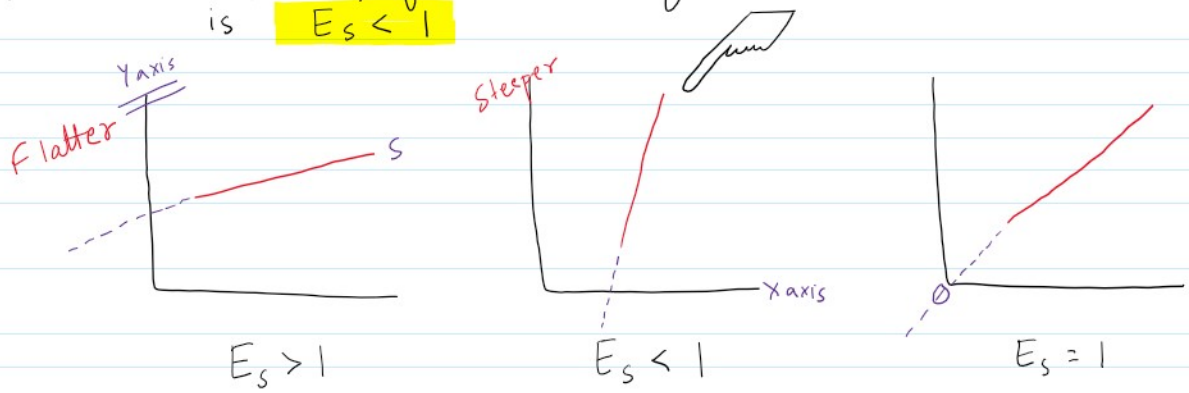
Q2- (*) E_s of supply curve passing through origin & making an angle of 75° is $E_s = 1$

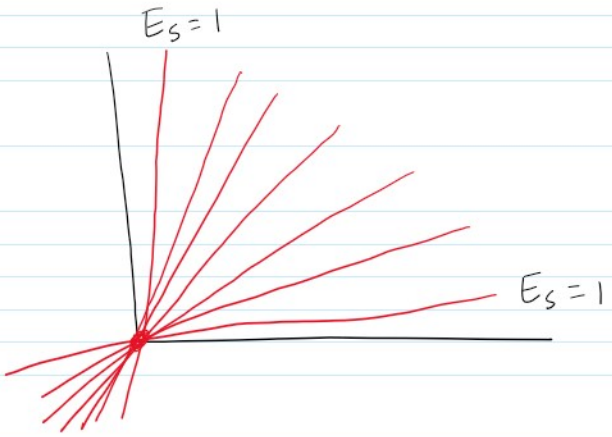
Q3- (*) E_s of supply curve passing through origin & making an angle of 30° is $E_s = 1$

Q4- E_s of supply curve cutting Y-axis on extention

Q4- E_s of supply curve cutting Y-axis on extention is $E_s > 1$

Q5 - E_s of Supply curve cutting X-axis on extention is $E_s < 1$





Q6- Is it possible that elasticity on same supply curve is not constant (i.e Varies) ??

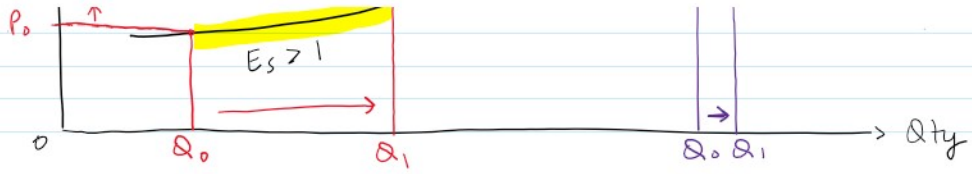
शिफ्ट $E_s > 1$ शिफ्ट $E_s < 1$

Sol:- YES (in case of Non-Linear Supply Curve)

↓

Curvilinear

↓



* Methods of Calculating E_s *

① **Point elasticity** — by default.

$$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P_0}{Q_0}$$

$$= \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

② **Arc elasticity**

$$E_s = \frac{Q_1 - Q_0}{Q_1 + Q_0} \times \frac{P_1 + P_0}{P_1 - P_0}$$

* Factors affecting elasticity of Supply *

Flexible : Change in Quantity very easy (very large) ↓ Elastic → $E_s > 1$

Not flexible :- Change in Quantity very less → Inelastic → $E_s < 1$

(i) Time Period

producer

→ (5 yr.) Long time period → $E_s > 1$

— (5 sec) Short time period → $E_s < 1$

Supply ↑↑↓↓↓

(ii) Expected Cost of Production

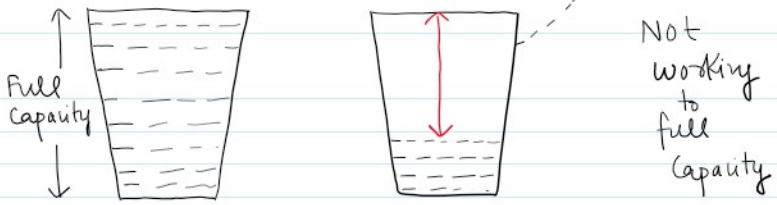
production ↑↑↑ COST ↑↑↑ → Supply is inelastic

(iii) Supply is **more elastic** if firms are **not** working to full capacity

Less elastic

not working to full capacity

Less elastic
more elastic



(iv) Availability of Raw Materials

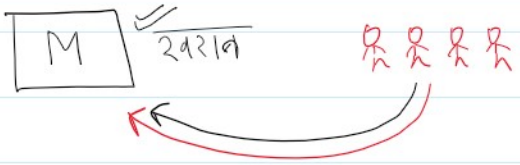
→ easily available $E_s > 1$

→ Not easily available $E_s < 1$

(v) Ease of Factor Substitution

Factor की अदला - बदली

(Labour) Machine



i) Easy :- $E_s > 1$

ii) Hard :- $E_s < 1$

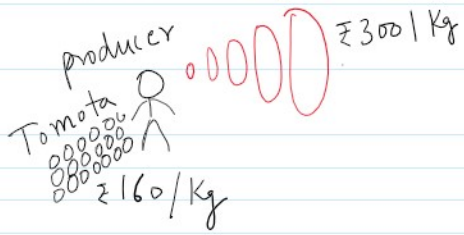
(vi) Mobility of factors

→ easy – $E_s > 1$

→ Not mobile – $E_s < 1$

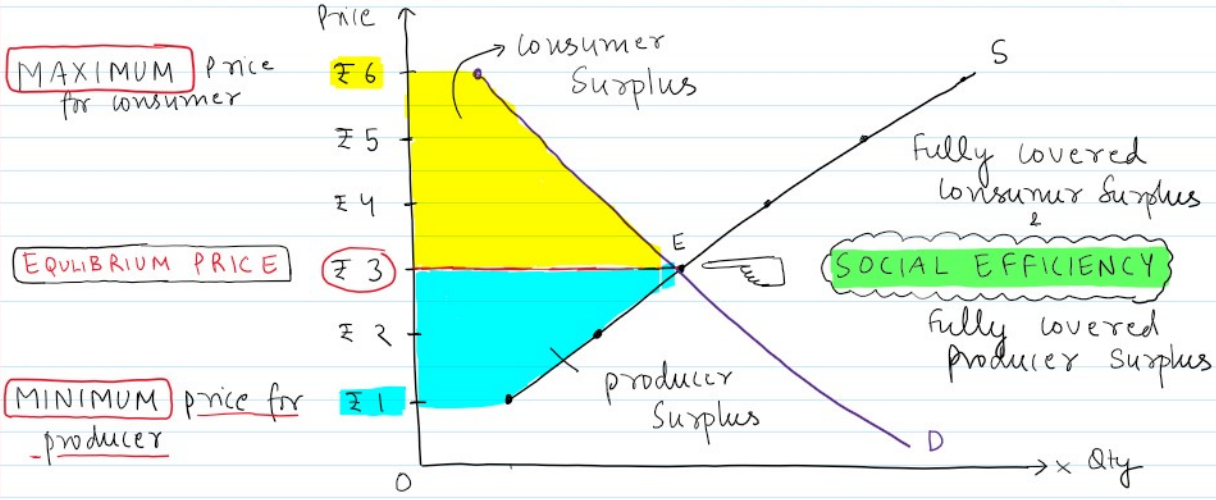
(vii) Future expectation

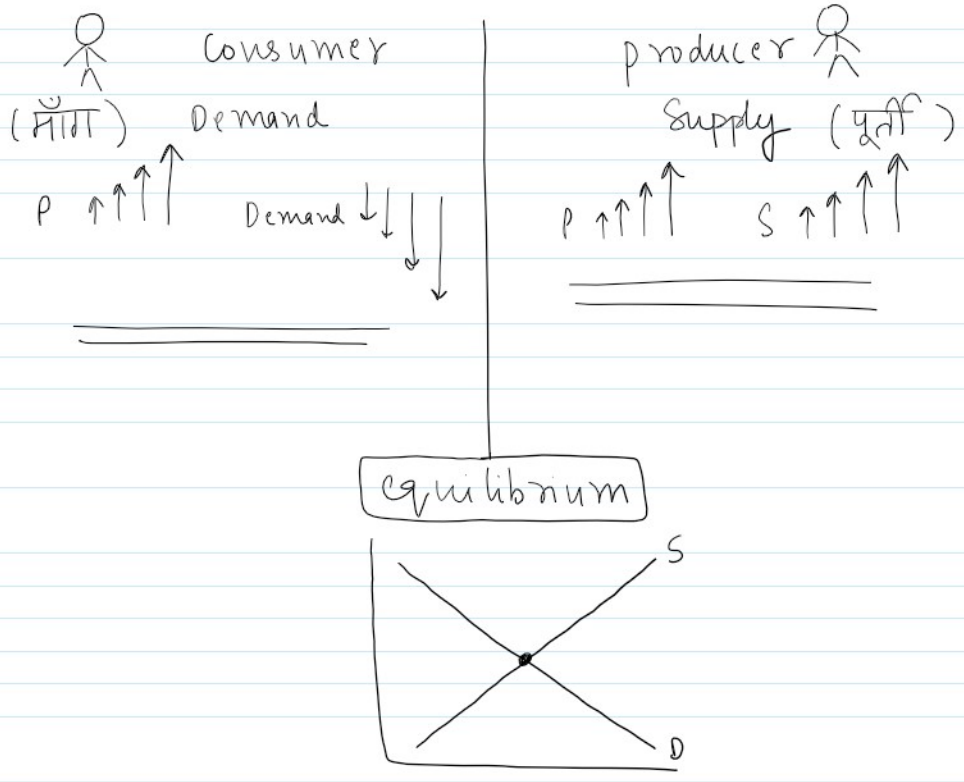
(vi) Future expectation



Supply inelastic

* EQUILIBRIUM & SOCIAL EFFICIENCY *





Q1- Q = (-)100 + 10 P

= find E_s when P = 15

find E_s when $P = 15$

Sol:-

Quantity

$P_0 = ₹15$

$Q_0 = 50$

price

$P_1 = ₹16 / ₹17$ — Any Value

$Q_1 = 60 / 70$

$$E_s = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

$$= \frac{60 - 50}{16 - 15} \times \frac{15}{50}$$

$$= \frac{10}{1} \times \frac{\cancel{15}}{\cancel{50}} = 3$$

Q2- When price is ₹15, quantity is 400 units. With fall in price by 20%, quantity falls by 120 units. Find E_s (i) Point method (ii) Arc method.

$$E_s = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

$$= \frac{280 - 400}{12 - 15} \times \frac{15}{400}$$

$$= \frac{\cancel{+}120}{\cancel{+}3} \times \frac{\cancel{15}^{5}}{\cancel{400}}$$

$$= 1.5$$

$$E_s = \frac{Q_1 - Q_0}{Q_1 + Q_0} \times \frac{P_1 + P_0}{P_1 - P_0}$$

$$= \frac{280 - 400}{280 + 400} \times \frac{12 + 15}{12 - 15}$$

$$= \frac{\cancel{(-)}120}{680} \times \frac{27^{9}}{\cancel{(-)}3}$$

$$= 1.58$$

Q3- $Q = (-)12 - 5P$

Find E_s when $P = ₹9$

Sol:-

$P_0 = 9$

$Q_0 = (-)57$

$P_1 = 11$ — Any Value

$Q_1 = (-)67$

Sol:-

$P_0 = 10$

$Q_0 = (-)57$

$P_1 = 11$

$Q_1 = (-)67$

$$\frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0} \Rightarrow \frac{(-)67 - (-57)}{11 - 9} \times \frac{9}{(-)57}$$

$$= \frac{(-)10}{2} \times \frac{9}{(-)57}$$

$$= 0.789$$

Q4 - E_s of Good X is half of E_s of Good Y. 10% fall in price of Good Y results in fall in supply from 400 units to 280 units. Calculate % change in Quantity of Good X when its price falls from ₹ 20 to ₹ 18.

Sol

Good X

E_s ← half

$E_s = 1.5$

$P_0 = 20$

$P_1 = 18$

% Change in Price $= \frac{P_1 - P_0}{P_0} \times 100$

$= \frac{18 - 20}{20} \times 100$

$= (-)10\%$

$E_s = \frac{\% \text{ C in } Q}{\% \text{ C in } P}$

$1.5 = \frac{\% \text{ C in } Q}{(-)10\%}$

Good Y

E_s

% change in Price $= (-)10\%$

$Q_0 = 400$

$Q_1 = 280$

% change in Qty $= \frac{Q_1 - Q_0}{Q_0} \times 100$

$= \frac{280 - 400}{400} \times 100$

$= (-)30\%$

$E_s = \frac{\% \text{ C in } Q}{\% \text{ C in } P} = \frac{(-)30\%}{(-)10\%} = 3$

(−) 10%

∴ % (in Q = (−) 15 %

Q5 - Price of a goods changes from ₹ 4 to ₹ 4.80
As a result quantity rises by 12 units.
find Q_0 and Q_1 when $E_S = 1.5$

Sol:- $P_0 = 4$ $\quad Q_0 = x$

$P_1 = 4.80$ $\quad Q_1 = x + 12$

$$E_S = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

H.W
Ch 2.
1 − 120

$$1.5 = \frac{(x+12) - x}{4.80 - 4} \times \frac{4}{x}$$

$$1.5 = \frac{12}{0.8} \times \frac{4}{x}$$

$$x = \frac{12 \times 4}{0.8 \times 1.5} = 40 \quad (Q_0)$$

$$\therefore Q_1 = 40 + 12 = 52$$

ECONOMICS

CH - 3

(Unit - 1)

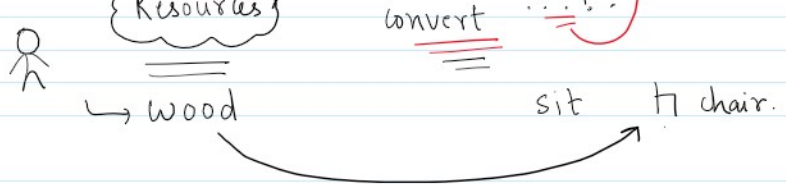
Theory of Production

① **Production**

→ wider sense in Economics

→ It is a process by which man utilizes (converts) the resources of nature so as to make them satisfy human wants

Plan 21



↳ wood → sit ⊓ chair.

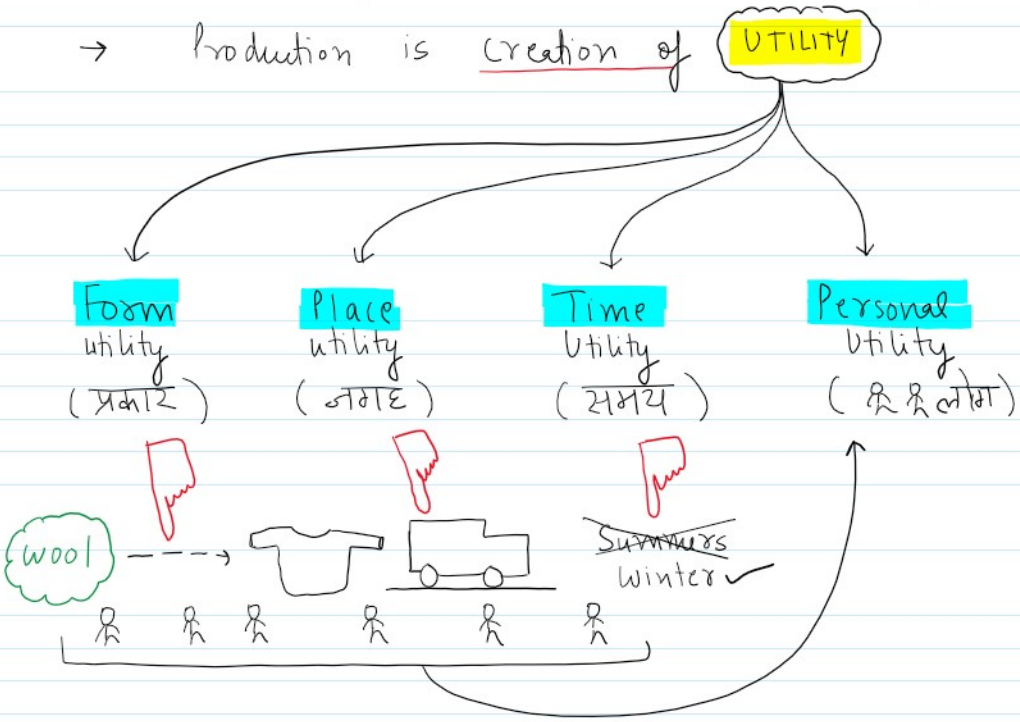
→ Making of chair (+) Services of Doctor.

BOTH ARE PRODUCTION

→ Production can be defined as CREATION/ ADDITION TO UTILITY (i.e Production is nothing but creation of utilities in the form of GOODS and SERVICES

(~~Video game~~ :-) ~~creation of utility~~ :-))

→ Production is creation of UTILITY



(2) V. Imp.

"FACTORS" OF PRODUCTION

INPUTS required ??????????

→ Land } primary / original factor
→ Labour
→ Capital — Produced factor
→ Entrepreneur

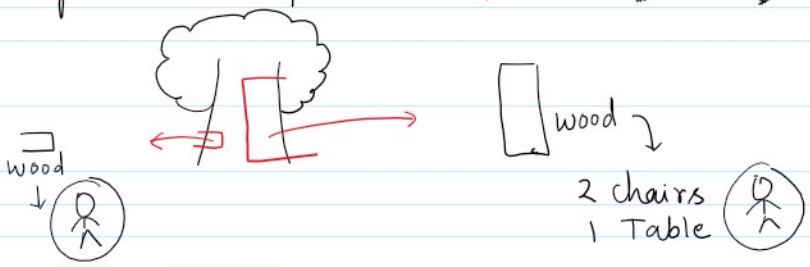
A. LAND

→ Wider Sense in Economics

→ All FREE GIFTS of NATURE (Soil, Water, Air, Mountains, Rivers, etc etc)

→ It cannot be created (nor destroyed)

→ Its usefulness depends on HUMAN EFFORTS



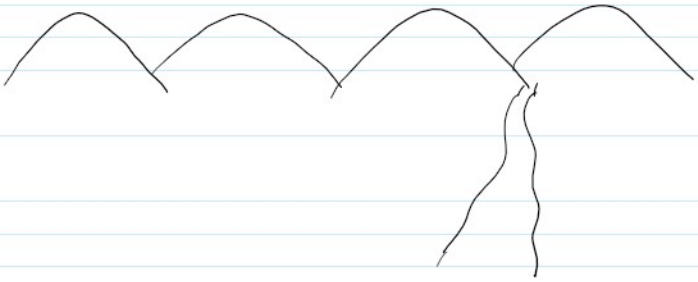
→ It is a Passive factor (Not Active)

→ Heterogeneous (Different - 2)

→ Land "cannot be shifted" from one place to another.

→ Supply of Land is PERFECTLY INELASTIC

(i.e FIXED / CONSTANT)



B. LABOUR

→ Mental (+) Physical

EXERTION --- efforts

to produce goods & Services

→ It is an Active factor

→ It may not be productive.

"🧍 efforts" → (0)

मजदूर

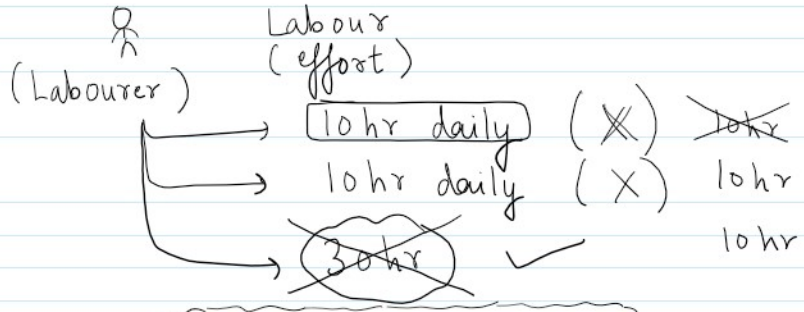
7 → 100

8 → 100

→ Work done for sake of pleasure or love + affection is NOT LABOUR

Services of Housewife

→ Labour is PERISHABLE (i.e Labour can not be stored)



→ Labour has POOR bargaining power

(*) → Supply of Labour + Wage Rate Relation

मेहनत का समय

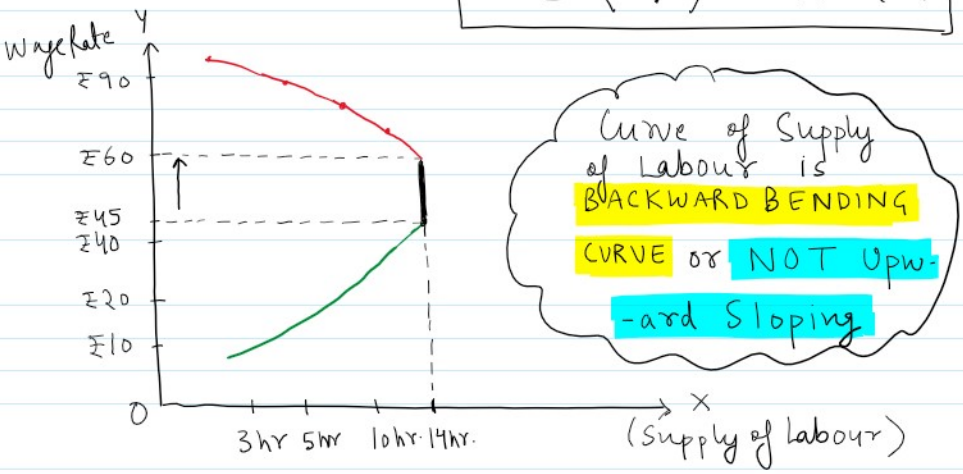
$W_R (\uparrow)$ $S_L (\uparrow)$ Leisure Time $(\downarrow)$

BUT after certain point even if

$W_R (\uparrow)$ S_L doesnot increase and they prefer Leisure time

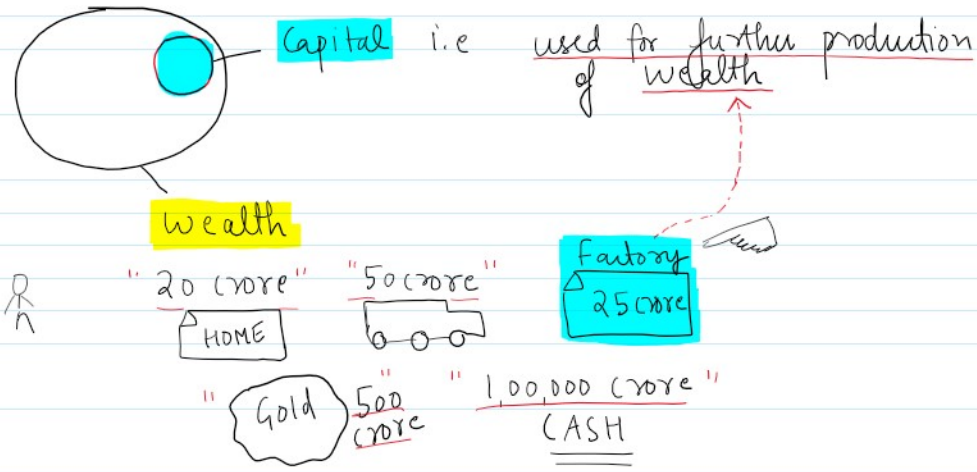
WR (↓) they prefer Leisure time

S_L (↓) Leisure time (↑)



Curve of Supply of Labour is BACKWARD BENDING CURVE or NOT Upw--ard Sloping

C. CAPITAL (Produced Factor)



→ Capital is a result of SAVINGS

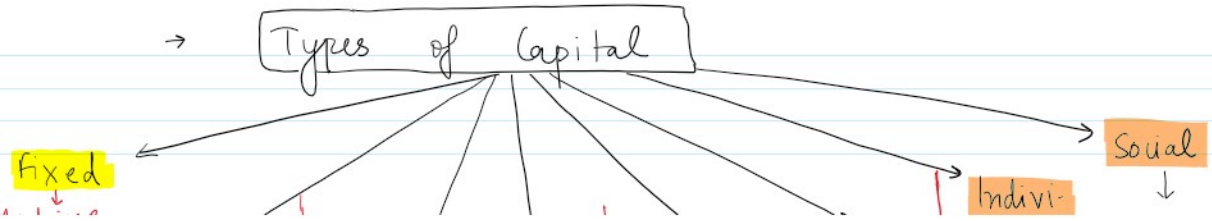
→ It is a "STOCK" concept

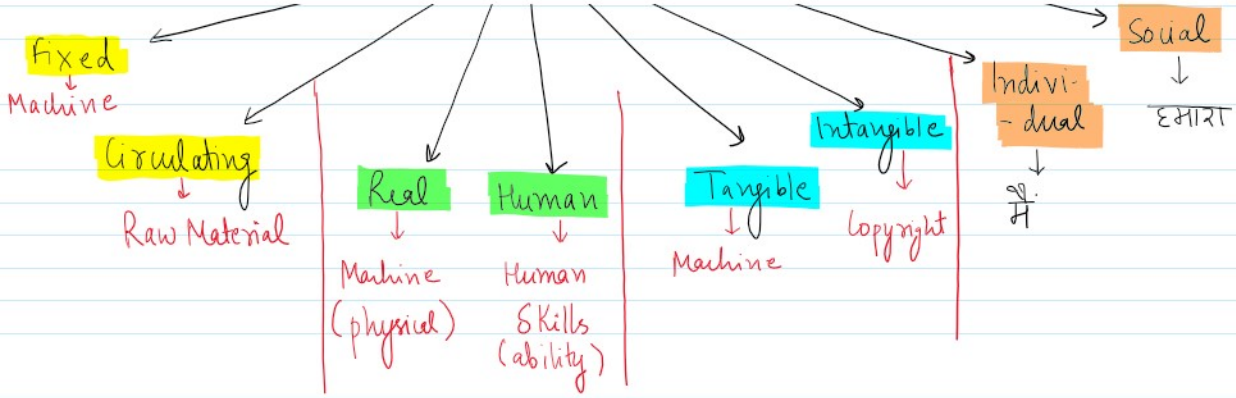
→ If some resources (wealth) are lying idle; then these are not part of Capital

" production नहीं करता "

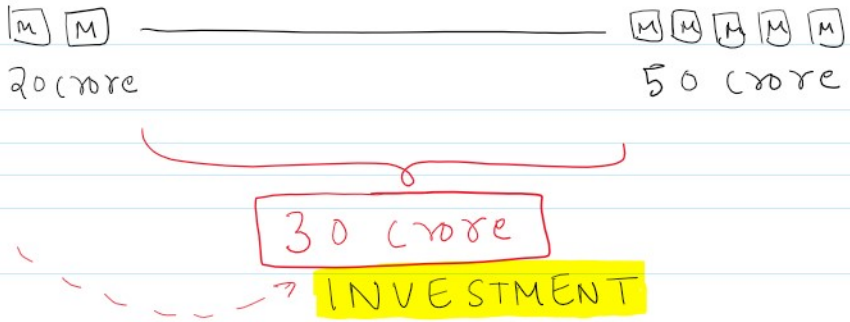
→ Capital is PRODUCED means of production

→ Types of Capital

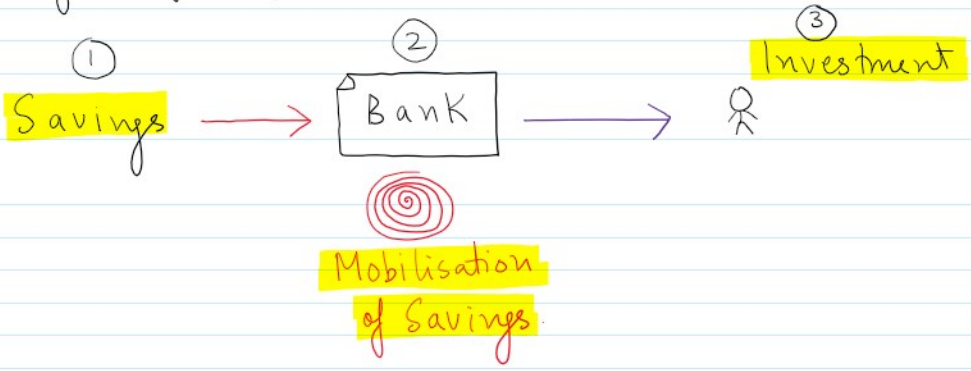




→ Capital Formation – sustained increase in stock of Real Capital.



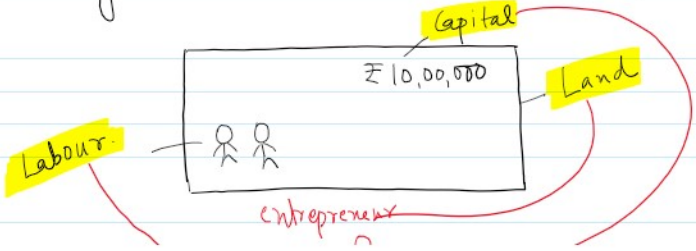
→ Stages of Capital formation

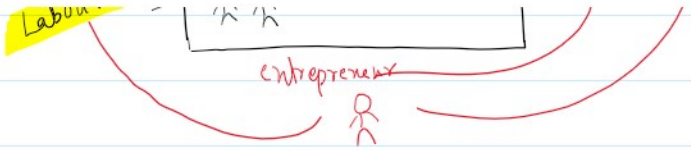


D. ENTREPRENEUR

(Organiser OR Manager OR Risk Taker)

Who mobilises the above three factors (i.e Land, Labour, Capital)





→ He initiate the business and takes Risk
and bears uncertainity
↓
Unforeseen

Foreseen

→ Schumpeter – INNOVATION is the main function of entrepreneur.

→ Frank Knight – Profit is the reward of Bearing "Uncertainities"

→ Enterprise Objectives.

① Organic Objective

. पहले Survival फिर Growth & Expansion

R-L Marris
(Utility function)

मालिक वर्ग
Owners
(profit, marketshare, Reputation)
↓
They want to maximise their utility function.

employees.
Management
(Salary, Power, Status, job security)
↓
They want to maximise their utility function.

DIVERGENCE

GROWTH in the SIZE of FIRM

CONVERGENCE

CONVERGENCE

(2) Economic Objective

PROFIT MAXIMISATION

profit क्या है ??

Details in COST chapter

Accounting profit :- Total Revenue (-) Explicit COST

Economic profit :- Total Revenue (-) Economic COST

H A Simon	Baumol's theory	A A Berle & G C Means (Williamson's theory)	Cyert & March
Only Reasonable profit.	SALES Maximisation	Managers want to enjoy discre-tionary powers	profit (+) production goals (+) Inventory goals (+) Sales goals (+) Market share goals.

(iii) Social objectives

- → Un adulterated goods.
- → Avoid anti social practices

(iv) Human objectives

- → fair deals to employees
- → develop new skills & abilities

(v) National Objectives

- → Remove inequality
- → help the country to become self sufficient

→ help the country to become self sufficient

* Various objectives may CONFLICT with each other.

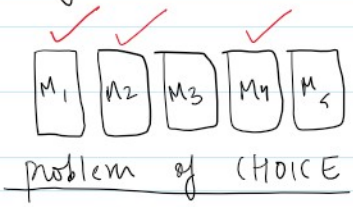
profit — Economic VS Social (निगम)

→ Enterprise Constraints (बाधाएँ)

- Lack of Knowledge & information (सरकार)
- Restrictions imposed by state in public Interest
- Infrastructural inadequacies
- Changes in Business & economic conditions
- Events - Interest Rates, Inflation etc

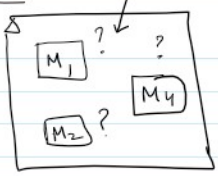
→ Enterprise PROBLEMS

- Problems relating to objectives - objectives are multifarious (conflicting)
- Problem relating to location & size of plant
- Problem relating to selecting & organising physical facilities



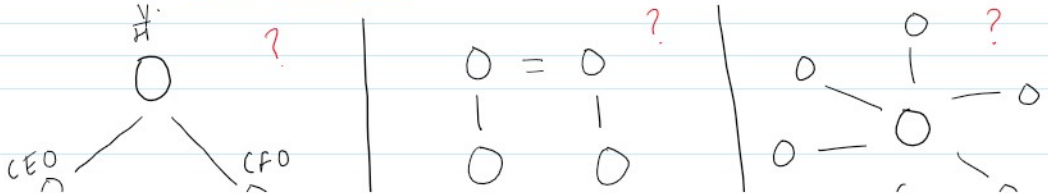
problem of CHOICE

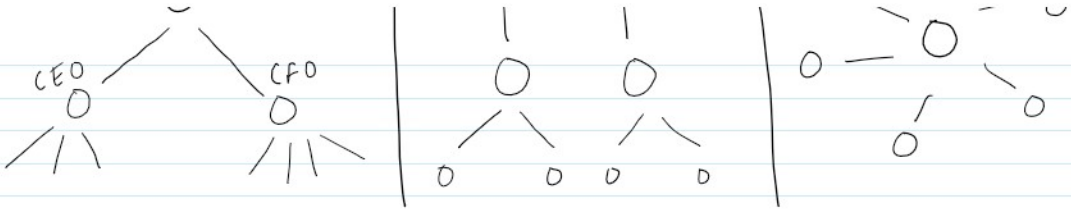
Machine.



- Problem relating to FINANCE
- Problem relating to Organisation structure

अपना पैसा ?
पराया पैसा ?





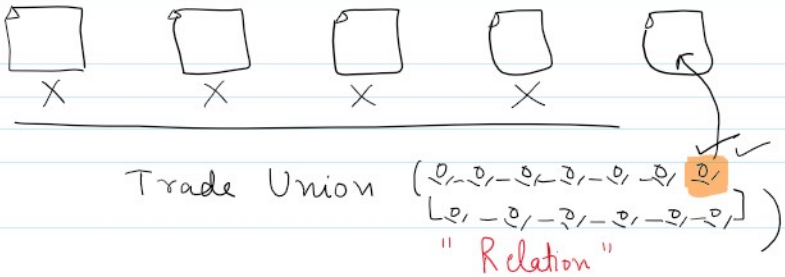
- Problem relating to **Marketing**

4 Ps — Price, Product, Place, Promotion

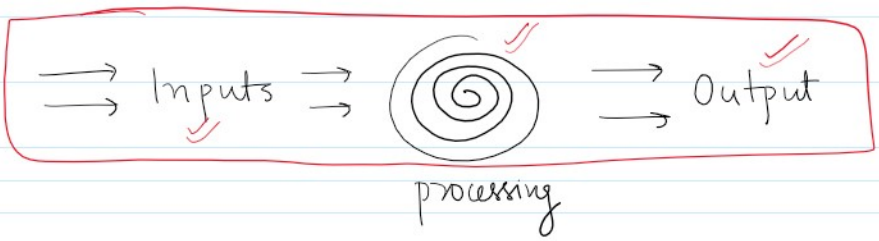
- Problem relating to "**legal**" formalities

{ CA + CS + Lawyer + MBA }

- Problem relating to **Industry Relations**



(3) PRODUCTION FUNCTION



$$Q = f(F_1, F_2, F_3, \dots F_n)$$

Q → Desired Output

$F_1, F_2, F_3, \dots F_n$ → Factor Inputs.

Mango shake = f (Milk, Mango, Sugar, Ice, Cream ----)

→ (R) Basically it can be defined as **minimum** ★

→ (R) Basically it can be defined as minimum quantities of various inputs that are required to yield given output

(given output)

Inputs Minimum

200 ml Milk + 1 Mango + 1 sugar

- Given Inputs ✗
- Maximum inputs. ✗
- Maximum Output ✗
- Minimum Output ✗

→ Assumptions :-

- The above relationship is for "specific time period" only
- Technology remains constant
- In the production function we assume that "given output" is Maximum

→ Short Run (short period)

- Atleast 1 input is FIXED (Factor)
- Other inputs are variable

→ Land, 👤👤👤👤👤, R.M, etc, etc (x2)

Input.

Returns to FACTOR

Long Run (Long Period)

- All inputs are variable. (NO FIXED INPUT)

= Land, 👤👤, RM, etc, etc

25 years

Change ✓

Returns to SCALE

→ Paul H Douglas and C. W. Lobb

Manufacturing Industries

Capital (Machine)	Labour
25% (one fourth)	75% (three-fourth)

Cobb - Douglous Production Function.

$$Q = K \cdot L^{a} \cdot C^{(1-a)}$$

Output — Labour — Capital

K, a are Positive Constants

---

* Total Product (TP) *

→ Total output produced with the use of given inputs.

→ $TP = AP \times N$

→ $TP = \Sigma MP$

* Average Product (AP) *

$$AP = \frac{TP}{N}$$

* Marginal Product (MP) *

→ It is the additional product with ...

* Marginal Product (MP) *

→ It is the **additional product** with every additional unit of **variable input**

(Labour)

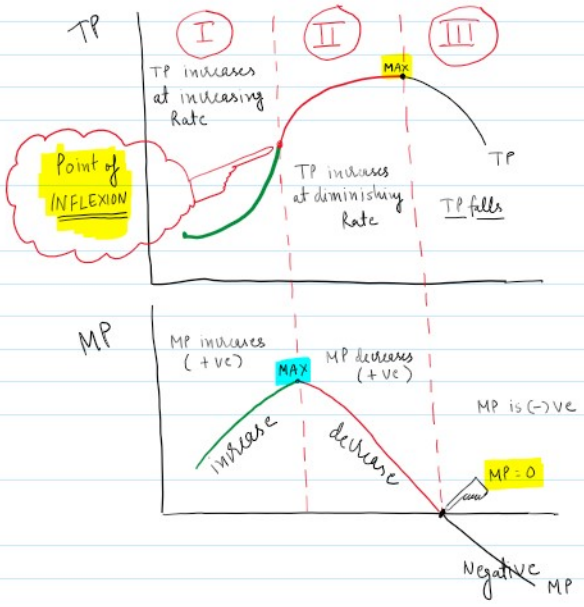
→ $MP = \frac{\Delta TP}{\Delta N}$

→ MP is * SLOPE * of TP

* **N** = No. of **Variable Inputs** (मजदूरों की संख्या)

SHORT RUN →

	Fixed Input (LAND)	Variable Input (Labour)	Total Product (TP)	Average Product (AP)	Marginal Product (MP)
	1	0	0	0	0
Stage I	1	1	4	4	+ 4
	1	2	10	5	+ 6
	1	3	18	6	+ 8
Stage II	1	4	24	6	+ 6
	1	5	28	5.6	+ 4
	1	6	30	5	+ 2
	1	7 (Fifth)	30	4.2	0
Stage III	1	8 (Dost)	28	3.5	(−) 2
	1	9	24	2.6	(−) 4
	1	10	20	2	(−) 4



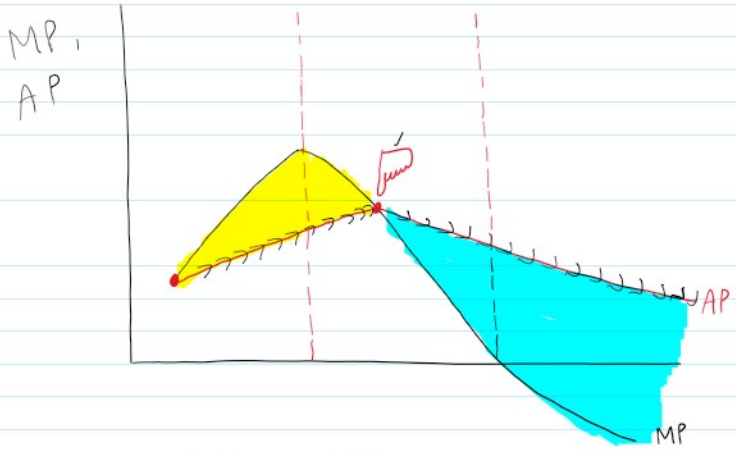
(i) When TP increases at increasing rate then MP is (+)ve and increasing.

(ii) When TP increases at diminishing rate then MP is decreasing (but positive)

MP is decreasing (but positive)

(iii) When TP is Maximum then MP is Zero

(iv) When TP falls then MP is Negative



(i) When MP > AP ; AP rises

(ii) When MP < AP ; AP falls

(iii) When MP = AP ; AP MAXIMUM

Law of Variable Proportion (Short Run)

Stage I :- Increasing Returns to Factor

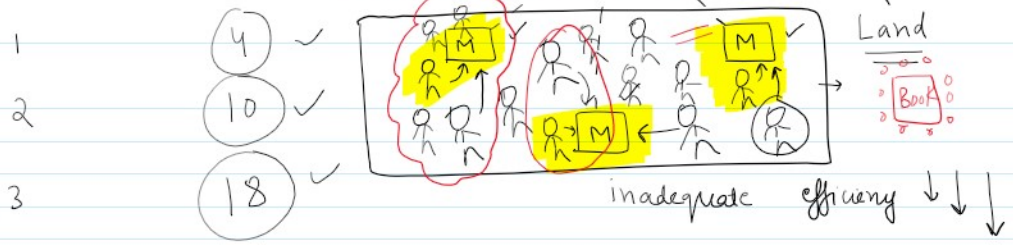
→ TP increases at increasing rate

→ MP increases at reaches maximum (Point of Inflexion)

Reasons for Stage I

R

- Specialisation
- "Indivisibility" of Factors
- Efficiency of Fixed Factors :-)



Stage II :- Diminishing Returns to Factor

→ TP increases at diminishing rate

→ MP falls and reaches Zero.

→ TP also reaches its Maximum.

→ MP falls and reaches Zero.

→ TP also reaches its Maximum.

* → After point of Inflexion, fixed factors become inadequate i.e loss of efficiency

Stage III :- **Negative Returns to Factor**

→ TP falls

→ MP becomes negative

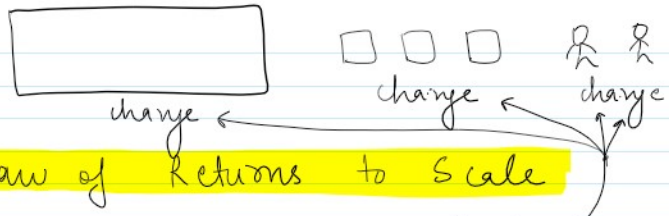
* → Quantity of variable factor (i.e labour) becomes "too excessive" relative to fixed factor. (Poor coordination)

* Rational Producer will "always produce" in **STAGE - 2** (because TP is MAXIMUM)

* Stage 1 & Stage 3 are stages of **Economic Absurdity** (Nonsense)

LONG RUN

(ALL factors are Variable)



Law of Returns to Scale

→ Change in scale means that **all** factors of production are increased / decreased in **Same Proportion**

eg

L = Labour
K = Capital

Inputs	Output
1L + 2K	100 units
2L + 4K	220 units
4L + 8K	480 units
8L + 16K	740 units
16L + 32K	900 units
32L + 64K	1040 units
64L + 128K	1100 units

32L + 64K	1040 units
64L + 128K	1100 units

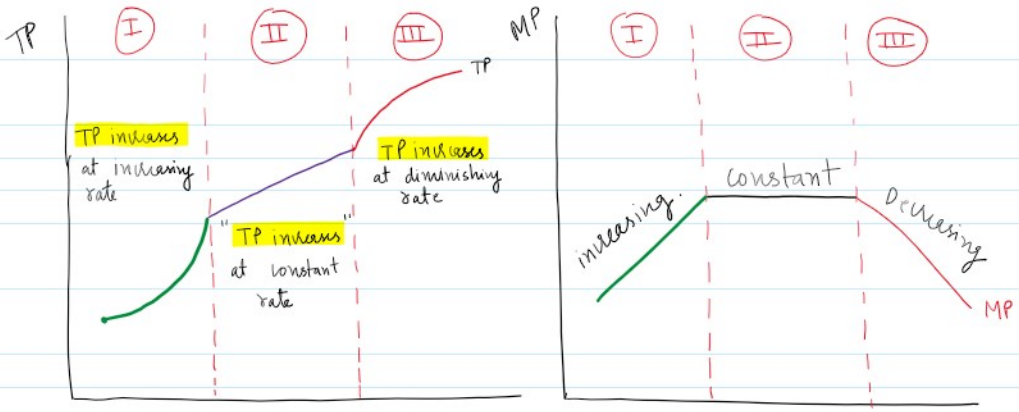
* In long run there are 3 stages of production

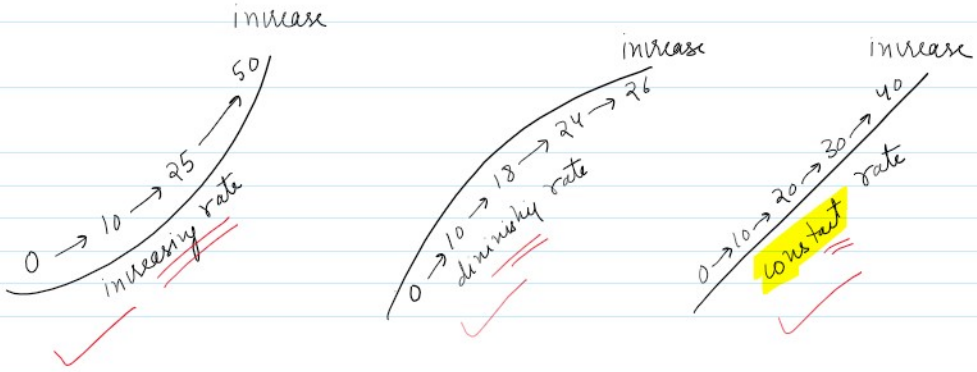
(i) Stage I : Increasing Returns to Scale
- TP increases at increasing Rate
- MP increases

(ii) Stage II :- Constant Returns to Scale
- TP increases at constant Rate
- MP is constant

(iii) Stage III :- Decreasing Returns to Scale
- TP increases at diminishing Rate
- MP decreases.

NO Negative Returns in Long Run





* Cobb & Douglas

$$Q = K \cdot L^{a} \cdot C^{b}$$

$$Q = K \cdot L^{a} \cdot C^{b}$$

Q: Output, L: Labour, C: Capital

K, a, b are positive constant

Increasing RTS ($a + b > 1$) : % change in Output (+25%) > % change in all Inputs (+20%)

Constant RTS ($a + b = 1$) : % change in Output (+25%) = % change in all Inputs (+25%)

Decreasing RTS ($a + b < 1$) : % change in Output (+25%) < % change in all Inputs (+35%)

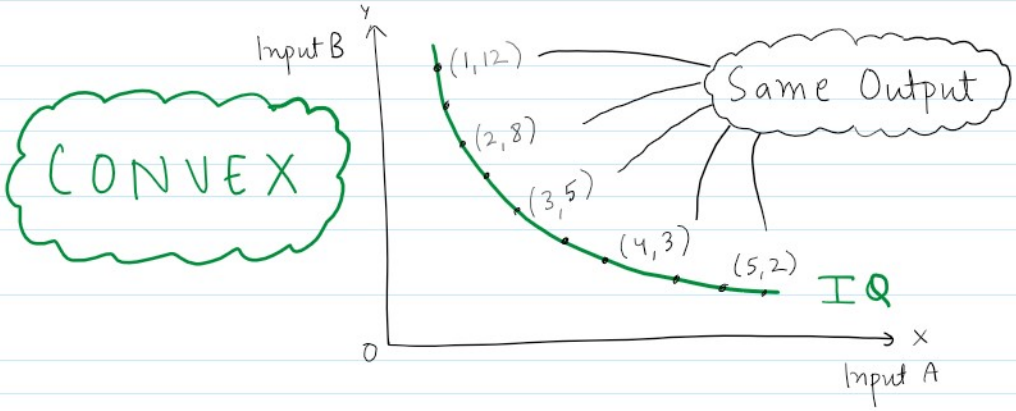
* Constant Returns to Scale is also known as **Linear Homogeneous production function**

1st line — पहली लाइन

* Product Optimisation *

(1) **Iso Quant curve** or **Equal Product Curve** or **Production Indifference Curve** or **Iso Product Curve**

	Input A (Labour)	Input B (Machine)	Output	Marginal Rate of Technical Substitution (MRTS)
(1, 12)	1	12	100 units	-
(2, 8)	2	8	100 units	4
(3, 5)	3	5	100 units	3
(4, 3)	4	3	100 units	2
(5, 2)	5	2	100 units	1



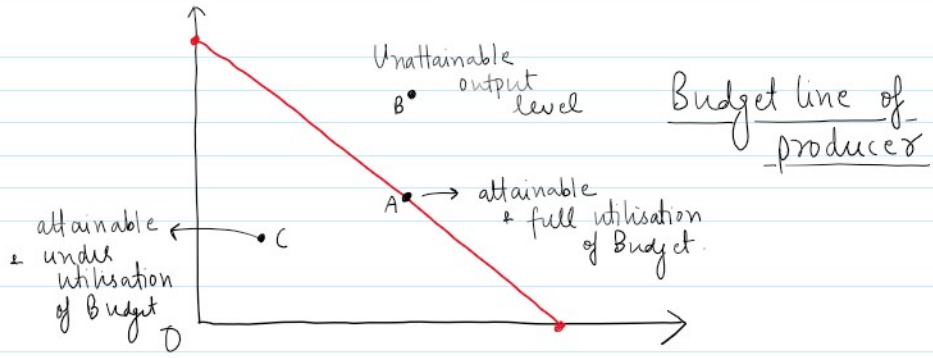
* Iso Quant is convex because of Diminishing MRTS

* MRTS is the SLOPE of Iso - Quant

* Iso Quant is convex because of Diminishing MRTS
* MRTS is the SLOPE of Iso-Quant

→ $\frac{\Delta \text{ input sacrificed}}{\Delta \text{ input gained}}$.

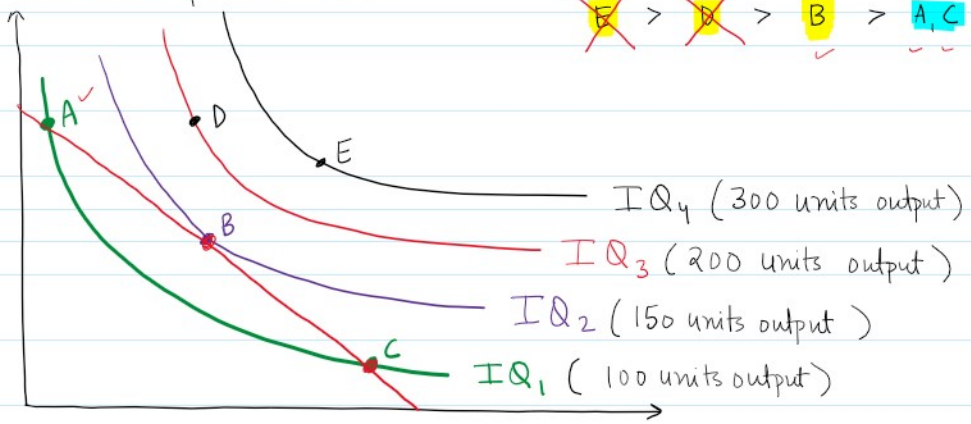
(2) Iso-Cost OR Equal Cost lines



(3) Product Optimisation

$IQ_4 > IQ_3 > IQ_2 > IQ_1$

~~E~~ > ~~D~~ > B > A, C



Point B is product optimisation Point. (✓)

Economics

CH-3 Unit 2

Theory of Cost

(1) Imp. Economic Cost and Accounting Cost

→ Accounting cost is the cost which is accounted for i.e recorded in the books of account Eg:- all payments made by firm. Eg- Rent paid, Salary paid etc. It is also known as Explicit Cost

₹1200

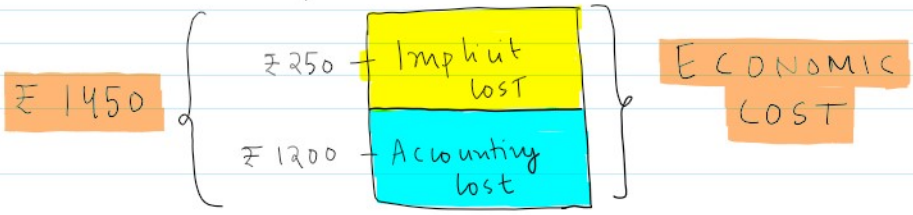
→ Economic cost includes :-

a) Accounting cost +

→ Economic lost includes :-

a) Accounting lost &

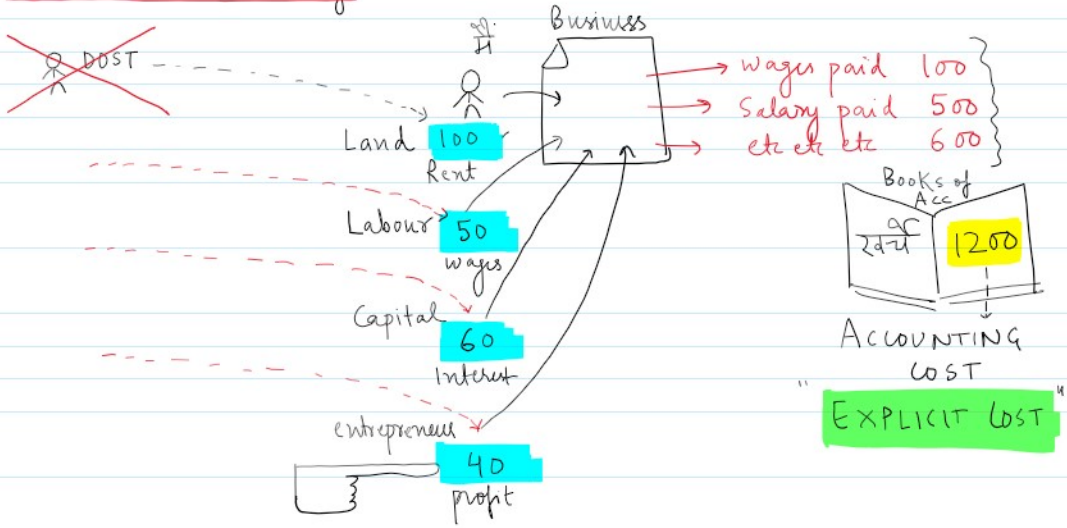
b) Implicit lost.



→ Implicit lost :- Amount of money the entrepreneur could have been earned if he had invested his money & sold his money services in the next best alternative use. It includes normal profit also.

₹ 250

For own understanding



कमा सकता था → 250
अब नहीं कमा पाऊँगा

opportunity lost

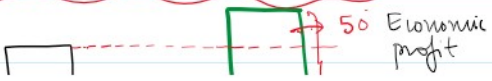
IMPLICIT COST

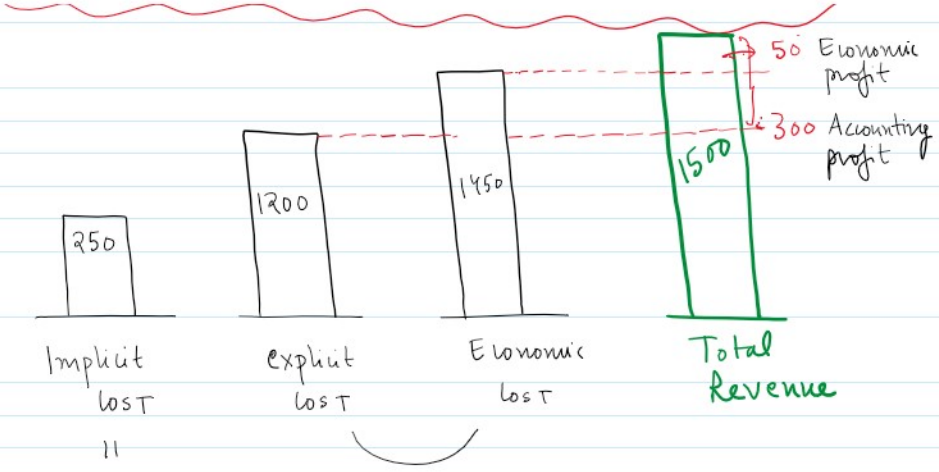
Link with production chapter

Accounting Profit = Total Revenue (−) Accounting lost

Economic Profit = Total Revenue (−) Economic lost

* Can AP > EP ? YES
* Can EP > AP ? NO





Implicit cost 1

Explicit cost 2

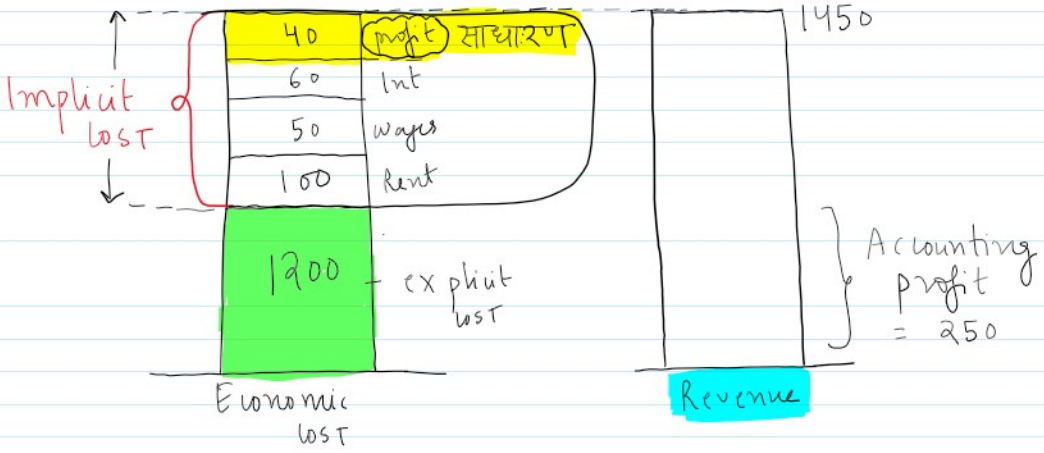
Economic cost 3

TR = 10

AP = 8 EP = 7

(3) Normal Profit (No profit No Loss situation)

Revenue = Economic cost



→ Here Economic Profit = Revenue − Economic cost

= 1450 − 1450

= 0

When Economic Profit is zero

then it is point of "Normal profit"

then it is point of "Normal profit"

3. Outlay lost vs Opportunity lost

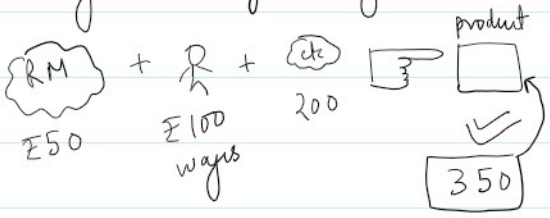
Outlay lost → actual lost i.e recorded in Books (Explicit)

Opportunity lost → cost of next best alternative foregone i.e not recorded in books. (Implicit)

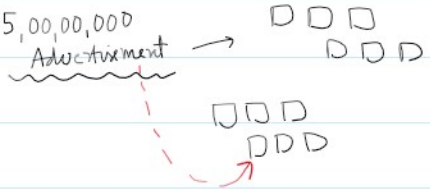
4. Direct lost vs Indirect lost

Traceable → which are easily identified and traceable to a particular good or service

eg - Manufacturing cost



Non-Traceable → NOT easily identified ~~&~~ traceable to a particular good or service eg :- Advertisement

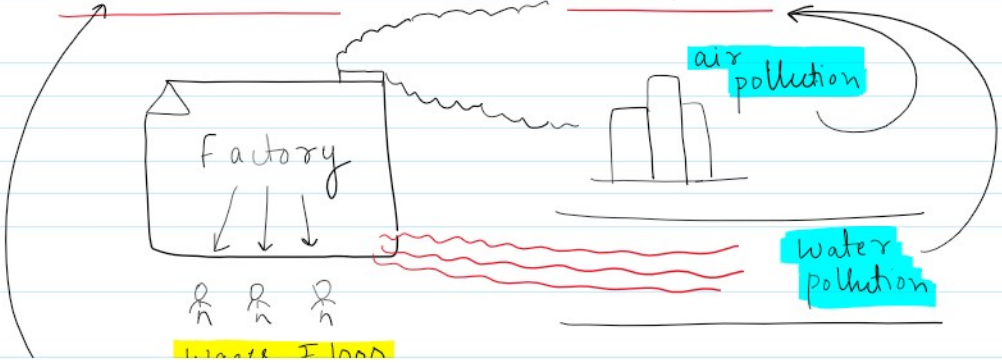


(5) Historical lost vs Replacement lost

5 years back.

Still ~~not~~ Value

(6) Individual lost vs Social lost



(7) Fixed cost or Variable cost

Fixed cost → Does not change with change in Output → Rent

- SUNK COST
- Inescapable cost
- Uncontrollable cost
- OVERHEADS

Variable cost → vary with change in Output → Raw Material, Wages

- INCREMENTAL COST.

* COST FUNCTION *

→ It is a relation between cost of product and various determinants.

$$C = f(a, b, c, d \text{ ---------- } \infty)$$

C → COST of product

a, b, c, d ---------- ∞ → Various factors

- price of factor "Input" ~~Output~~
- Size of Output ~~inputs~~
- Technology
- Taxes
- Production function *

→ Types of cost function

- Short Run
- Long Run

Short Run
Cost function

TC, TVC, TFC, AVC, AFC, AC, MC

Long Run
Cost function

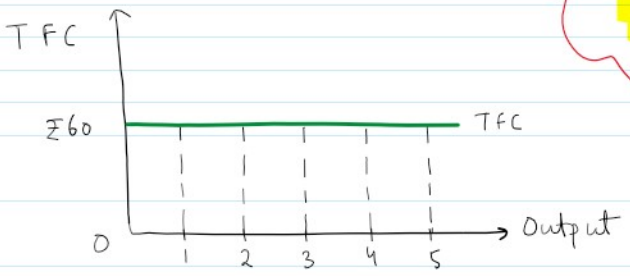
only LAC

→ **Short Run Costs**

① **Total fixed cost** (TFC)

Output	TFC
0	60
1	60
2	60
3	60
4	60
5	60

parallel to x-axis



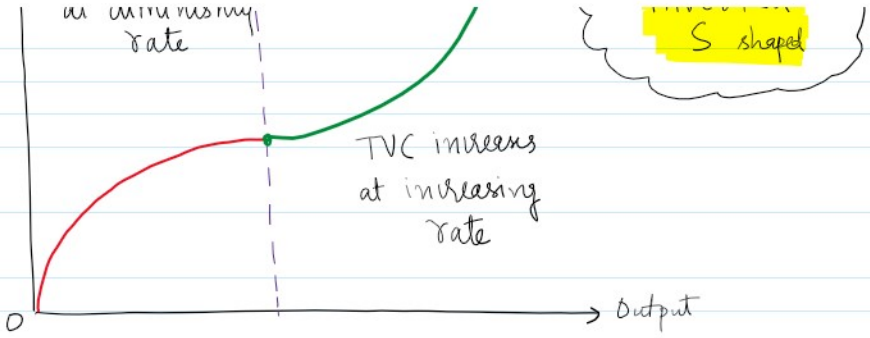
② **Total Variable cost** (TVC)

Output	TVC	
0	0	
1	10	+10
2	18	+8
3	24	+6
4	28	+4
5	40	+12
6	55	+15
7	80	+25
8	150	+70

Increasing at diminishing rate

Increasing at increasing rate

Inverted S shaped

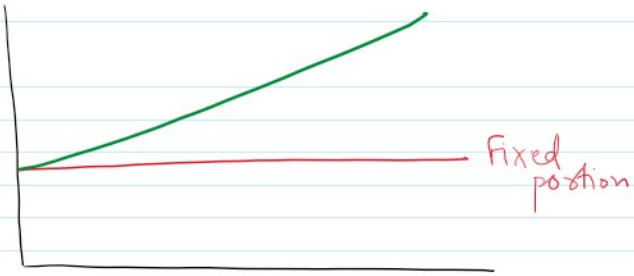


* Semi variable lost

- neither perfectly variable nor fixed.
- Eg - electricity charges

Fixed — Minimum charges (✓) ₹ 1000

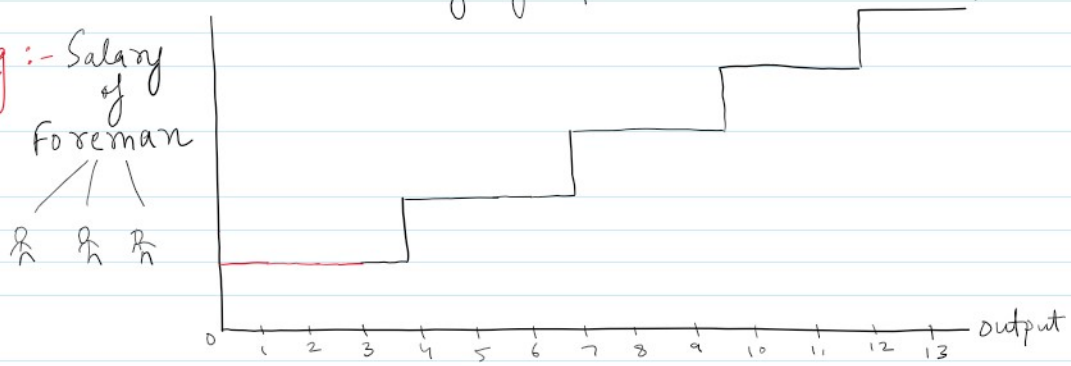
Variable — (+) usage bill (✓)



* Stair Step Variable lost

→ fixed over certain range of output, but suddenly jump with increase in output

eg :- Salary of Foreman

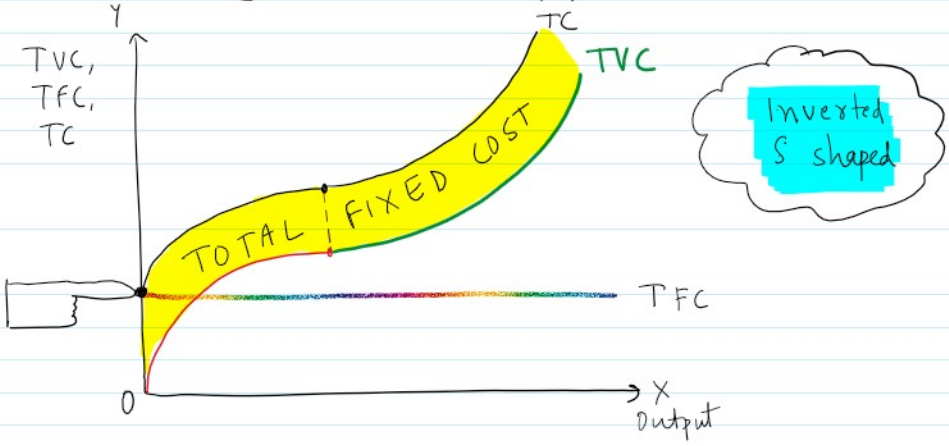


(3) Total lost (TC)

Output	TVC	TFC	TC
0	0	10	10
1	10	10	20
2	18	10	28
3	24	10	34
4	40	10	50
5	60	10	70

4	40	10	50
5	60	10	70
6	95	10	105

TC = TVC (+) TFC



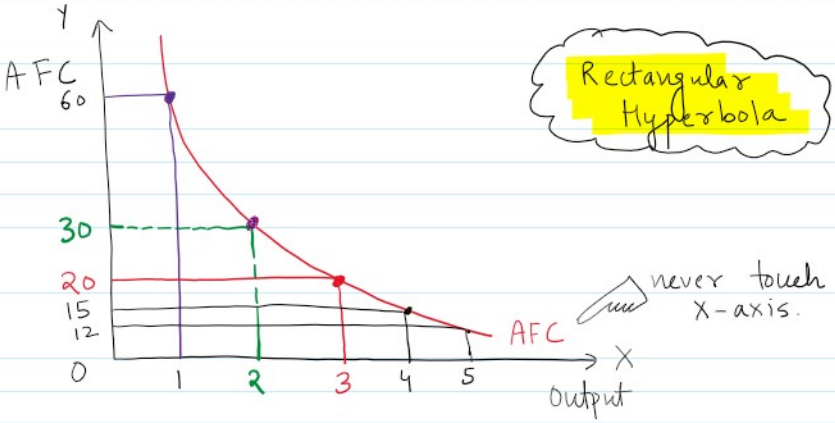
Inverted S shaped

TC − TVC = TFC

(4) **Average fixed cost** (AFC)

Output	TFC	AFC
0	60	–
1	60	60
2	60	30
3	60	20
4	60	15
5	60	12
6	60	10

$$AFC = \frac{TFC}{Output}$$



Rectangular Hyperbola

never touch X-axis.

1 × 60 = 60 | 30 × 2 = 60 | 20 × 3 = 60

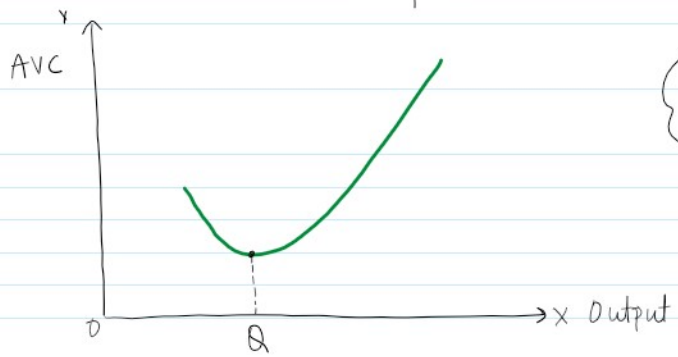
* AFC can never be zero (i.e it will not touch x-axis) because TFC can never be zero.

Output	TFC
0	1
1	1
2	1
100	1
1000	
100,000	

$AFC = \frac{1}{100} = 0.01$

(5) **Average Variable Cost** (AVC)

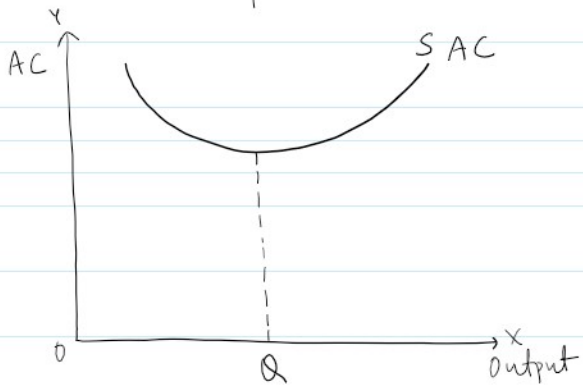
$$AVC = \frac{TVC}{Output}$$



U-shaped

(6) **Average Cost** (AC) or **Average Total Cost** (ATC)

$$AC = \frac{\text{Total Cost}}{Output} \quad \text{or} \quad AC = AVC + AFC$$



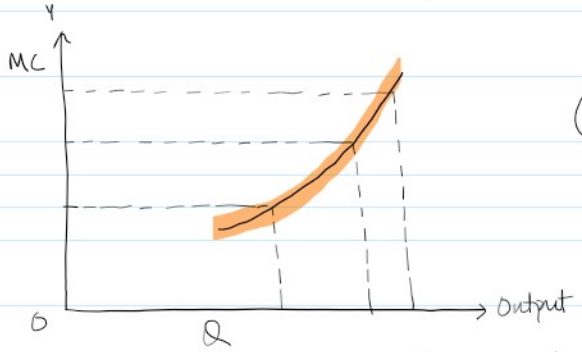
U-shaped

(7) **Marginal Cost** (MC)

$$MC = \frac{\Delta TVC}{\Delta Output}$$ (असली formula)

$$MC = \Delta TC$$ (नकली formula)

$$MC = \frac{\Delta TC}{\Delta \text{ output}}$$ (short formula) emergency



U-shaped

→ MC is the SLOPE of TVC

→ Area under MC curve is TVC

$$TVC = MC_1 + MC_2 + MC_3 + \cdots MC_N$$
$$TVC = \sum MC$$

→ Marginal cost changes due to change in Variable cost

a) Fixed cost
b) Variable cost ✓
c) Both
d) None

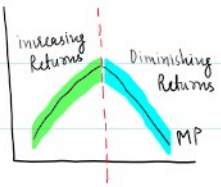
→ Rising portion of MC curve is Supply Curve

TVC & TC is Inverted-S
AVC, AC, MC is U-shaped

WHY ???

PRODUCTION

MP

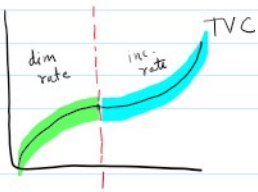


Law of Variable proportion (RETURNS)

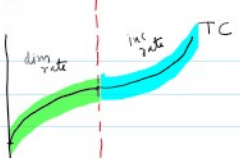
Increasing Returns = Diminishing cost

Diminishing Returns =

TVC

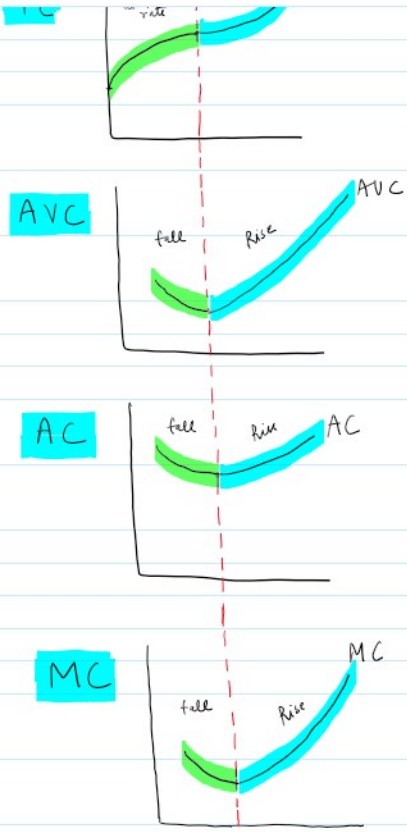


TC

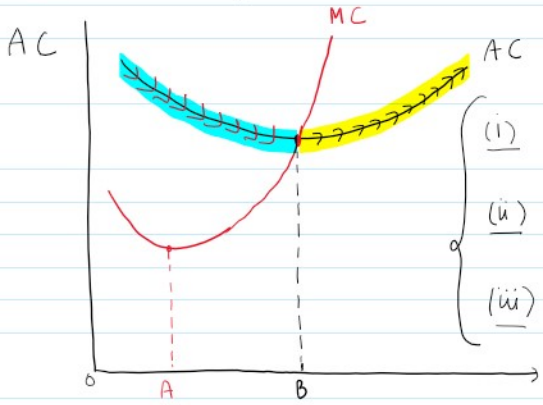


inversely related to "COST"

Diminishing Returns
=
Increasing Cost



* Relation of AC & MC



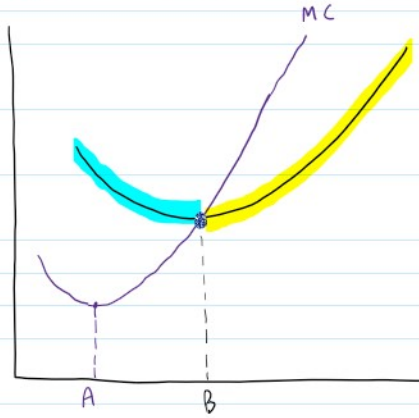
(R)

(i) MC < AC [till B] : AC falls

(ii) MC = AC [at B] : AC is Minimum

(iii) MC > AC [after B] : AC rises

* Relation between AVC & MC

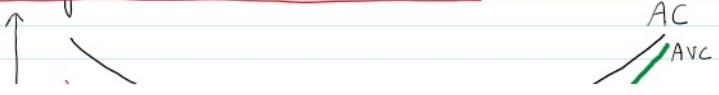


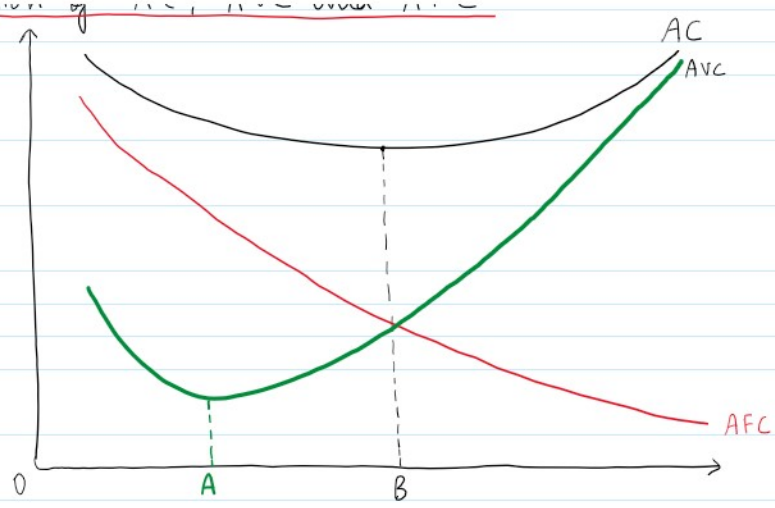
(i) MC < AVC (till B) : AVC falls

(ii) MC = AVC (at B) : AVC Minimum

(iii) MC > AVC (after B) : AVC rises

* Relation of AC, AVC and AFC





→ The gap between AC & AVC continously falls. but they never "intersect each other"

→ The gap between AC & AVC is AFC (AFC can never be zero)

$$AC = AVC + AFC$$
$$AC - AVC = AFC$$
Gap between AC & AVC is AFC

Formulae

① $TC = TFC + TVC$ OR $TC = AC \times Output$

② $TVC = TC - TFC$ OR $TVC = \Sigma MC_s$ OR $TVC = AVC \times Output$

③ $TFC = TC - TVC$ OR $TFC = AFC \times Output$

④ $AFC = \frac{TFC}{Output}$ OR $AFC = AC - AVC$

⑤ $AVC = \frac{TVC}{Output}$ OR $AVC = AC - AFC$

⑥ $AC = \frac{TC}{Output}$ OR $AC = AVC + AFC$

⑦ $MC = \frac{\Delta TVC}{\Delta Output}$ OR $MC = \frac{\Delta TC}{\Delta Output}$

△ Output

△ Output

* When Output = 0 ☞ TC = TFC

* When Output = 1 ☞ TVC = AVC = MC

Q1 =

Output	TVC	MC
1	12	12
2	14	2
3	18	4
4	40	22

ΔTVC ÷ Δ Output

(14 - 12) ÷ (2 - 1)

(18 - 14) ÷ (3 - 2)

(40 - 18) ÷ (4 - 3)

Q2 =

Output	TVC	MC	AVC
1	10	10	10
5	38	7	7.6

TVC ÷ Output

38 ÷ 5

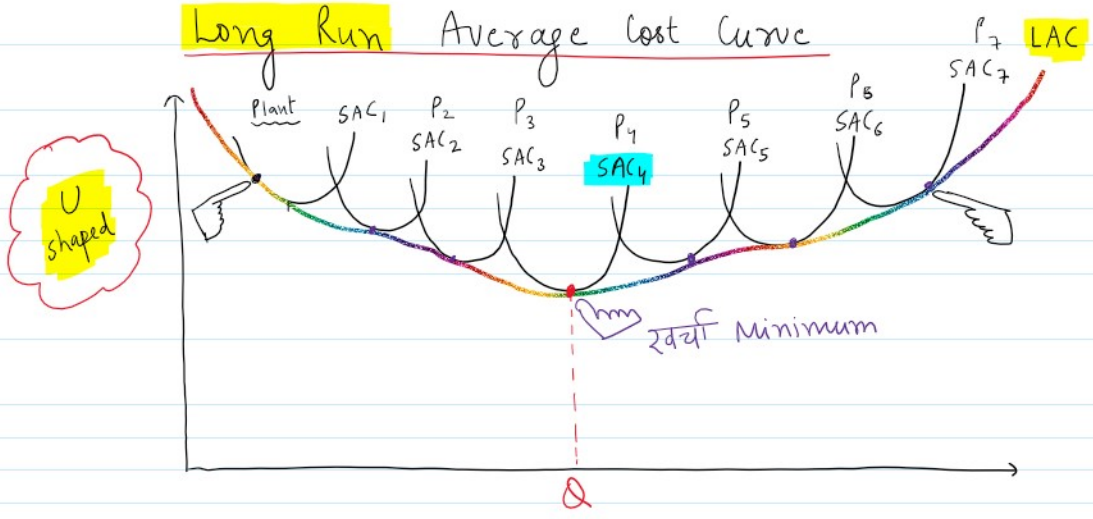
(38 - 10) ÷ (5 - 1)

28 ÷ 4

Q3 -

Output	TFC	MC	TC	TVC	AVC	AC
0	100	–	100	0	–	–
1	100	500	600	500	500	600
2	100	300	900	800	400	450
3	100	200	1100	1000	333.3	366.6
4	100	300	1400	1300	325	350
5	100	500	1900	1800	360	380
6	100	800	2700	2600	433.3	450

Long Run Average Cost Curve



→ LAC is Known as **ENVELOPE** CURVE or **PLANNING** curve

→ All the SACs are Known as **PLANT** curves

→ In long run, the firm examines on which SAC it should operate, so that total cost is **Minimum**

→ LAC is **TANGENT** to each SAC

→ But it is **not tangent to minimum** points of SACs.

→ LAC is U-shaped because **Law of ~~Variable Proportion~~ Returns to Scale** ~~- short Run~~

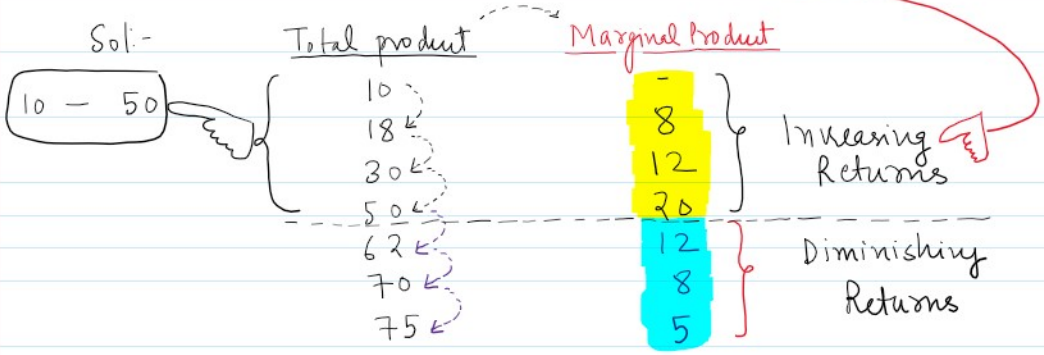
→ LAC is **L-shaped** if technology changes

→ LAC is U-shaped, if technology do not change.

→ Increasing Cost ⊐ Diminishing Returns
Diminishing Cost ⊐ Increasing Returns

Q - Total product :- 10, 18, 30, 50, 62, 70, 75
find **Decreasing cost** level.

Sol:-



* Shut Down Point *

Short Run Imp.

$P = AVC$

Long Run

$P = AC$

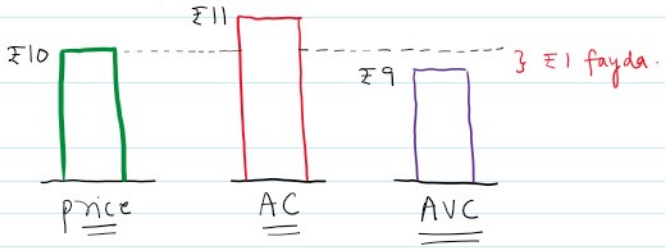
$P = AVC$	$P = AC$
$TR = TVC$	$TR = TC$

Q- Price = ₹ 10
AC = ₹ 11
AFC = ₹ 2

AVC = ₹9

Should the firm shut down.

Sol:-



NOT shut down

* Economies of Scale * → LONG Run

Advantages due to large scale production

Output ↑↑↑ | cost of production ↓↓↓↓

Increasing Returns to Scale is a result of this
(Returns ज्यादा ₹)

Internal

(Benefits which accrue to firm only)

① Technical - deals with labour, machine etc

② Managerial - deals with management

External

(Benefits accrue to all firms as a result of growth of industry.)
(general advantages)

(i) Cheaper Raw Materials

(ii) Technological = advancement

management

(3) Commercial – deals with Advertisement/Selling cost

(4) Financial – deals with "Finance cost"

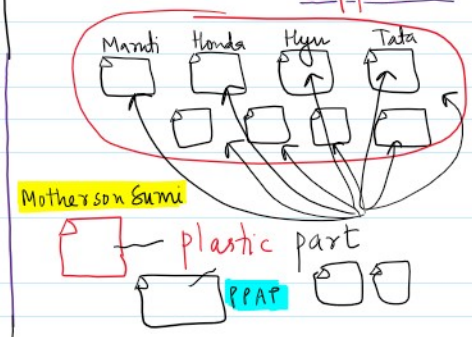
(5) Risk bearing – deals with Diversification

Flop

(ii) Technological = advancement 5G

(iii) Development of Skilled labour

(iv) Growth of ancilliary industries → supportive



(v) Better transportation & marketing facilities

(vi) Information

---

* Diseconomies of Scale *

↓

Dis advantages caused when scale of production expands beyond optimum capacity

Decreasing Returns to Scale is a result of this

Stage	Reason
1. Increasing Returns to Scale	Economies of Scale
2. Decreasing Returns to Scale	Diseconomies of Scale

Internal → SAME (~)

External → SAME (~)

Ch - 3 Unit 1
Unit 2.
Q1 - Q82

H W

Economics

CH 4 — : Price determination in different Markets

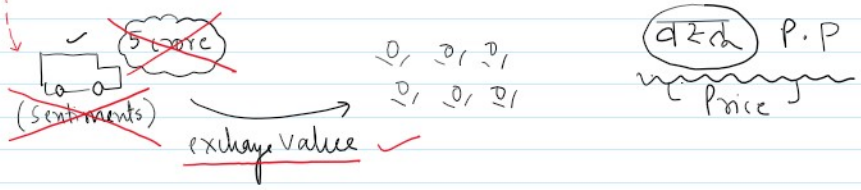
Unit 1 : Meaning & Types of Market

→ MARKET :- a place where goods are purchased & sold

Free good
(eg AIR)
NOT IN STUDY

Economic good
(Not free)
- scarce
- command Price

→ In market, only exchange value is significant, not sentimental value (Price connotes money value i.e purchasing power of an article is expressed in money terms)



→ Elements of Market :-

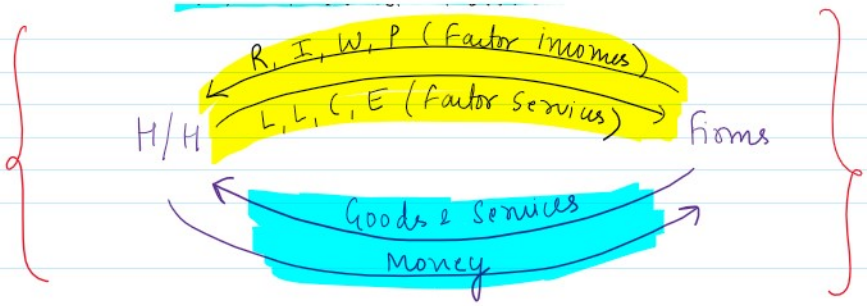
- Buyers & Sellers
- Product or Service
- Bargaining for Price
- Knowledge about market conditions
- One price for a product at a given time

→ Markets are generally classified into :-

(i) Factor market

(ii) Product market

R, I, W, P (Factor incomes)



Imp:→ Types of Market :-

On the basis of AREA

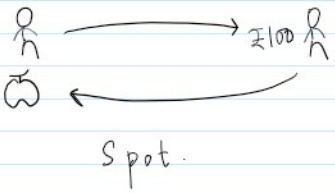
- Local - for "perishable" goods. (Bread)
- Regional - for semi-durable goods (Cloth)
- National - for Durable goods (Car, TV)
- International - for Precious goods (Gold, Diamond)

On the basis of TIME (Alfred Marshall)

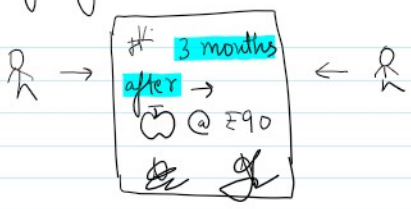
- Very Short - Supply CANNOT change
- Short - Supply can slightly change
- Long - Supply can change
- Very Long - Supply can easily change
  - Secular Period

On the basis of transaction

- Spot - goods are physically transferred
- Future - Contracts of future date



Spot.



Future

On the basis of Regulation

- Regulated - Stock exchange → SEBI
- Unregulated - NO Regulation (Free Market)

On the basis of Volume

- Wholesale - Bulk / large Quantities

On the basis of Volume

- Wholesale – Bulk / large Quantities
- Retail – for ultimate consumer (Small Quantity)

On the basis of competition

- Perfect competition
- Imperfect competition
  - → Monopoly
  - → Monopolistic
  - → Oligopoly

BASIC CONCEPTS

① Total Revenue (TR)

$= P \times Q$

Price per unit × Quantity sold

② Average Revenue (AR)

$= \frac{TR}{Q}$

$= \frac{P \times \cancel{Q}}{\cancel{Q}}$

$AR = P$

AR curve is also known as **DEMAND** curve

3) Marginal Revenue (MR)

$= \frac{\Delta TR}{\Delta Q}$

∴ MR is **SLOPE** of TR

Q1 :-

Price	Quantity	TR	AR	MR
₹10	5	50	10	–
₹9	6	54	9	4
₹8	10	80	8	6.5

₹9	6	54	9	4
₹8	10	80	8	6.5
₹7	14	98	7	4.5
₹6	20	120	6	3.6

$\frac{\Delta TR}{\Delta Q}$

Q2-

Output	MR	TR
3	4	22
5	9	x

$$MR = \frac{\Delta TR}{\Delta \text{Output}}$$

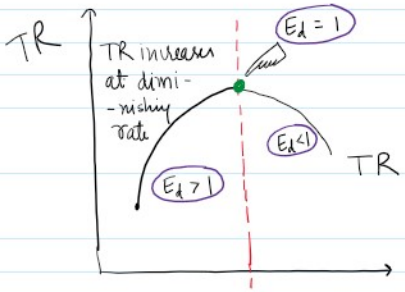
$$9 = \frac{x - 22}{5 - 3}$$

$$9 = \frac{x - 22}{2}$$

$$\therefore x = 18 + 22 = 40$$

MOST IMPORTANT POINTS

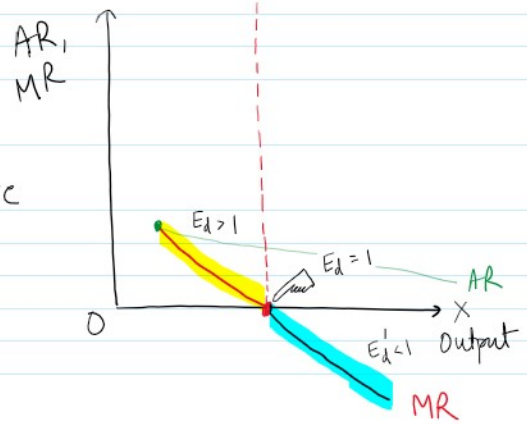
(1) TR, AR, MR



(i) When MR > 0 i.e (+)ve then TR increases at diminishing rate

(ii) When MR = 0 then TR is MAXIMUM

(iii) When MR < 0 i.e (-)ve then TR falls.



(2) Relation of Ed, MR, AR (or TR)

(R)

(2) Relation of Ed, MR, AR (or IR)

(R)

$$MR = AR \times \frac{(Ed - 1)}{Ed}$$

**

	MR	TR
$Ed > 1$ (elastic)	(+) ve	Increasing at diminishing Rate
$Ed = 1$ (Unit elastic)	= 0	MAXIMUM
$Ed < 1$ (inelastic)	(-) ve	Falls

(3) Behavioral Principles

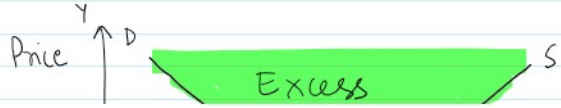
- For a firm to Produce
  - * $TR \geq TVC$
- For PROFIT MAXIMISATION (Producer's equilibrium)

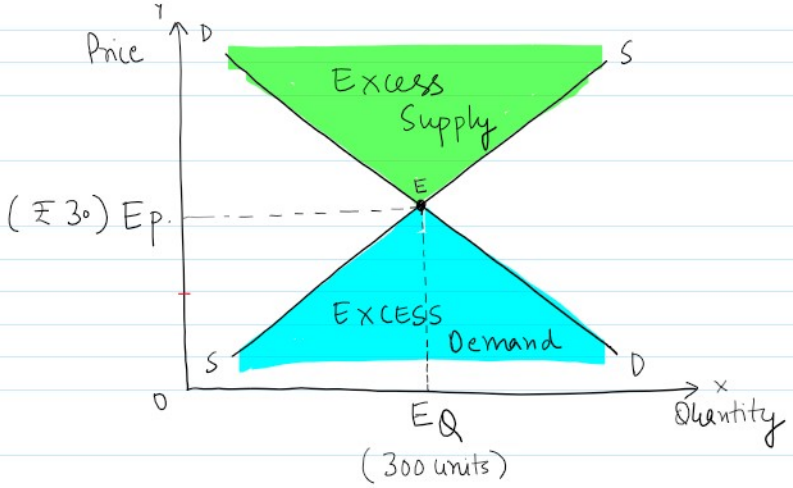
$$MR = MC$$

Unit 2 : Determination of Price

→ In general, interaction between demand & Supply determines the price

Price	Qty demanded (Consumers)	Qty Supplied (Producers)	
₹10	500 units	100 units	EXCESS DEMAND
₹20	400 units	200 units	
₹30 (Equilibrium price)	300 units	300 units	EQUILIBRIUM
₹40	200 units	400 units	EXCESS SUPPLY
₹50	100 units	500 units	





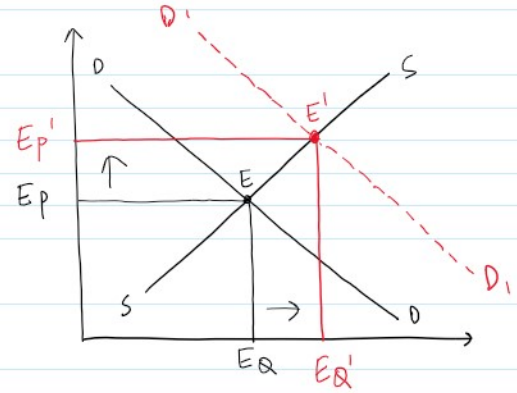
But in some cases, government Intervenes and determines the price [eg :- Fertilizers, Kerosene etc]

→ Change in demand OR Change in Supply

- Increase in demand (1)
- Decrease in Demand (2)
- Increase in Supply (3)
- Decrease in Supply (4)

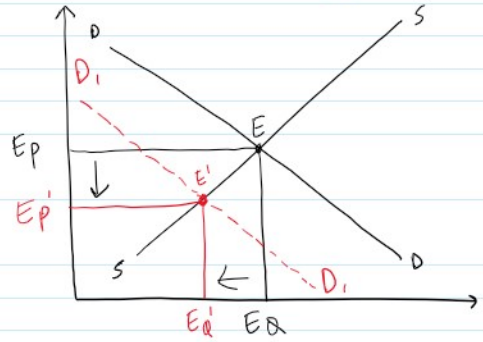
WE ALREADY KNOW THE REASONS FOR ABOVE

(1)



Ep (↑)
EQ (↑)

(2)

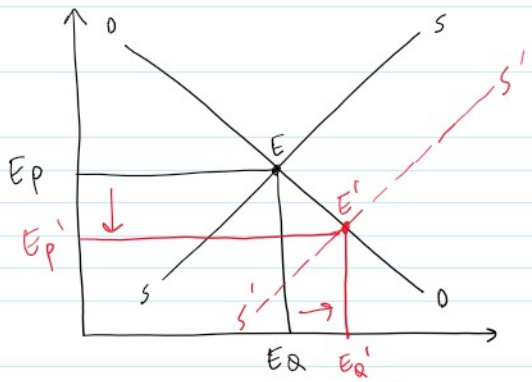


Ep (↓)
EQ (↓)

(3) ↑ D , S

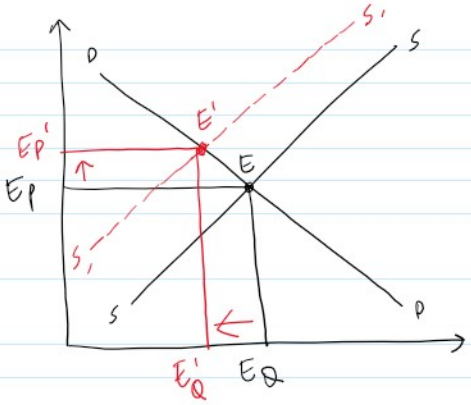
E_Q' E_Q

③



E_P (↓)
E_Q (↑)

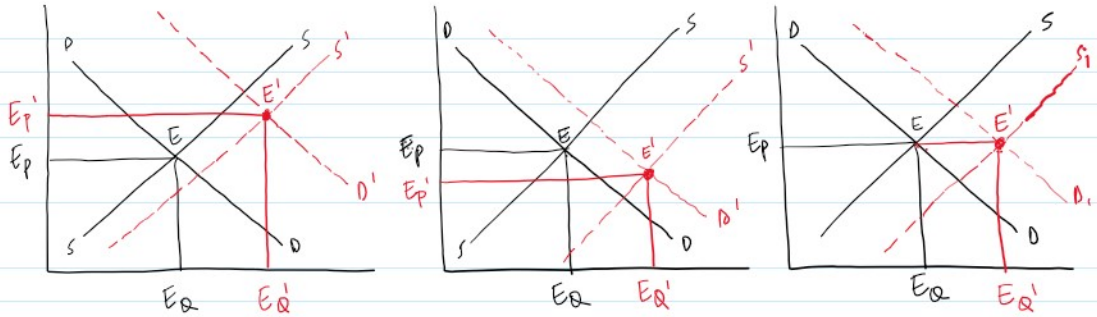
④



E_P (↑)
E_Q (↓)

→ Simultaneous Increase in Demand & Increase in Supply

(i) (ii) (iii)



↑ D > ↑ S

E_P (↑)
E_Q (↑)

↑ D < ↑ S

E_P (↓)
E_Q (↑)

↑ D = ↑ S

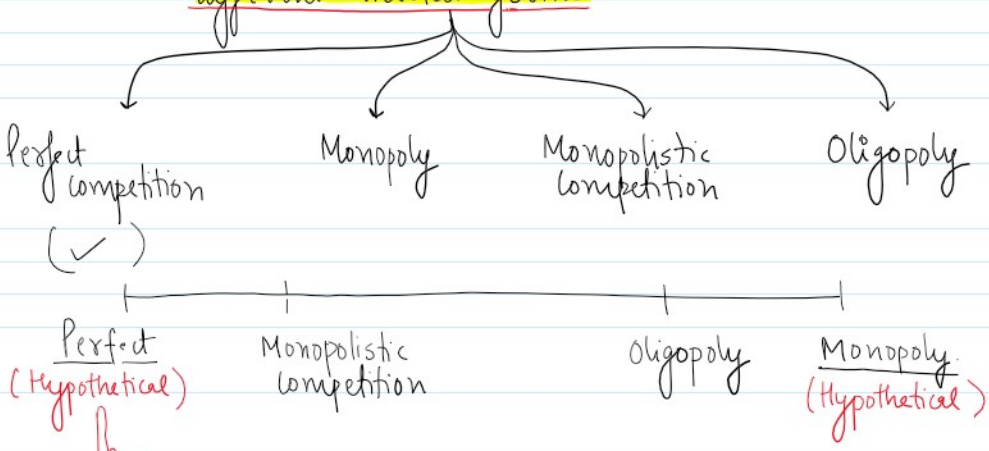
E_P same
E_Q (↑)

→ Simultaneous Decrease in demand & decrease in Supply

→ Simultaneous Decrease in demand & increase in Supply

→ Simultaneous Increase in demand & decrease in Supply

CH4 Unit 3 — Price and output determination under different market forms



I. PERFECT COMPETITION

(eg :- Agricultural products, Stock market, Metals etc)

(1) Very large number of Buyers & Sellers

Individual buyer or individual seller cannot influence demand, supply or Price

(2) Homogeneous Product

→ Identical products (NOT SIMILAR)

→ i.e Goods are PERFECT SUBSTITUTES

→ Price will remain SAME

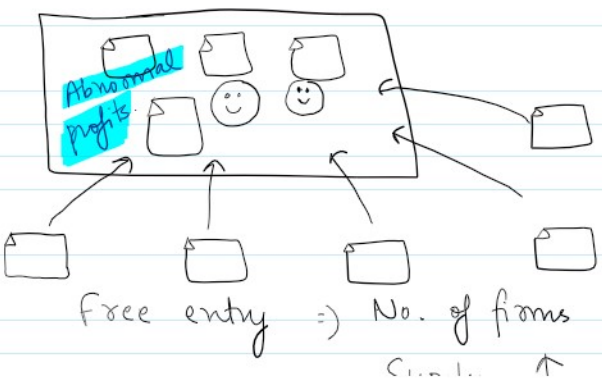
(3) Free Entry and Free exit of firms

All firms will earn NORMAL PROFITS in long Run

AR = AC

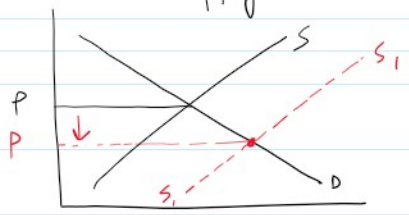
Why ??

Abnormal profits



Free entry ⇒ No. of firms ↑

Supply ↑



Price ↓

Profits ↓

Normal profits (✓)

Losses

Exit

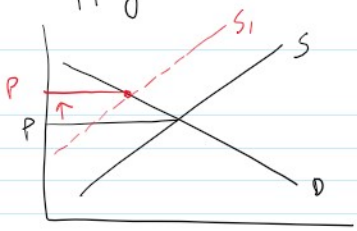
Exit

Exit

Exit

No. of firms ↓

Supply ↓



Price ↑

* Feature 1, 2 and 3 is Known as

PURE COMPETITION

1, 2, 3, 4, 5, 6, 7

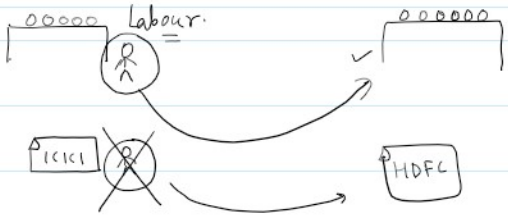
↓

Perfect Competition

(4) Perfect Knowledge of Market

(4) Perfect Knowledge of Market
{Buyers & Sellers}

(5) Free mobility of factors of production
Perfect (transferable)
"Labour"



(6) NO Selling Cost / Transportation Cost is involved
Advertisement

(7) Firms are PRICE TAKER

Industry (Price Maker) | Firms (Price Taker)

★ Industry = Group of firms ★

* Perfect market is also known as IDEAL Market or COMPETITIVE market

* In Perfect competition,
Price = MR = AR = Demand Curve

$E_d = \infty$
(perfectly Elastic)

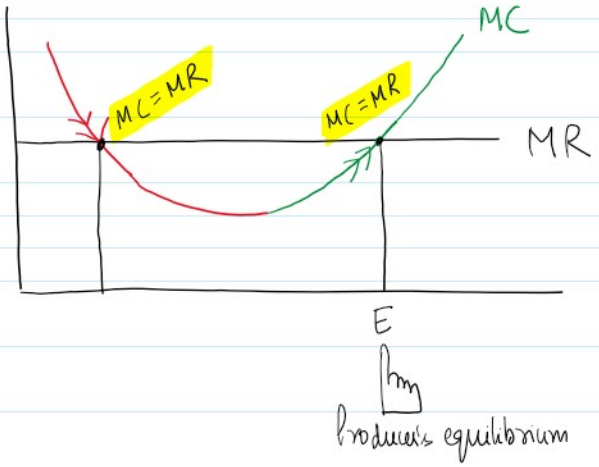
parallel to X-axis

* Producer's Equilibrium (i.e Profit Maximisation)

* Producer's Equilibrium (i.e Profit Maximisation)

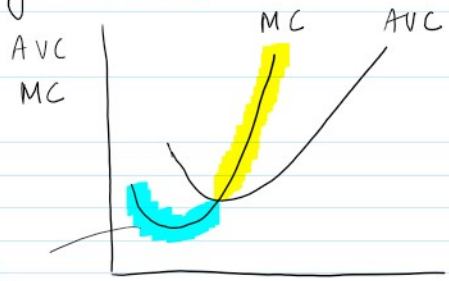
(i) MC = MR

(ii) MC should cut MR from below
i.e MC should have positive slope
(ie MC > MR after Intersection)



Producer's equilibrium

* Supply curve



The rising portion of MC is Supply curve
(after intersection)

Not supply curve

* Profits of Perfect Market (Competitive Firm)

- Abnormal profits (Super Normal profits) : AR > AC
- Normal Profits : AR = AC
- Losses : AR < AC

* Price = ₹10, AC = ₹12, AVC = ₹9

Find (i) AFC

(ii) Should the firm continue ?

find (i) AFC

(ii) Should the firm continue ?

Sol:- (i) $AFC = AC - AVC$

$= 12 - 9$

$= 3$

(ii) Yes, firm will continue.

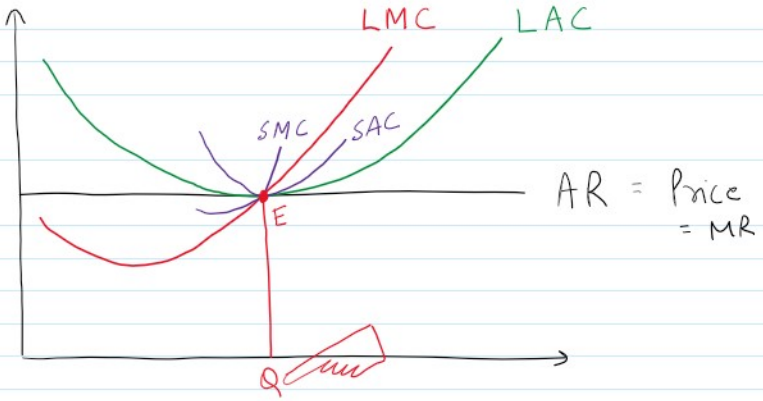
Price (₹10) > AVC (₹9)

---

* **Long Run Producer's Equilibrium** (of firm)

$LMC = LAC = Price$

i.e minimum point of LAC should be **Tangent** to demand curve (i.e AR curve)



Also, **SMC = LMC = SAC = LAC = Price = MR**

* **Minima** of LAC & SAC "coincide"
* Point E shows **OPTIMUM COST**
* A firm producing Q level of output at Optimum cost is called **OPTIMUM FIRM**

* **Long Run Equilibrium of Industry**

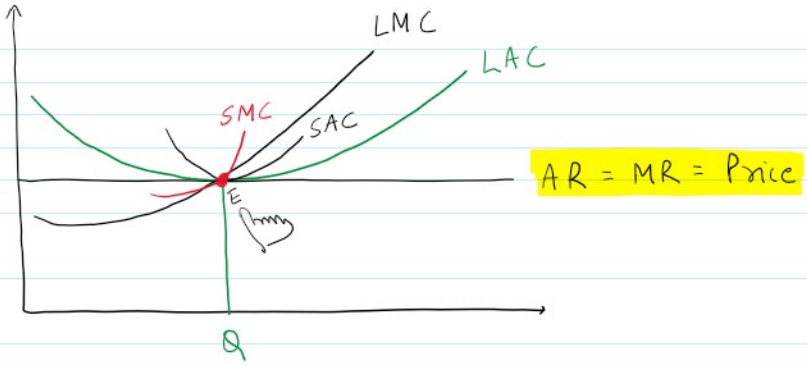
- when **all** the firms earn **Normal Profits**

AND

AND

- NO further entry or exit takes place.

100% * Rattu.



At E Point

(i) MC = AR

Consumer pays Minimum Price (✓)

(ii) MC = AC

Plants are used at FULL Capacity (✓)
(i.e NO Wastage of Resources)

(iii) AC = AR

firms earn NORMAL PROFIT

(iv) MC = MR

Producer's equilibrium (Profit Maximisation)

II. MONOPOLY (eg. Railways)

Single Seller

→ Monopoly means "alone to Sell"

→ Here firm and Industry is (Same)

Features

(i) Single seller - (Price Maker) i.e

Substantial control over Supply.

Substantial control over Supply.

(ii) **Restriction** in Entry

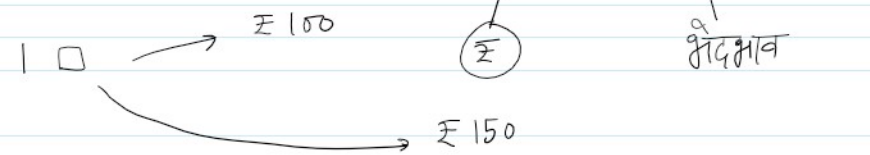
(iii)** NO close substitute

∴ Cross elasticity is ZERO

∴ Demand curve is NEGATIVELY SLOPED **STEEPER** curve

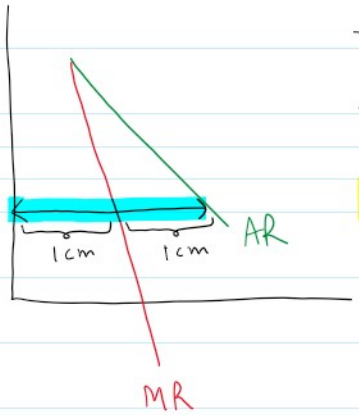
(iv) Monopolist has market power i.e charging Price above MC

(v) Monopolist may adopt **Price Discrimination**



(vi) Monopolist can also incur **Losses** AR < AC

(vii) Relation of AR & MR



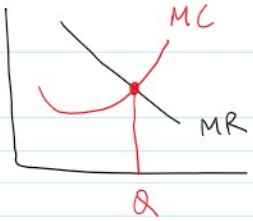
→ Both MR + AR are downward sloping (negatively sloped)
→ AR can never be zero but MR can be zero or negative.
→ MR curve lies half way between AR curve & Y-axis.

* EQUILIBRIUM (profit Maximum)

MC

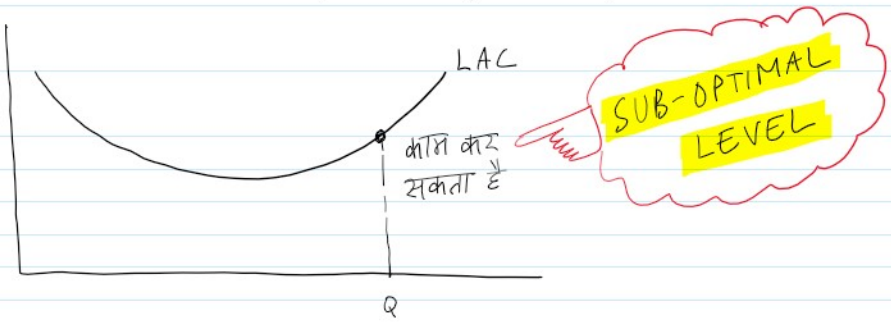
Equilibrium (Profit Maximum)

$$MR = MC$$



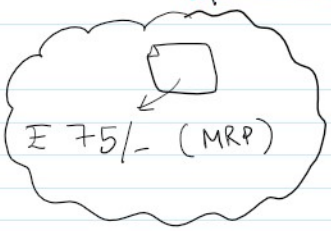
* **Profits**
  - Abnormal profits : AR > AC
  - Normal profits : AR = AC
  - Losses : AR < AC

* **LONG RUN**
  - → In long run, monopolist can earn **Abnormal profits** since outside entry of new firm is blocked.
  - → In long run, monopolist need not produce at **Optimum level** (i.e Minimum point of LAC)



* How do monopoly arise ?
  - → Strategic control over Resources
  - → Government granting exclusive rights (Patents or Copyrights) पावर
  - → Business combinations i.e CARTEL
  - → Extremely large startup COST
  - → Firm may use anti-competitive practice like predatory / limit pricing

practice like predatory / limit pricing

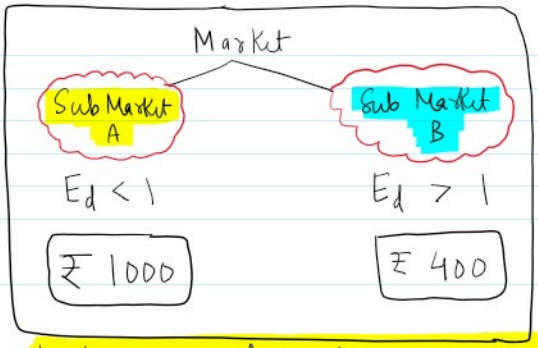


* IMP. 100%.

Price Discrimination

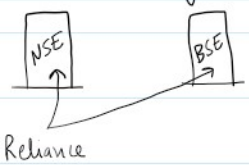
1) **Objectives**
   - to earn "maximum profits"
   - to capture foreign markets.
   - to enjoy economies of Scale (dispose excess stock)

2) **Price discrimination is possible** only when the following conditions are satisfied
   - → Monopoly must exist
   - → Seller must be able to **divide the market** into sub markets
   - → **Price elasticity is different** in different sub markets.



Higher prices where demand is inelastic

   - → **No** market arbitrage



Reliance
NSE = 2,312/-
BSE = 2,325/-
} arbitrag

3) **Degrees of Price Discrimination** - A.C. Pigou

3) **Degrees of Price Discrimination** — A.C. Pigou

First Degree – Price is such that it takes away ENTIRE consumer surplus

Second Degree – Price is such that it takes away ONLY PART of consumer surplus

Third Degree – Price varies because of LOCATION or (customer segment)

eg Popcorn in "Cinema Hall"

* Price discrimination may relate to time, size of purchase, income etc

X ——— X ——— X ——— X ——— X ——— X

III MONOPOLISTIC COMPETETION

- This market is a blend of Perfect Competition and Monopoly

[eg :- SOAP Industry]

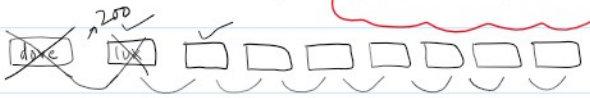
Features

(i) Large number of buyers & Sellers

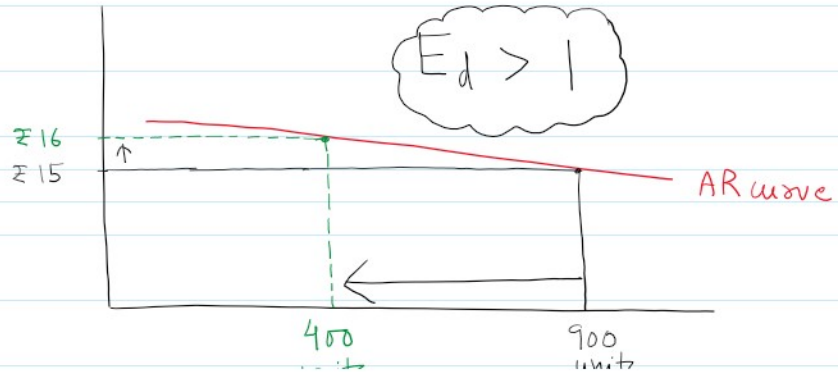
- Individual buyer or seller has a very small share in the market

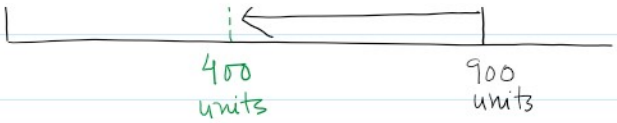
(ii)** Product differentiation

- Heterogeneous products (Similar products)
- Products are close substitutes



- Demand curve (or AR curve) is DOWNWARD SLOPING (FLATTER) curve





(iii) Free entry and exit of firms

Firms will earn normal profits in long Run

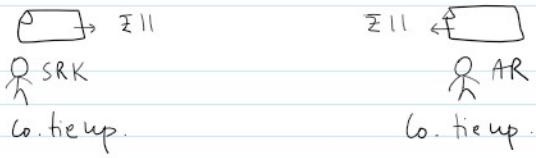
AR = AC

(iv) Huge Selling / Advertisement cost is involved

crores

(v) Non Price competition

~~Price War~~



* EQUILIBRIUM (Profit Maximisation)

(i) MR = MC

(ii) MC should cut MR from below

* Profits

→ Abnormal profits : AR > AC

→ Normal profits : AR = AC

→ Losses : AR < AC

* In long Run, all the firms earn Normal Profits.

ZERO Super Normal Profit

IV OLIGOPOLY

(eg Cold drink Industry)

(eg Cold drink Industry)

(i) Competition among FEW
2 - 10

(ii) Strategic Interdependence
(iii) Group Behavior ← collusive
(iv) Price Rigidity ✓

} Discussion Later.

(v) Product may be Homogeneous or Heterogeneous
Homogeneous → Cement, LPG industry
Heterogeneous → Cold drink industry

(vi) Entry of new firms are "Very difficult"

(vii) Huge selling & advertisement cost.

→ Types of Oligopoly

1. Pure (or Perfect) — deals with homogeneous product
2. Differentiated (or Imperfect) — deals with heterogeneous product.

3. Open — New firm can enter
4. Closed — Entry is restricted

5. Collusive — Commonly decide price & output
6. Non-Collusive (Competitive) — Compete with each other.

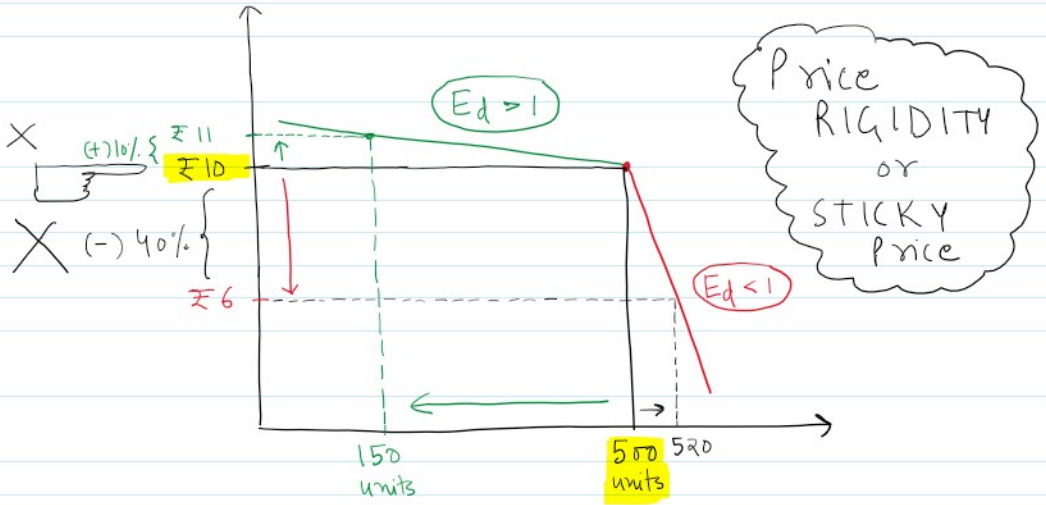
7. Partial — Industry is dominated by one large firm
8. Full — NO leadership

9. Syndicated — Small group control (Pushpa) it i.e centralised body
10. Organised — All firms decide their

(10) Organised - All firms decide their output (centrally organised)

* Demand Curve

→ Because of price rigidity, demand curve is KINKED — given by SWEEZY



→ Response to price increase is MORE THAN response to price decrease.

* Price (दाम) & Output (कितना उत्पादन) decision

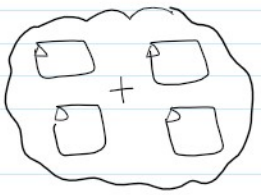
(i) Interdepence is ignored then output is determined by MR = MC → profit Maximisation

(ii) Oligopolist tries to predict the reaction of his competitor.

COUR NOT model	Stacked Berg's Model	Bertrend Model
↓	↓	↓
each firm decides its Output	Leader decides Output	Each firm decides its price

(iii) Oligopoly firms acts as monopoly organisation & fix their prices to enjoy maximum profits.

V & V fix their prices to enjoy V maximum profits.

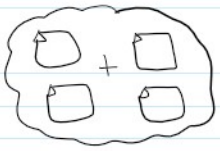


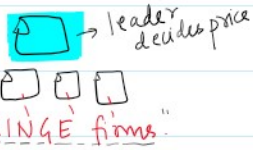
= 1

OPEC

(Organisation of Petroleum Exporting Countries)

* **Price leadership**

→ Cartel :  = 1 unit

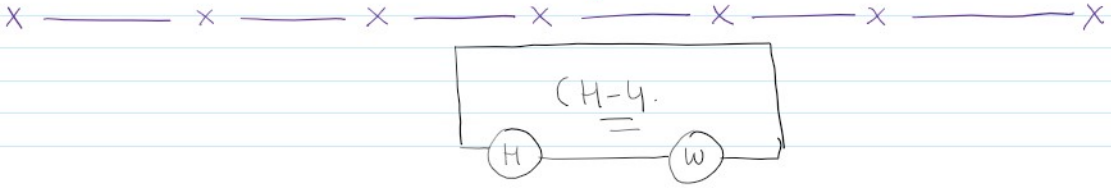
→ Price leadership : 

→ Barometric price leadership : 

Old, experienced, most respected firm becomes price leader.

* Other market forms

1) Duopoly — Two firms (sellers)
2) Monopsony — Single Buyer
3) Oligopsony — Few Large Buyers
4) Bilateral Monopoly — One Buyer & One Seller



CH 5 :- "Business Cycles"

→ Rhythmic **Fluctuations** in aggregate economic activity that an economy experiences over a period of time are called business cycles or trade cycles

eg :- 1920 UK → GDP ↑↑↑

1929-30 Great Depression (US)

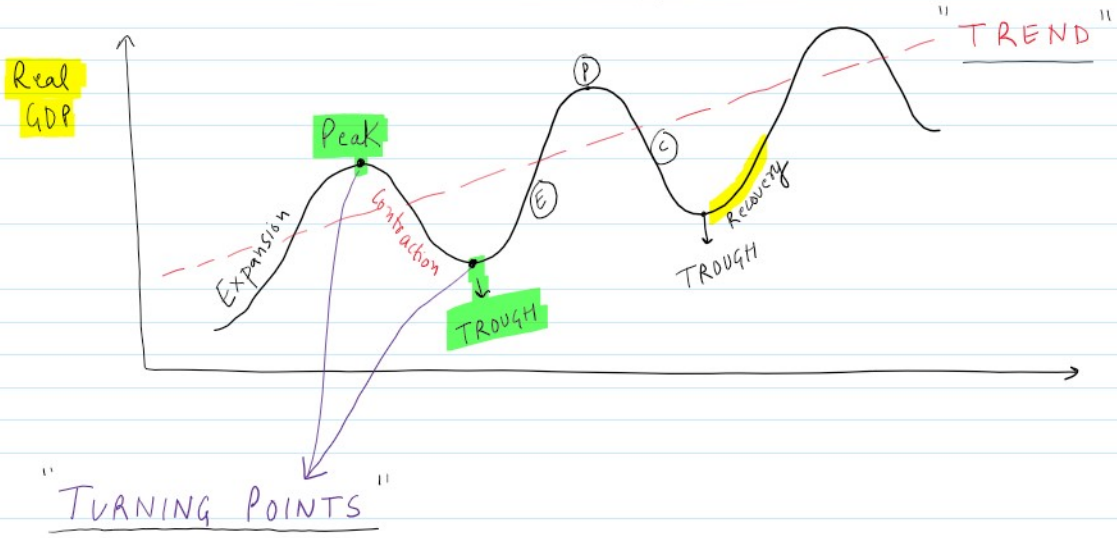
eg :- 1920 UK → GDP ↑↑↑

1929-30 Great Depression (US)

2020 China → Recession

2007-2008 :- US Banks

2000 :- IT Bubble burst

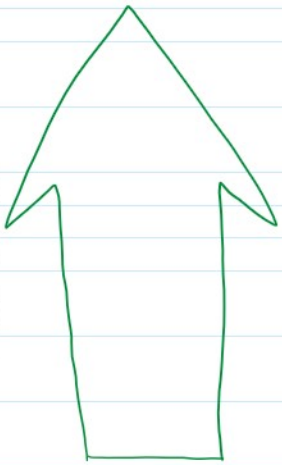


"TURNING POINTS"

Phases of Business Cycle

① **Expansion**

National Output, employment
Aggregate demand, expenditure
Sales, Profits, Stock prices,
Bank rate, Investments,
Production, Confidence,
factor Income etc etc



* **Involuntary unemployment** is **almost zero**.
Only **Frictional** & **Structural** unemployment exists

willing to work but do not find work

Change in Job

27 March Leave ⟷ 3 May New Joining

Change in Structure

(2) **PEAK**

→ End of Expansion

→ Highest point

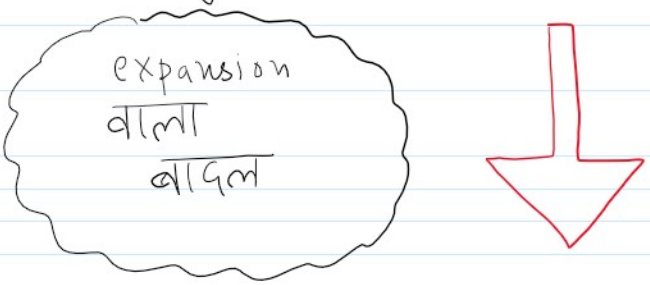
(*) → Inputs are difficult to find as they are short of their demand.

(*) → Actual demand stagnates.

" एक जगह रुक जाना "

(3) **Contraction** (Down Swing / Recession)

→ **Supply > Demand**



(4) **TROUGH** (Depression)

→ Growth rate becomes **negative**

→ Ouurs when "recession is complete"

→ People's **demand for liquid money increases**

→ National Income & expenditure declines Rapidly

Great Depression 1929-33 (US)

* **Recovery** - Beginning of Expansion

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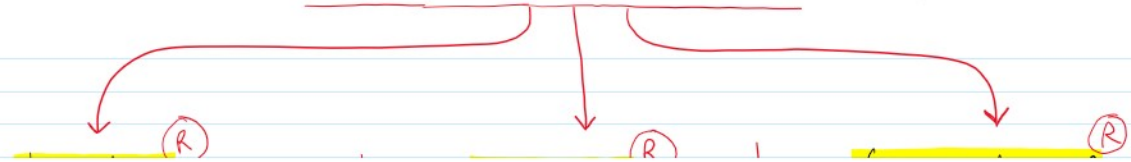
* Economic Indicators *



Leading (R)	Lagging (R)	Coincidental (R)
→ Change in stock price	→ Unemployment	→ GDP
→ Profit margins	→ Corporate profits	→ Inflation
→ Housing Interest Rates	→ Labour cost per unit of Output	→ Industrial Production
→ New capital or consumer good orders	→ "Interest Rates" (some times)	→ Retail Sales
	→ Consumer Price Index	→ Personal Income

* Features of Business Cycle

1) Differ in duration & Intensity

~~1929 - 1933~~ ~~5000 killed~~

2) NO Regularity

1992 → 2000 → 2008 → ~~2016~~ 2020

8yrs Saturn

3) Length of each phase is not definite

** 4) Generally originate in Free Market (Capitalist) economy

5) It affects Industrial sector more than agricultural sector

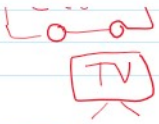
6) Capital Good Industry & Durable Consumer good Industry is severely affected

Machine

Car

TV

Machine



7) Its effect can be felt on all economic variables.

8) Business cycle is contagious and International

* Causes of Business Cycle *

Internal

→ Fluctions in effective demand (KEYNES)

$AD = C + I + G + NX$

→ Fluctions in Investment (MOST VOLATILE)

→ Fluctuations in Government expenditure

→ Fiscal & Monetary Policies

Fiscal → Govt

Monetary → RBI

→ Changes in Money Supply by HAWTREY

→ Psychological factors

↳ AC Pigou : Anticipation of optimism or pessimism

↳ Schumpeter : due to Innovations

External

→ WAR

→ Post war Reconstruction

→ Technological shocks *

→ Natural factors (Floods, earthquake)

→ Population (increase)

→ Others :-

Savings ↓

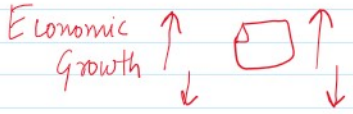
Investments ↓

* CONCLUSION

(i) B. cycles have tremendous influence on business decisions

(ii) B. cycles do not affect all sectors uniformly

(iii) Business whose fortune are closely linked to the rate of economic growth are referred to as CYCLICAL Business



Restaurants, Contruction firms, Fashion Retailers, electric goods etc

(iv) Economic forecasts are not perfectly reliable but can help the business to prepare for changes

"H.W Q28."