INDIAN ECONOMICS

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Incidence of Tax → where it is levied

Burden of Tax → who pays the tax

Tax

Direct

Incidence & Burden of tax are on same individual

eg, Income tax
Wealth tax
Profit tax

Indirect (Origin Based)

Incidence & Burden of tax are on different individuals

eg, Sales tax
Services tax
Central excise duty
Cess → for recovering welfare schemes funds

Goods & Services Tax (GST)

- UT/State GST
- Centre GST → Within a state/UT
- Integrated GST → for imports & inter-state

★ GST is introduced to tackle the different indirect taxes.

★ GST is a destination based tax system.

eg, A manufacturer ~~&~~ makes bread. Actual value of bread is say ₹500 without applying any taxes.

Now,

Actual Value : ₹500

After adding 10% Mfg tax : ₹550

After adding 10% Sales tax : ₹605

Sales tax ~~is~~ should've been applied on ₹500, but it is applied on ₹550. ∴ the consumer will have to pay ₹5 more because of ~~applied~~ applied tax on previously taxed value. This is called <u>cascading effect of tax.</u>

27/7/17

National Income Accounting

* for this topic, read macro-economics book.

* GDP: Gross Domestic Product

* Financial crisis worldwide took place in 2007. Only 3 countries managed to maintain a progressive economic rate, viz. India, China & Brazil. Out of these, India's economic growth was the highest (bright spot in the world economy).

* GDP growth is a measure of economic growth.

* GDP: Monetary / Market value of all final goods and services produced within the political boundary of an economy within a specific time period.

* Monetary value:

① Diversified goods & services
(∵ various measurement units are involved for measuring various goods & services. Hence it is difficult to aggregate them)

② Self-services or family services
(Not a part of GDP. But this is a convention rather than a logic. Agricultural services are part of GDP, including self-produced agricultural products for family consumption)

⑤ Black Market
(Not a part of GDP, since its transactions are not visible to economy.)

★ Final : (opp.) Intermediate

Nalanda Complex mfg. value 100 Cr.

Steel Used.	20 Cr.	⇒ Output of TATA
Cement Used	20 Cr	⇒ Output of Birla.
Electricity Used	20 Cr	
Factors of produc^{n}	40 Cr	

∴ 40 Cr is being double-counted.

Intermediate ⟹ inputs in actual.

① Avoid double-counting
(of intermediate goods & services)

eg,

Farm.	Wheat & Sugarcane	₹ 10
↓		
Mill	Flour & Sugar	₹ 20
↓		
Bakery Shop	Bread	₹ 50
		₹ 80

Here ₹ 50 already includes ₹ 10 & ₹ 20. But if we add them again to ₹ 50, we'll get ₹ 80. ∴ ₹ 50 is the final value, whereas ₹ 80 ~~is the intermediate~~ includes the double counting of intermediate goods.

★ Political Boundary:

① GNP (Gross National Product)

A foreigner giving goods & services inside Indian boundaries & comes under GDP & not GNP.
An Indian giving goods & services ~~inside~~ outside Indian boundaries comes under GNP & not GDP.

★ Specific Time Period:

① Re-sold of old items

eg, A person buys a laptop for ₹ 50,000 in 2014. Now, he ~~sld~~ sells it for ₹ 20,000 in 2017. ∵ the ₹ 20,000 were already included in ₹ 50,000 while purchase in 2014, they won't be a part of GDP.

② Business Inventory.

eg, Suppose Maruti ~~mfg~~ manufactures 100 cars in 2016 but manages to ~~sell~~ sell only 70 of them in 2016. The rest 30 cars will be included as Business Inventory ~~& will be counted~~ in the GDP of ~~2016~~ 2016.

★ Read Economic Survey 2016-17 chapter 1 from finance ministry's website.

In 2017, let it manufactures 30 cars & sells them all along with the 30 cars in

1/08/2017

$\therefore GDP_{2016} = C_{70} + BI_{30} = 100$ cars

$GDP_{2017} = C_{30,2016} + C_{30,2017} - BI_{30}$

$= C_{30,2017}$ $\{\because C_{30,2016} = BI_{30}\}$

$= 30$ cars.

★ 3 ways to measure GDP:

1) Expenditure approach
2) Income approach
3) Value-added approach.

[DO NOT USE PRODUCT APPROACH!] 

↓
WRITE IN TEST/EXAM

★ Expenditure approach:

Consumer spending: $C = C_d + C_M$

C_d → Consumers' spending on domestic goods

C_M → Consumers' spending on foreign goods

Producer spending: $I = I_d + I_M$

I_d → Producers' investment on domestic goods

Govt. spending: $G = G_d + G_M$

Foreign spending: X

$$GDP = C + I + G + X - (C_M + I_M + G_M)$$

$$= C + I + G + X - M$$ → Imports

$$= C + I + G + (X - M) = GDP^M$$ → net exports

★ Income approach:

Reward to factor of production = Income

(Land, Labour, Capital, Entrepreneur).

- Rent
- Wages
- Profit
- Interest

$$GDP = \text{Wages} + \text{Rent} + \text{Interest} + \text{Profit} = NNP^f$$

★ Value-added approach:

	Material Used	Material Produced	Value added
Farmer	Seeds ₹ 10	Wheat ₹ 30	₹ 20
Mill	~~Flour~~ ₹ 60		₹ 30
Bakery		Bread ₹ 100	₹ 40
			₹ 90 + 10

7/08/20A

★ $GDP^{\text{factor cost}} = GDP^f$

$GDP^{\text{Market Price}} = GDP^M$

$GDP^M = \sum_{i=1}^{n} P_i \cdot q_i$

p_i = price of ith commodity inclusive of indirect taxes

q_i = qty of ith commodity

$GDP^f = GDP^M$ − Indirect Taxes + Subsidies

$= GDP^M$ − Net indirect taxes

Value added approach measures NDP^f.

Expenditure " " GDP^M.

Income " " NNP^f.

Tomato Producer

Wages = ₹ 15,000

Sold = ₹ 40,000

Household ₹ 15,000

Ketchup Producer ₹ 25,000

Ketchup Producer

Wages = ₹ 20,000

Sold = ₹ 60,000 (all to household)

Expenditure approach →

$GDP = C + I + G + (X - M)$

$= C$

$= 15000 + 60000 = 75000$

Income Approach →

$GDP = W + P + I + R$

$= W + P$

$- 15000 - 20000) = 75000$

Value added approach →

$GDP = 40000 + (60000 - 25000)$

$= 75000$

Hence, we can see that GDP calculated using all the 3 measures is coming the same (₹75000). But we've also ignored many important factors of economy in this example: (closed market).

∴ it is not necessary that always the GDP calculated by using these 3 measures will be the same.

Product X (qty)	Price	GDP	
100	$1	$100	2016
200	$1	$200	2017

Country A (Population = 10)

Base Year Price

Product X (qty)	Price	GDP	
100	$1	$100	2016
200	$2	$400	2017

Country B (Population = 10)

Nominal GDP $= \sum_{i=1}^{N} P_{it} q_{it}$

p_{it} = price of ith commodity during time period t

q_{it} = qty of ith commodity during time

Nominal GDP aka Current price GDP.

Real GDP aka Constant Price GDP aka Base Year GDP.

	Country A	Country B
2016's GDP	100$	100$
2017's GDP (keeping the base year's price same)	200$	200$ → Same

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Index}}$$

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} = \frac{\sum p_{it} q_{it}}{\sum p_{i0} q_{it}} \cong PI(P)$$

~~(is CPI)~~ (Close to CPI)

(Not exactly PI(P) ∵ we ~~do not~~ only include common basket of goods in PI(P) but this includes all goods.)

★ NDP = Net Domestic Product
= GDP − depriciation

NNP = Net National Product
= GNP − Depriciation

→ used up of fixed capital

NNP^f = National Income

10/08/2017

* Inflation → continuous increase in general price level.

* Price → per unit exchange value.

* Exchange value v/s Use value.
eg, water : use value very high, exchange value low
diamond : " " " low, " " high
(Water-diamond paradox) : this arises due to scarcity of a commodity

* ~~Adv~~ As significance of each commodity is different, different weights are assigned to various commodities as we can't calculate the avg. prices directly.

eg,

Commodity	Price	Weight
Rice	₹25/kg	0.2
Cloth	₹ 100/m	0.3
Laptop	₹ 50,000/unit	0.5

Σ(Price × Weight) = 25035 ₹

* Inflation $= \frac{P_t}{P_0} = \frac{\text{Price at time 't'}}{\text{Base Year Price}}$

* P_{it} = Price of ith commodity at time 't'
P_{i0} = Price of ith commodity " " base year

10/08/2017

$$\text{price index (PI)} = \sum_{i=1}^{n} W_i \left[\frac{P_{it}}{P_{io}}\right]$$

W_i = weight for ith commodity

$W_i \geq 0 \quad \forall \quad i = 1 \text{ to } n$

$$\sum_{i=1}^{n} W_i = 1$$

Criterion for a year to be base year —

① It should be a past year

② It should not be an abnormal year

⇓

A year that experienced some natural calamity or any economic crisis.

③ It should not be far from the current year.

Ways to calculate weight (W_i) —

① Share of ith commodity value in base year

$$W_i = \frac{q_{io} p_{io}}{\sum q_{io} p_{io}}$$

(Laspeyre's Method)

$$\therefore \text{Laspeyre's PI} = \frac{\sum q_{io} p_{it}}{\sum q_{io} p_{io}}$$

or

PI (L)

② Share of ith commodity value in current year

$$W_i = \frac{q_{it} p_{it}}{\sum q_{it} p_{it}}$$ (Paasche's Method)

$\therefore$ Paasche's PI $= \frac{\sum q_{it} p_{it}}{\sum q_{it} p_{io}}$

or

PI (P)

NOTE:-

Year	Coffee		Tea	
	P	q	P	q
2014	10	100	8	200
2017	20	80	10	220

While calculating PI(L), we'll not be able to capture the Substitution Effect. $\therefore$ PI(L) under-estimates the Substitution Effect.

While PI(P) uses current year & that's why it over-estimates the Substitution Effect.

Fisher's PI $= \sqrt{PI(L) * PI(P)}$

→ Ideal PI

☆ In India, we calculate two kinds of PI –

① WPI: Wholesale Price Index (for monetary policies)

② CPI: Consumer Price Index (for Standard of Living)

or

Living Standard Price Index

NOTE:- RBI fixes 3 interest rates in India —

① Repo-Rate:
Short-term lending rate when ~~the~~ a Scheduled Commercial Bank borrows money from RBI.

② Bank-Rate:
Long-term lending ~~rate~~ rate when a Scheduled Commercial Bank borrows money from RBI.

③ Reverse Repo-Rate:
Short-term lending rate when the RBI borrows money from a Scheduled Commercial Bank.

These 3 rates decides the liquidity in the market. (How much money flow in market)
These are determined by ~~the~~ inflation.

—×—

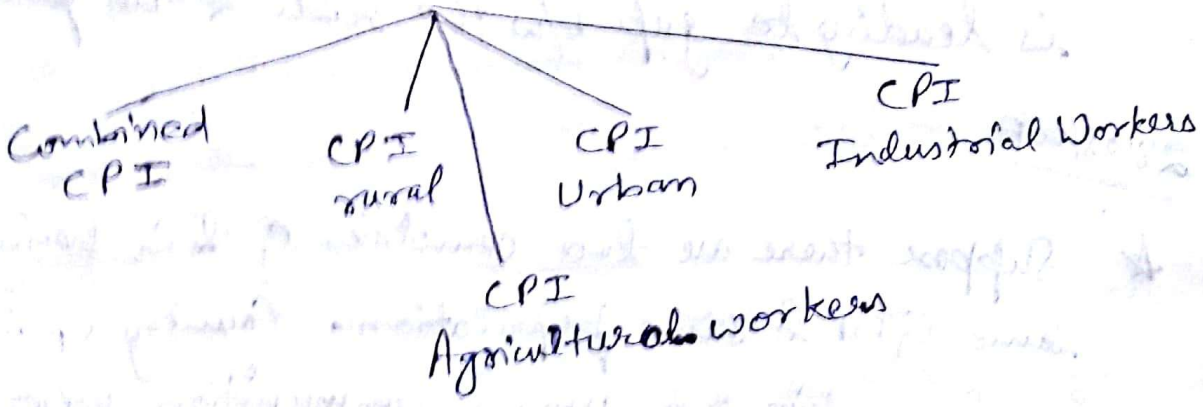
22/08/2017

☆ Effective Income = Purchasing Power

☆ WPI	CPI
• P, Q info^s from wholesale market	P, Q info^s from retail market
• Includes intermediate goods & services	Does not include

WPI	CPI
• Includes imported goods & services • Does not include	Does not include Includes public services (like healthcare, transportation)

CPI (in India)



Structural Tranformations

The pattern that a country has followed during it's developing phase is called as structural transformations.

There are 3 phases ~~acc~~ in this acc. to GDP & employment -

Sector	Phase - I	Phase - II	Phase - III
Agriculture sector	Highest (20%)	↓ (15%)	↓ (5%)
Industrial Sector	2nd (13%)	Highest (65%)	↓ (20%)
Services Sector	2nd (7%)	↑ (20%)	Highest (75%)

* All the data are for example only.

In case of India, if we talk about GDP, we've shifted from Phase-I to Phase-III without experiencing Phase-II.

If we talk about employment, we are were & we are still in the Phase-I.

This difference b/w the phases of GDP & employment is leading to gap b/w the rich & the poor.

28/08/2017

☆ Suppose there are two countries C_1 & C_2 having same GDP & same population. Country C_1 is making only arms & ammunition whereas C_2 is making agricultural & industrial products.

Inspite of same financial condⁿs, we can clearly state that C_2 is better than C_1 to live in.

This simply means that financial wealth is not the ultimate factor to measure the wellness of an economy.

Here comes the factor of Human Development (def.: The process of enlarging human choices.).

There are few basic factors upon which everyone agrees that they are must for human development. These indicators

(1) Income / Standard of Living
(2) Education / Knowledge ~~⇒ Literacy Rate~~
(3) Health

Education / Knowledge can be measured by Literacy Rate or by Gross Enrollment Ratio (GER) in primary schools or by Net Enrollment Ratio ~~(PR)~~ (NER) in primary schools.

~~But~~ Sadly in India, it is measured by self-reported process. (Kya aap literate hain? Y/N).

In developed countries, an individual is asked to read / write / speak a given sentence which decides its literacy.

★ Human Development Index was introduced in 1990 by United Nations' Development Programme (UNDP). At that time, ~~ad~~ Adult Literacy Rate & GER in pr. schools were the ~~indicators~~ measures used for education.

Since 2010, we've started using the measures of ~~no. of years of our's schooling~~, mean years of schooling & expected years of schooling.

★ GER = $\frac{\text{No. of students in primary schools}}{\text{Population in the age grp. of 6 to 14}}$

NER = $\frac{\text{No. of students in primary schools in the age group of 6 to 14}}{}$

It can be seen that GER may be > 100.

★

Age	Years of Schooling	Expected years of schooling (assumed each individual starts education at the age of six)
20	10	14
7	2	1
70	0	18 ← (Till Masters)
40	0	18 ← (Till Masters)
13	7	7

Mean years of schooling, $E(x) = \frac{19}{5}$

Avg. expected years of schooling = 58/5

★ Health can be measured by the measures of

① Avg. BMI
② Life Expectancy
③ Infant Mortality Rate (IMR)
④ Under-Five Mortality Rate

Presently (~~eft~~ since 2010), health is being measured by Life Expectancy at Birth.

★ Income can be measured by per capita income, purchasing power ~~per~~ parity.

✱ Since different indicators are measured in different units, ∴ we need to standardise them to see them in aggregate.

For the standardisation of health & education, the process used is ~~Act~~

$$\frac{\text{Actual value} - \min^m \text{value}}{\max^m \text{value} - \min^m \text{value}} \in [0, 1].$$

$\min^m$ value & $\max^m$ value are known as goalposts.

For income, the process used is

$$\frac{\ln(\text{Actual value}) - \ln(\min^m \text{value})}{\ln(\max^m \text{value}) - \ln(\min^m \text{value})}.$$

We take ~~the~~ natural ~~&~~ log of income bcoz increasing income has a diminishing effect on choices, which is reflected through natural logarithm.

4/9/2017

✱ $$\frac{\ln(\text{Actual income}) - \ln(\min^m \text{income})}{\ln(\max^m \text{income}) - \ln(\min^m \text{income})} = \text{Income Index (I)}$$

Let α = mean yrs. of schooling and
β = mean expected yrs. of schooling

$$\frac{\ln(\text{actual } \alpha) - \ln(\min^m \alpha)}{} = \text{Education Index I}$$

$$\frac{(\text{actual } F) - (\min^m F)}{(\max^m F) - (\min^m F)} = \text{Education Index II } (E_1)$$

$$\text{Education Index } (E) = \frac{E_1 + E_2}{2}$$

Let γ = life expectancy at birth

$$\therefore \frac{(\text{actual } \gamma) - (\min^m \gamma)}{(\max^m \gamma) - (\min^m \gamma)} = \text{Health Index } (H)$$

$$\therefore \text{Human Development Index (HDI)} = (I \times E \times H)^{1/3}$$

☆ Earlier, when Adult Literacy Rate & GER in pr. schools were used as ~~indies~~ measures for education.

At that time, $HDI = \frac{I + E + H}{3}$

where $E = \frac{E_1 + E_2}{2}$.

☆ Capabilities & functionings Concept (by Amartya Sen)

Capabilities → freedom of choices

functionings → Achievements

Let x_i : commodity owned by individual 'i'

$C(\cdot)$: characteristic vector of commodity

$f_i(\cdot)$: personal utilization func^n ; individuals actually used.

X_i : Endorsement set

* Read Ch-2 from Commodities & Capabilities by Amartya Sen.

11/07/2017

$$P(X_i) = \{ b_i \mid b_i = f_i(c(x_i)) \text{ for } x_i \in X_i \}$$ Functioning

$$Q(X_i) = \{ b_i \mid b_i = f_i(c(x_i)) \text{ for } x_i \in X_i \text{ \& } f_i \in F_i \}$$ Capability

eg,

	Individual 1	Individual 2
F_i	{Reading ability, listening ability, cycling ability}	{Reading ability, cycling ability}
$P(X_i)$	{Job, Mobility}	{Job, Mobility}
$Q(X_i)$	{Job, Reading pleasure, Listening pleasure,	

10/10/2021

Unemployment

★ Challages to an economy –

(1) ↑ing GDP

(2) Stabilized inflation (not zero, but not fluctuating highly)

(3) Low level of unemployment

★ ~~Ex~~ Some important terms –

(1) Demographic Population (P)

(2) Labour force (LF) Participation Rate

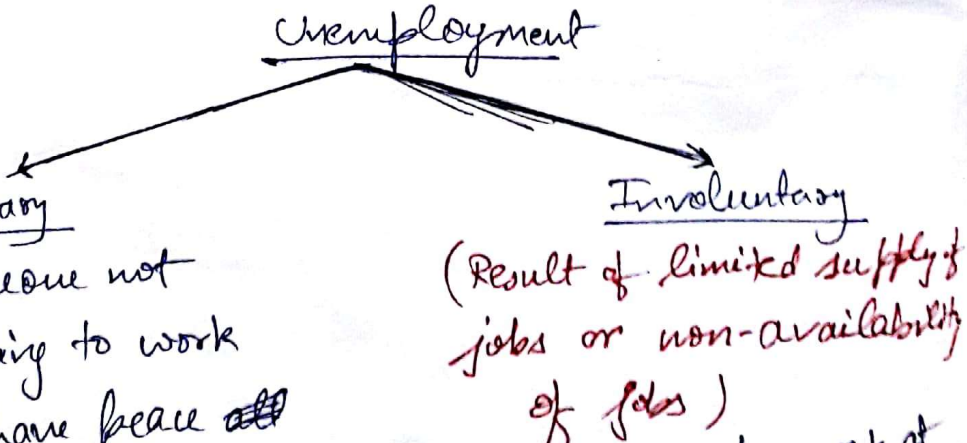
LFPR = $\frac{\text{No. of individual willing to work at the existing wage rate (LF)}}{P}$

(3) Workforce (E) Participation Rate

WPR = $\frac{\text{No. of individual employed at the existing wage rate (E)}}{P}$

(4) Unemployment Rate = $\frac{LF - E}{LF}$

★



the existing wage rate but can't due to unavai-lability of jobs.

Open

Mostly seen in developed countries & are short-term in nature usually.

⇒ Frictional
⇒ Cyclical
⇒ Structural

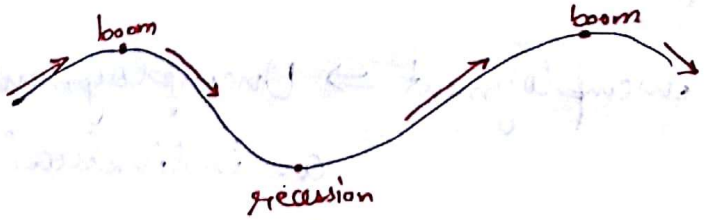
Hidden

Mostly seen in developing countries & are long-term in nature usually.

⇒ Disguised
⇒ Seasonal
⇒ Under-Unemployed

Frictional ⇒ Unemployment arising due to leaving (aka Natural) on existing jobs & searching for new jobs.

Cyclical ⇒ Unemployment arising due to business cycle or natural calamities.



Structural ⇒ Unemployment arising due to difference in the demand of skills & supply of skills during structural transformations

Natural Unemployment Rate: Any unemployment rate that leads to non-increasing inflation rate is natural unemployment rate.

Disguised ⇒ Any ~~worker~~ labour whose Marginal Productivity is zero is considered as disguised unemployed, i.e.

$$MP_L = 0.$$

eg, A farmer family of 10 members all working on a piece of land having requirement / productivity of only 5 members. The rest 5 members are disguised unemployed.

Seasonal ⇒ Unemployment arising due to seasonal nature of some economic activities.

eg, Agriculture (Rabi season, Kharif season), Construction workers (generally construction is avoided in rainy season).

Under-unemployment ⇒ Unemployment arising when an individual works less than its MP_L.

17/10/2017

Poverty

(1) Identification problem : Who is poor?

→ (i) Income approach

→ (ii) Nutritional approach

World Bank

a. $1/- (PPP) per day / per person — Under-developed

b. $1.25/- (PPP) " " — Developing

c. $2/- (PPP) " " — Developed

↳ Purchasing Power Parity

Whereas Indian standards are —

Rural: ₹ 22/-

Urban: ₹ 32/-

Rural + Urban: ₹ 29/-

For developing & under-developed countries' households income information is unknown. ~~Rather~~ Instead, Household Consumption Expenditure is known.

Here comes nutritional approach in picture.

Calorie intake can be ~~de~~ taken as a measure of poverty —

Rural: 2400 kCal/day

Urban: 2100 kCal/day

An individual will be considered poor, if they consume less than the recommended level of calorie intake.

In India, the calorie intake standards are converted into Monthly ~~Per~~-capita Consumption Expenditure (MPCE) to measure poverty.

~~NSSO~~ NSSO conducts surveys in India to find out the MPCE.

ICMR provides per-unit nutritional value of each food item.

In the survey, each household is questioned about how much of each product they have consumed in the last 30 days & in last 365 days.

$$C_i = \frac{1}{N_i} \sum_{j=1}^{K} q_{ij} p_j$$

C_i = per-capita calorie intake of household i

N_i = family-size of ith household

q_{ij} = qty of jth food item consumed by ith household

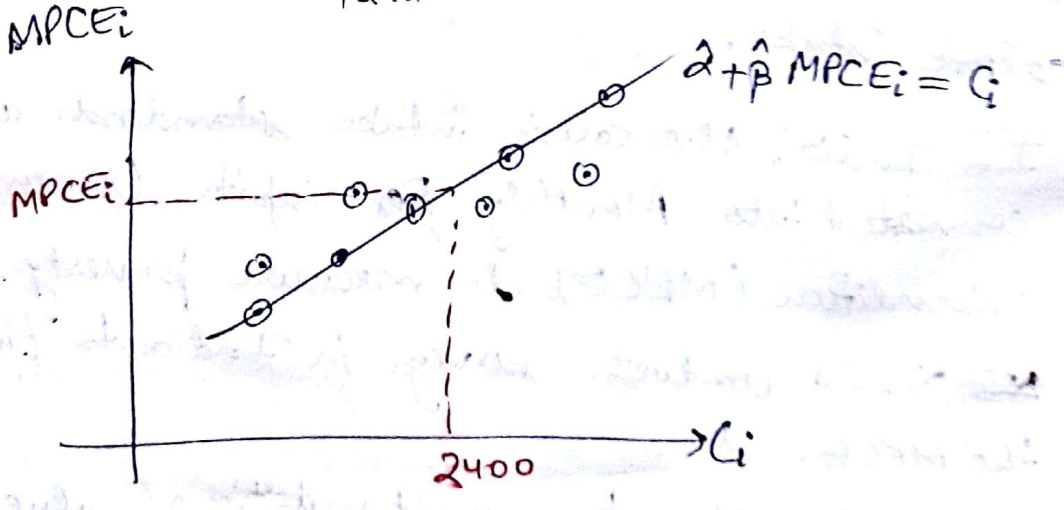
p_j = per-unit calorie intake of jth food item

Now, we have C_i & $MPCE_i$ values.

By regression, we can consider that

$$C_i = \alpha + \beta\, MPCE_i + u_i$$

(α, β: Parameters; u_i: Error Term)

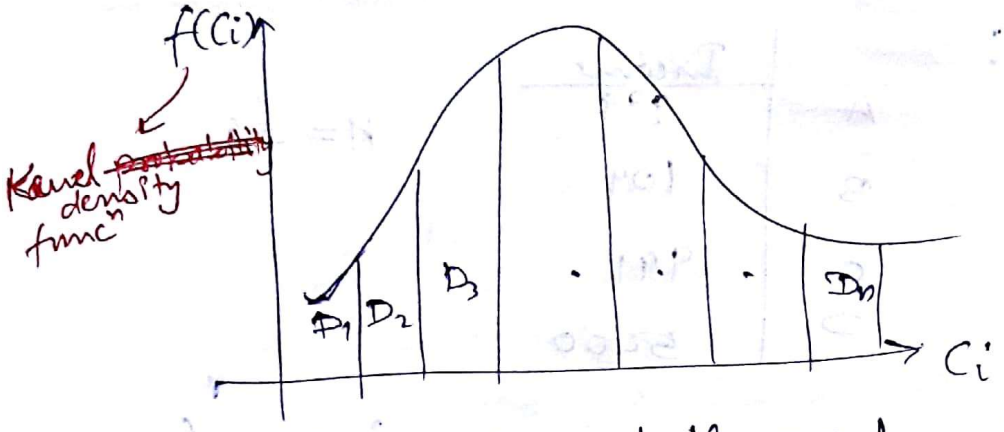


By this method, we can convert the calorie

& by this manner is called Poverty Line.

~~MPCE_i for rural: ₹~~
~~" Urban: ₹~~

In India, a slightly more ~~differe~~ different method is used.



finding means of each desile groups, i.e.
$\bar{C}_i^{D_1}$, $\bar{C}_i^{D_2}$, $\bar{C}_i^{D_3}$, ---, $\bar{C}_i^{D_n}$.

Now let say $\bar{C}_i^{D_j} \simeq 2400$, ∴ corresponding $MPCE_i$ value will be benchmarked for poverty line. Here the D_j is called poverty desile grp.

24/10/2017

(2) Aggregation Problem

→ (i) Head Count Ratio (H)

$$= \frac{q}{N}$$

q = No. of poor
N = population size

	Income
A	999
B	99
C	1001
D	5000

~~Rest~~ Let PL = ~~5,000~~ 1000

∴ $H = q/N$

$= 2/4$ ~~= 1/2~~

But there is no significant difference b/w A & C, also who is how much poor.
∴ we are not able to capture the Depth of Poverty.

Now let us transfer some income from C (richer) to B (less richer).

∴

	Income
A	999
B	109
C	991
D	5000

$H = 3/4$

Now let us transfer some income from B (& poorer) to A (less poorer).

	Income
A	1009
B	89
C	1001
D	5000

$H = 1/4$.

These all violates Dalton's Principle ↓

(a) When we are transferring income from poorer (richer) individual to non-poorer (non-richer) individual, then the incidence of poverty should increase (decrease).

~~Anonymity~~, We ~~have~~ do not have anonymity in this case. (who owns what income should

One more thing is that if we clone the existing population with the same individual income as of now, the head count ratio will not be affected.

~~→ (ii) Poverty Gap~~

H can also be written as,

$$H = \frac{1}{N} \sum_{i=1}^{N} I_i (Y_i < Z)$$

where Z = Poverty Line

Y_i = ith individual's income

$I_i (Y_i < Z)$ = Identification func^n

$$= \begin{cases} 1, & Y_i < Z \\ 0, & \text{otherwise} \end{cases}$$

→ (ii) Poverty Gap

$$G_i = (Y_i - Z)\, I_i (Y_i < Z)$$ → measures depth of poverty

$$PG = \frac{1}{N} \sum_{i=1}^{N} \left(\frac{G_i}{qZ} \right)$$

$$= \frac{1}{N} \sum_{i=1}^{N} \left\{ \frac{(Y_i - Z)\, I_i (Y_i < Z)}{qZ} \right\}$$

→ (iii) Squase Poverty Gap

$$SPG = \frac{1}{N} \sum \left(\frac{G_i}{} \right)^2$$

Here, we are giving more weightage to larger poverty gaps:
Still, it violates Dalton's Principle.

→ (iv) ~~SGT~~ ~~Poverty~~ Foster's Index
FTG
~~FGT~~
~~SFT~~

$$FTGP = \frac{1}{N} \sum_{i=1}^{N} \left(\frac{G_i}{qz}\right)^{\alpha}$$

$\alpha = 0 \Rightarrow H$
$\alpha = 1 \Rightarrow PG$
$\alpha = 2 \Rightarrow SPG$

α = penalty coeff.

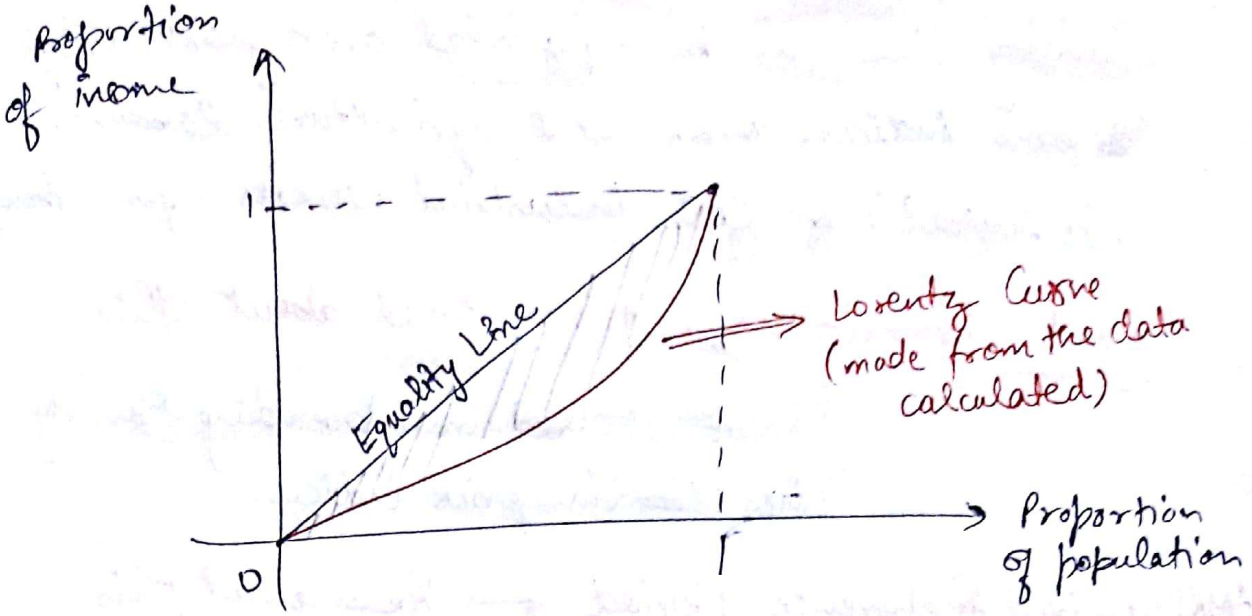
→ (v) Sen's Poverty Index

$$P_s = H\left(1-(1-G^P)\frac{\mu^P}{z}\right)$$

G^P = Gini-coeff. among the poor
μ^P = Mean Income of poor

Let $y_1, y_2, \ldots y_{q=n} < z$

y_i	frequency	Cumulative proportion of income	Cumulative proportion of population
y_1	f_1	y_1/y	f_1/q
y_2	f_2	$(y_1+y_2)/y$	$(f_1+f_2)/q$
⋮	⋮	⋮	⋮
y_n	f_n	y/y	q/q
$\Sigma y_i = y$	$\Sigma f_i = q$		



Gini-coeff. = $\frac{\text{Area bounded by Lorentz Curve \& Equality Line}}{\text{Area bounded by Equality Line } (=0.5)}$

Gini-coeff. $\in [0, 1]$

Sen's Poverty Index captures ~~Depth~~ of Poverty as well as follows Dalton's Principle.

31/10/2017

★ Poverty Measurement In India —

1979 (Expert Group)
1993-94 (Khandelwal Committee)
2004-05 (Tendulkar ")
2014-15 (Rangarajan ")

← Read about them

Expert Group converted ICMR into PL(MPCE) in

$\begin{Bmatrix} R=2400 \\ U=2100 \end{Bmatrix}$ $\begin{Bmatrix} 70\% \\ 60\% \end{Bmatrix}$

1979 for the year 1973.

Uniform Recall Period (URP). ← Read about this

Poverty line can be upgraded over years using price indices, viz. CPI agriculture labourers (for rural) & CPI industrial workers (for urban).

Food-Transitions. ← Read about this

↳ Not captured in upgrading Poverty lines via price indices.

(MRP) Mixed Reference Period ← Read about this

(Food → 30 days, Non-food → 365 days)

Direct & Indirect Poverty ← Read about this.

NSSO conducts surveys for measuring consumption expenditure.

The consumption expenditure info used in GDP(= C + I + G + (X−M)) comes from National Accounts Statistics (NAS).

It appeared that data from NSSO & NAS were not similar, rather they were quite different from each other.

One of the reason for this is Outside Home Consumption is not properly reported to NSSO.

Other reason is that most of our welfare schemes are provided only to poor households. So people have tendency to report their income & consumption lower than in reality to fall under the label of "poor".

Other reason is Calorie-Consumption Puzzle.

{ PCI ⇑ (BUT) Calorie ⇓
MPCE ⇑ }

Per Capita Income

~~In pre~~ With development, manual labour is getting replaced by mechanised ~~ass~~ tools, i.e. the requirement of calorie intake ~~is~~ has declined.

Modified Mixed Reference Period (MMRP) ← Read about this

(Easily perishable food → 7 days,
~~Non~~ Non-perishable food → 30 days,
Non-Food → 365 days)

At present, the poverty line in India is –
R = ₹ 2190 and U = ₹ 2050

We can't compare the different poverty lines suggested by different committees bcz they all used different methods & reference periods.

7/11/2017

Balance of Payments (B.O.P)

Closed Economy
No transactions with the rest of the world.

Open Economy
Transactions are not limited to the citizens of ~~the~~ a country.

Exports (X)
Domestic goods & services sold to foreigners.

Imports (M)
Foreign goods & services purchased by domestic

Balance of Payments → Accounting statement of all international transactions.

Record

Accounting Statement	
Credit	Debit
Inward cash flow.	Outward cash flow.

Export goes in credit & Imports goes in debit.

$X < M \Rightarrow$ Deficit

$X > M \Rightarrow$ Surplus

$X = M \Rightarrow$ Balance

∵ there are millions of transactions, ∴ it is very tedious to make records of every cash flow.

∴ classification is done under B.accounting statement as —

- Current Account
- Capital Account
- Forex Account

	Credit	Debit	
Current A/c (i) Goods Trade	X^G	M^G	(i) Trade Deficit / Surplus / Balance
(ii) Invisibles (a) Services Trade	X^S	M^S	(ii) Invisible Deficit / Surplus / Balance (a) Surplus/Deficit/Balance in services in trade
(b) Income	X^I (Inward Income)	M^I (Outward Income)	
(iii) Unilateral Transport (Aid)	Inward UT	Outward UT	

Current A/c (CA) $= X^G - M^G + X^S - M^S + \text{Net UT}$

$= (X^G + X^S) - (M^G + M^S) + \text{Net UT}$

$= X - M + \text{Net UT}$

$\simeq X - M$ {$\because$ Net UT is very negligible}

$GDP = C + I + G + CA$

$=$ Aggregate Expenditure

$Y = C + S + T$

$=$ Aggregate Income

Aggregate Expenditure = ~~Expe~~ Aggregate Income

$\Rightarrow GDP = Y$

$\Rightarrow C + I + G + CA = C + S + T$

$$\Rightarrow \quad CA = (S - I) + (T - G)$$

$$\Rightarrow \quad (S - I) = CA + (G - T)$$

$G > T$ Budget deficit

$G < T$ Budget Surplus

$G = T$ Budget balance

Case 1: $S = I$

and govt. follows deficit budget

$$G - T = -CA > 0$$

$$\Rightarrow CA < 0$$

$$\Rightarrow X - M < 0$$

$$\Rightarrow X < M$$

$\Rightarrow$ Current A/c deficit (CAD)

-

* C.
* Cor.

MICRO ECONOMICS

Prof. K. Goswami

17/7/2017

★ Cardinal measure

★ Cardinalist: ~~a person~~ an economist who believes in cardinal theory.

24/7/2017

Cardinal measure ← opposite → Ordinal measure

Cardinal measure

$$MU = \frac{\Delta TU}{\Delta C}$$

MU = Marginal Utility

TU = Total Utility

C = Total Consumption

$$MU_x = P_x \cdot MU_m$$

or $$\frac{MU_x}{P_x} = MU_m$$

MU_x = Marginal Utility of commodity X

P_x = Price of commodity X

MU_m = MU of money

★ Assumption: MU_m is constant.

Ordinal measure

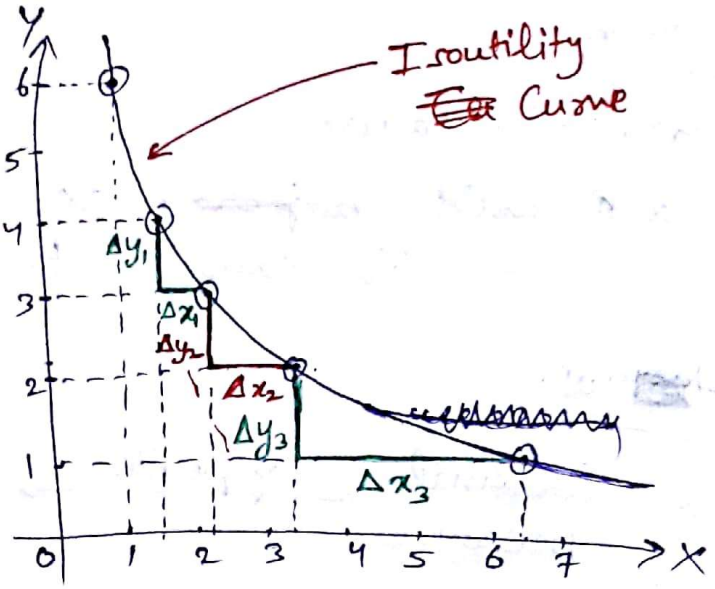
★ MU_m can't be constant (beggar & billionaire example).

★ Consumer is rational.

★ Utility is transitive ($A > B$ & $B > C \Rightarrow A > C$).

★ Utility is relative, it can't be quantified.

★ Suppose X and Y are two commodities. Every point on the following graph will represent



Suppose there are some pts. where the consumer feels indifferent, i.e. their utility is same. All such pts. lie on a curve called as indifference curve or isoutility curve.

Indifference curves are based on substitution.

Substitution curves are always -ve sloped and convex to the origin.

Property ① Property ②

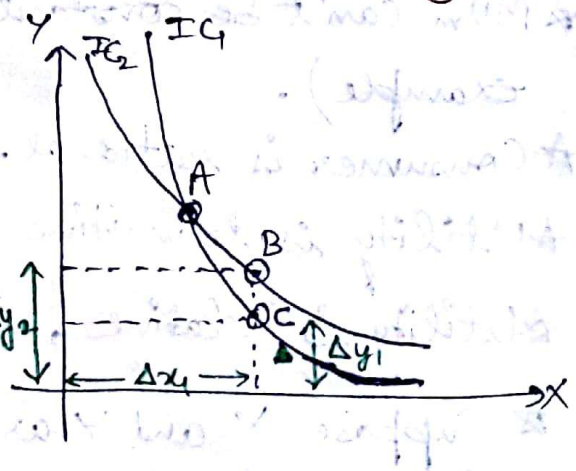
$$\frac{\Delta y_1}{\Delta x_1} > \frac{\Delta y_2}{\Delta x_2} > \frac{\Delta y_3}{\Delta x_3}$$ { Diminishing Rate of Substitution }

Two isoutility curves never intersect.] Property ③

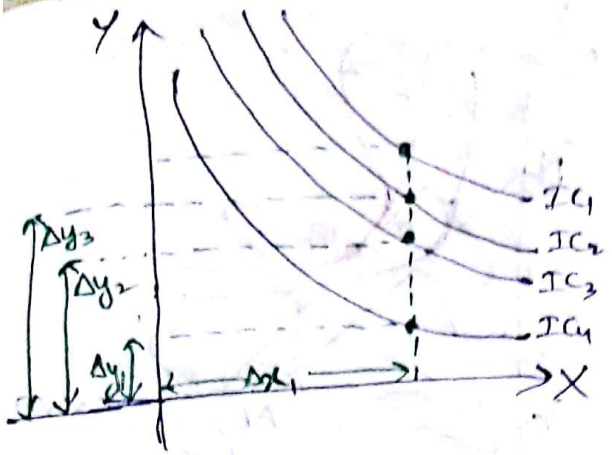
Proof:- IC_1 & IC_2 has a common point A. Now,

$A = B$ & $A = C \Rightarrow B = C$

(in terms of utility)



But $B \neq C$ ∵ for same Δx_1, $\Delta y_2 > \Delta y_1$. That means utility at B > utility at C.



$IC_4 < IC_3 < IC_2 < IC_1$

Utility

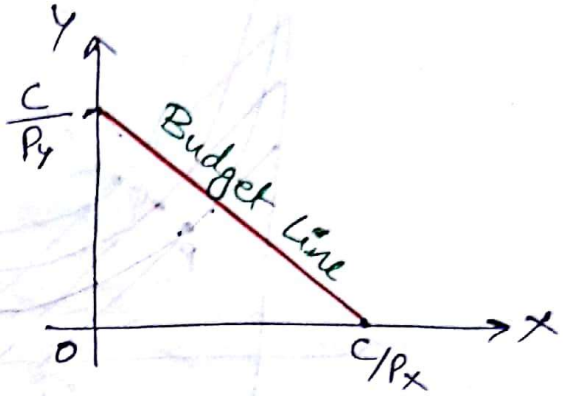
Property (4)

Let C = amount of money to be spent by customer

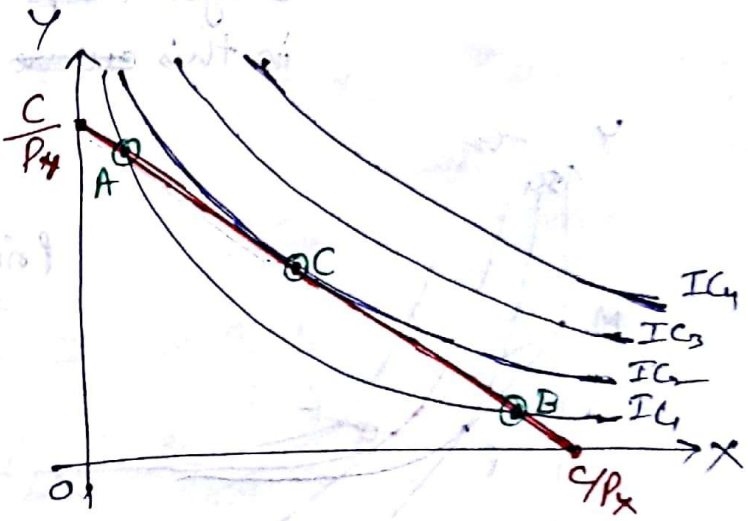
$\therefore C = X \cdot P_x + Y \cdot P_y$

or $X = \frac{C}{P_x} - \frac{P_y}{P_x} \cdot Y$

or $Y = \frac{C}{P_y} - \frac{P_x}{P_y} \cdot X$



At point C, the consumer is using its whole amount of money along with utilising it to its max^m. This cond^n is called consumer eq^m.



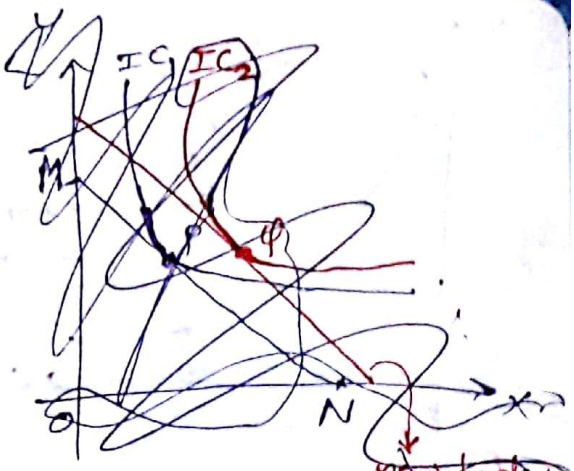
Two necessary cond^{ns} for this situation are —

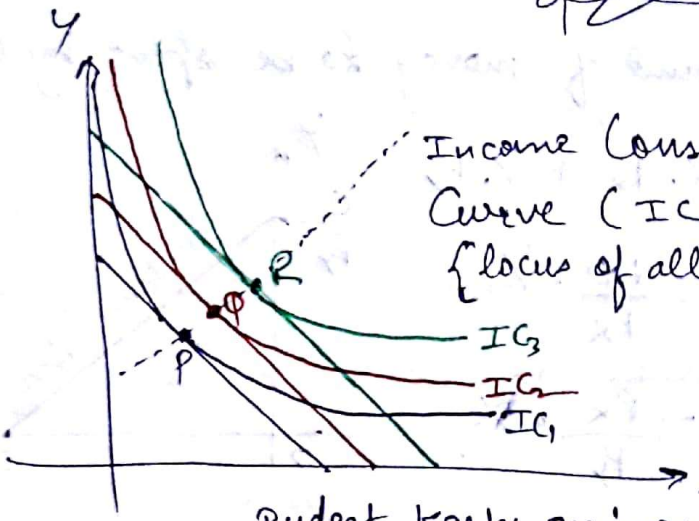
(1) $MRS = \frac{P_x}{P_y}$ i.e. slope of IC & Budget line must be same.

↳ Marginal Rate of Substitution

(2) The IC curve satisfying higher utility must be selected.

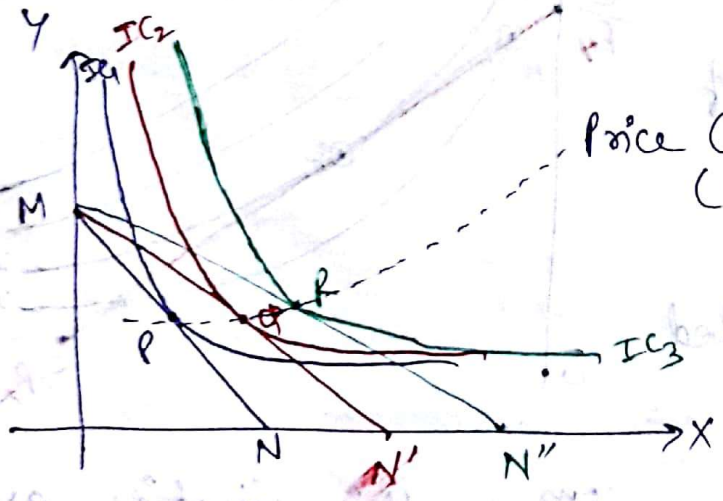
31/7/17





Income Consumption Curve (ICC)
{locus of all equilim points}

Budget keeps on increasing / decreasing in this ~~curve~~ plot.



Price Consumption Curve (PCC)

Price of X keeps on changing in this plot.

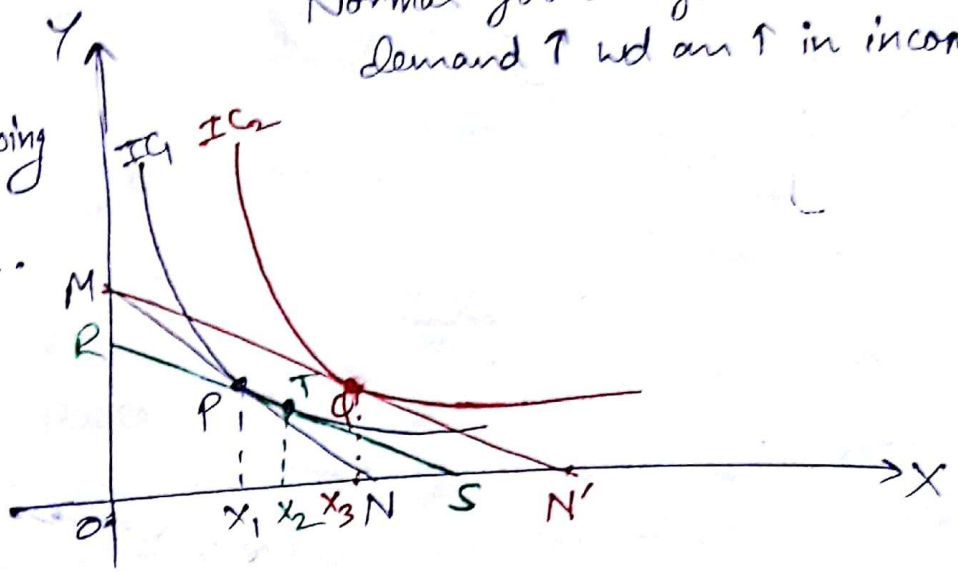
* Income effect: Due to change in the price of a commodity, the consumer feels a change in their income (though it is not in reality, but the excess or lack of ~~not~~ income makes them feel

* Substitution effect: A consumer always tries to substitute cheaper item for costlier item if quality is more or less the same.

Hicksian Approach

Normal goods → goods whose demand ↑ wd an ↑ in income

Price of X keeps decreasing in this example.



Price effect, PE = X_1X_3 (the length of the line segment)

~~Now let's the budget~~

Earlier, we're at IC_1 at P. Now let say price of X ~~↓~~ ↓ & we reach IC_2 at Q.

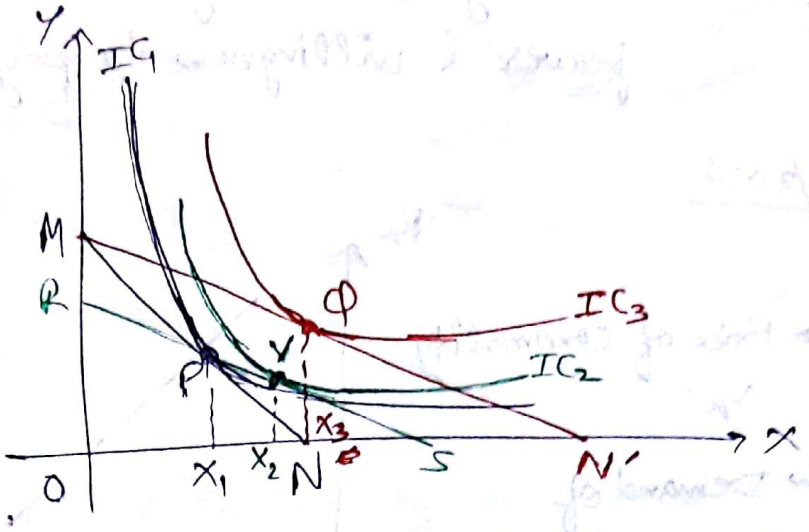
Now assume that the budget ↓. So the budget line will come down parallely ~~to~~ MN'. Also assume that the downfall is such that we reach ~~to~~ back to IC_1 at T.

Income effect, IE = X_2X_3 (the length again)

Substitution effect, SE = $X_1X_3 - X_2X_3$

= X_1X_2.

Slutsky's Approach



Price effect, PE = X_1X_3.

From P, price of X ↓. So we reached Q. Now he assumed that the income ↓ in such a way that the consumer can still purchase the original combination of X & Y at P.

IE = X_2X_3

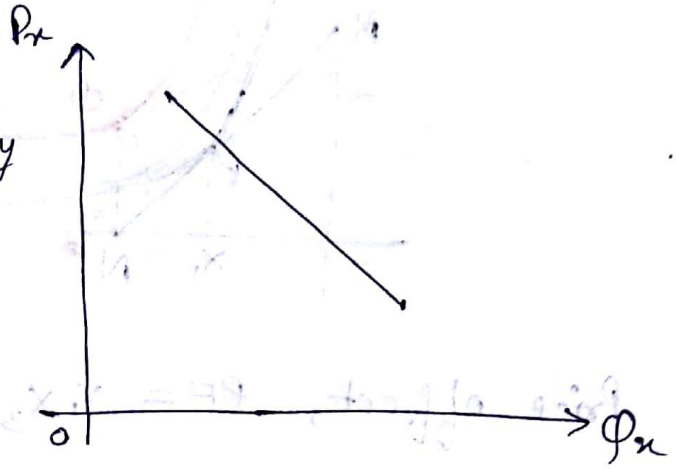
∴ SE = PE − IE = X_1X_2

Demand: ~~willingness~~ Desire to buy backed by purchasing power & willingness to pay.

3/08/2017

$P_x \rightarrow$ Price of commodity 'x'

$Q_x \rightarrow$ Demand of commodity 'x'.



Law of Demand: When ~~all~~ other factors are constant, price is less implies that demand will be more & vice versa.

There may be following relns b/w P_x & Q_x:

$$Q_x = a - bP_x$$

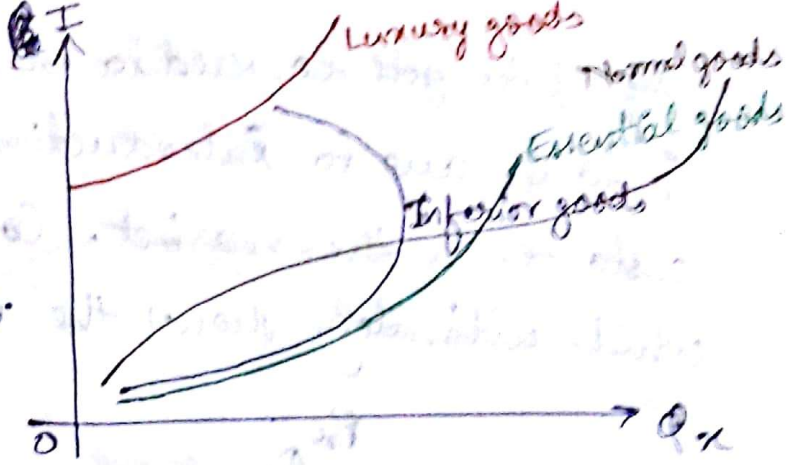
$$Q_x = aP_x^{-b}$$

$$Q_x = \frac{a}{P_x + c} \cdot b \quad , \quad a, b, c > 0$$

exception: gift items, luxury items, giffen goods

It may be any essential commodity ~~consumed~~ consumed major fraction ~~mostly~~ by poor households & it takes ~~most~~ of their income.

Normal goods are those that comes in b/w essential goods & & luxury goods.



* Bandwagon effect:
Purchase of luxury commodity by some individual having the purchasing power to ↑ its social status & encourages other individuals also having the purchasing power to buy it. (+ve effect on demand)

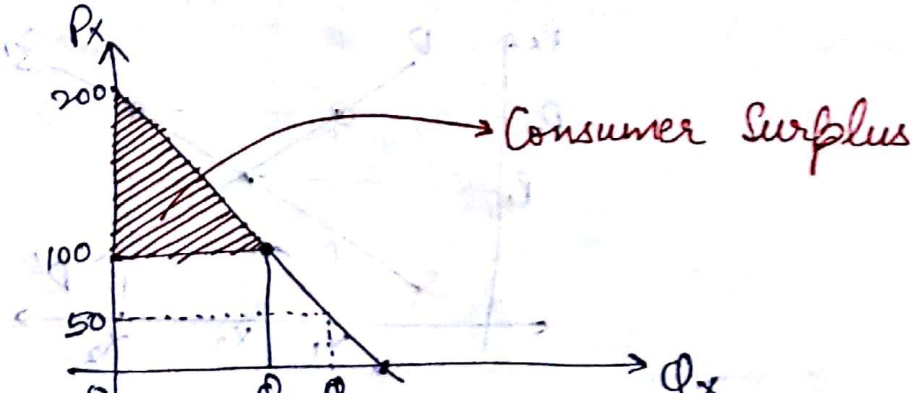
Snob effect:
Increased income with time generates a feeling of dropping off ~~common~~ goods used by many of the common people & switching on to a better or expensive good. (-ve effect on demand)

$$Q_x = f(P_x, I, P_{c,s},$$

$P_{c,s}$ → Price of complimentary or substitutional goods

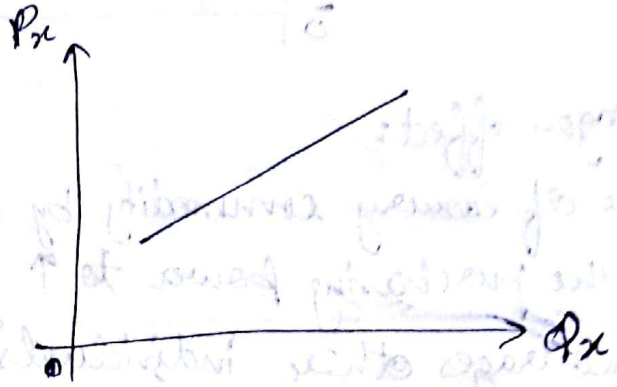
8/08/2017

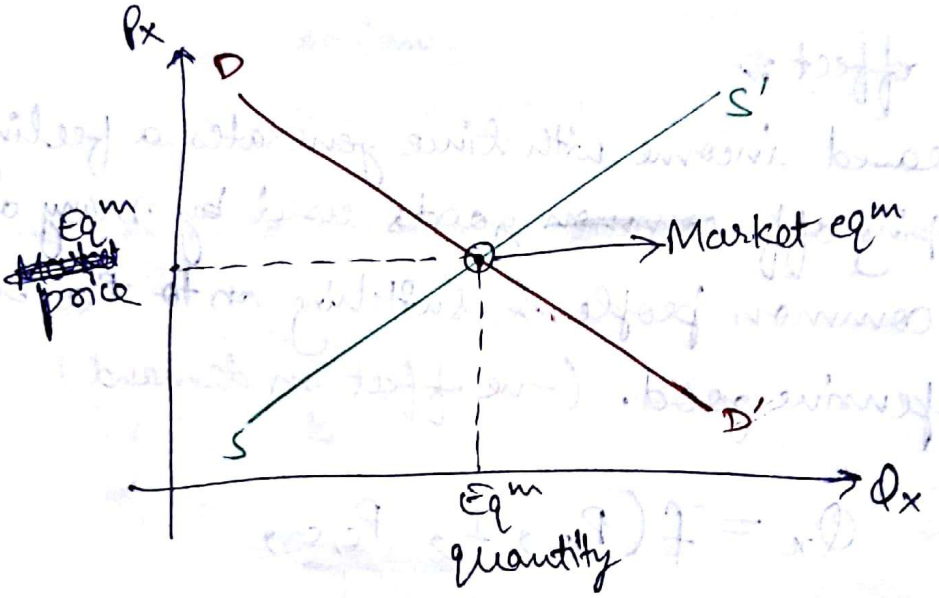
Based on Law of Demand



If price gets lowered to 50, the demand will ↑ to Q_2 due to introduction of new customers in the market. Consumer surplus ↑ which ultimately shows the welfare of the society

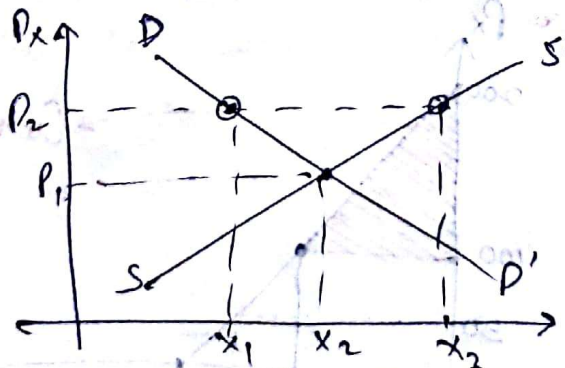
Based on Law of Supply





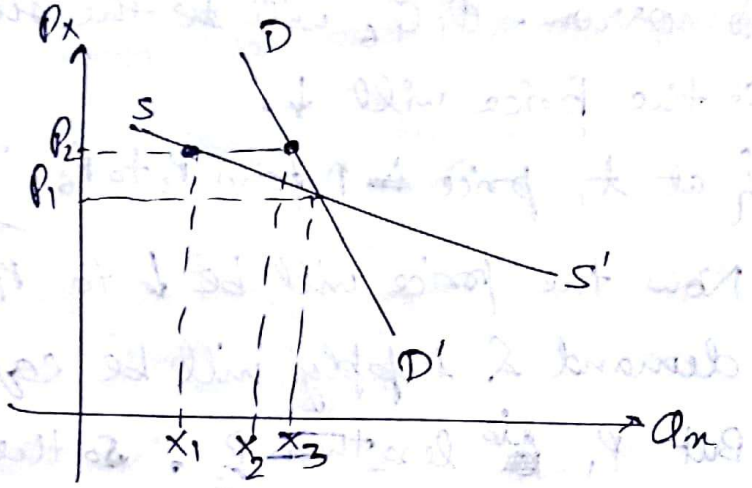
Eqm under Static Economy -

① Stable eqm under static economy

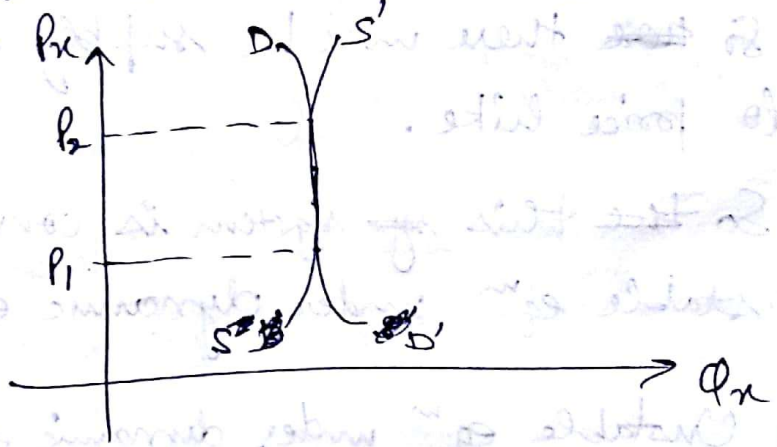


If price P_2 to P_2, there is a surplus supply. So price ↓. So we ~~can~~ again come to P_1.

② Unstable eqm under static economy



③ Neutral eqm under static economy



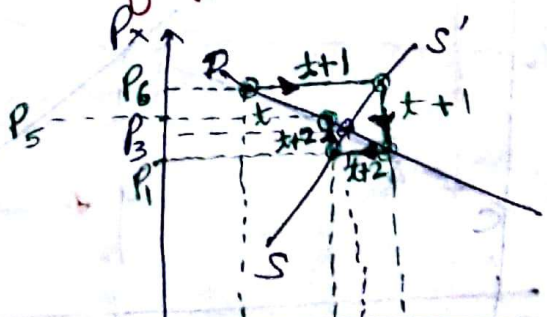
14/08/2017

Eqm under Dynamic Economy -

① Stable eqm under ~~static~~ ~~eco~~ dynamic economy

Supply is a lag func" of price, demand changes spontaneously

Cobweb Theorem



slope of demand curve < slope of supply curve

OQ_1 is the demand today. OQ_6 will be the supply tomorrow. Q_1Q_6 will be the surplus supply. So the price will ↓.

{ at t_1 price ↑ from P_3 to P_6. }

Now the price will be ↓ to P_1 so that the demand & supply will be equal.

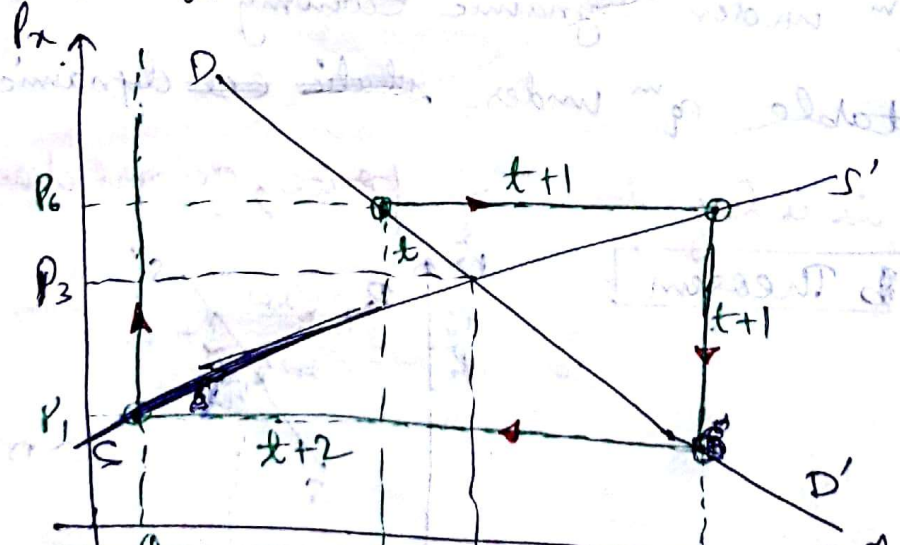
But P_1 is less than P_3 ∴ So the supplier will supply less the next day (at $t+2$).

But now, OQ_2 is supply & OQ_6 is demand. So there will be supply shortage leading to price like.

So this system is convergent & is stable eqm under dynamic eqm.

(2) Unstable eqm under dynamic economy

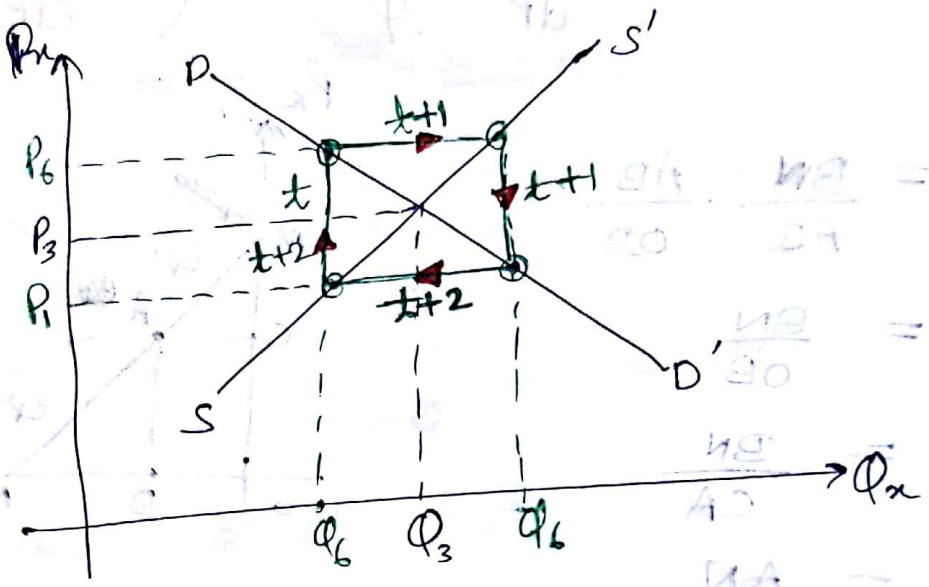
slope of demand curve > slope of supply curve



We will never return to ~~Q_2, Q_2~~ (Q_3, P_3).
So this system is unconvergent & unstable.

③ ~~Neutral~~ Oscillating eq^m under dynamic economy

slope of demand curve = slope of supply curve.



We'll keep on rotating around (Q_3, P_3).
So this is neutral eq^m.
In some books, this is also termed as undamped oscillating eq^m under dynamic economy.

★ Elasticity –
Sensitivity or responsiveness of change of one parameter of a commodity wrt ~~or~~ other parameter.

① Price Elasticity

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

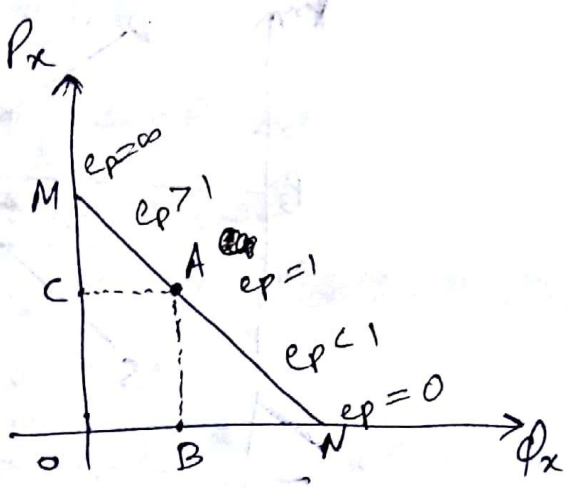
$$= \frac{\Delta Q}{Q} \div \frac{\Delta P}{P} = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

This is also called arc elasticity.

22/08/2017

② Point Elasticity

$$e_p = -\frac{d\phi}{dP} \cdot \frac{P}{\phi} \qquad \left(\because \frac{d\phi}{dP} < 0\right)$$



$$\therefore e_p = \frac{BN}{AB} \cdot \frac{AB}{OB}$$

$$= \frac{BN}{OB}$$

$$= \frac{BN}{CA}$$

$$= \frac{AN}{MA}$$

$$= \frac{\text{Lower Segment}}{\text{Upper Segment}}$$ ← Do not use this approach.

Prefer $e_p = -\frac{d\phi}{dP} \cdot \frac{P}{\phi}$

$e_p = 1 \Rightarrow$ unitary elastic

$e_p = 0 \Rightarrow$ perfectly inelastic

$0 < e_p < 1 \Rightarrow$ relatively inelastic.

$1 < e_p < \infty \Rightarrow$ highly elastic.

~~$e_p = \infty$ (not defined) $\Rightarrow$ not defined~~

$e_p = \infty$ (not defined) $\Rightarrow$ perfectly elastic

Factors affecting e_p →

Nature of commodity, Proportion of Income Spent, Price of Substitute Goods, Alternative Uses of

a commodity.

Total Revenue = Price × Qty.

or $TR = P \cdot Q$

Profit = Total Revenue − Total Cost

or $\pi = TR - TC$

Average Revenue = $\frac{\text{Total Revenue}}{\text{Qty.}}$

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

Marginal Revenue = $\frac{d(TR)}{dQ} = \frac{d(P \cdot Q)}{dQ}$

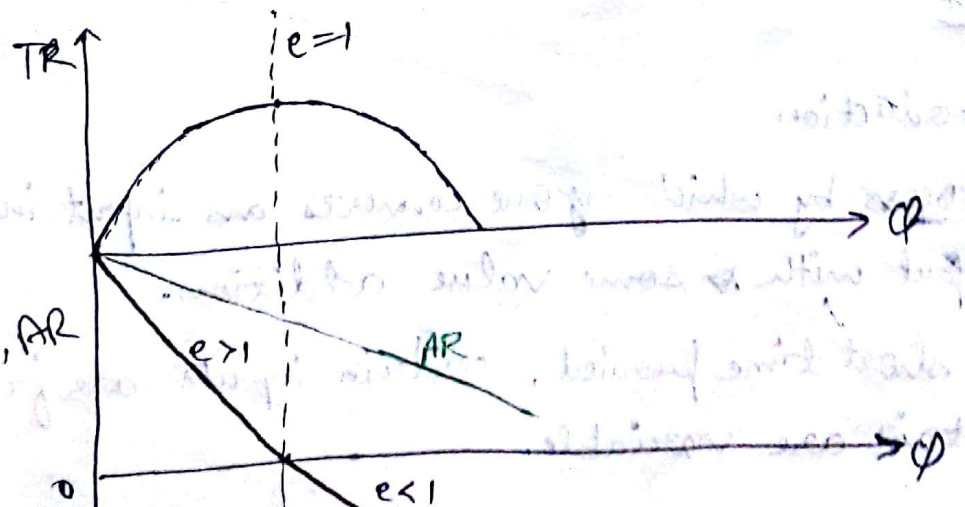
$\Rightarrow MR = \frac{dQ}{dQ} \cdot \frac{dP}{dQ} \cdot Q + P$

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

$= AR\left(1 + \frac{1}{e}\right)$ ~~e = magnitude~~ e with sign (-ve)

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

or, $AR = MR\left(\frac{e}{e-1}\right)$



③ Income Elasticity

$$e_i = \frac{d\varphi}{dM} \cdot \frac{M}{\varphi}$$

M = Disposable Income

④ Cross Elasticity of Demand

$$e = \frac{\% \text{ change in qty. demanded}}{\% \text{ change in price of its substitutents or complementary goods}}$$

eg. $e_{t,c} = \frac{d\varphi_t}{dP_c} \cdot \frac{P_c}{\varphi_t}$

for substitute products, $e_{t,c} > 0$.
for complimentary products, $e_{t,c} < 0$.

⑤ Price Elasticity of ~~fn~~ Supply

$$e_\varphi = \frac{d\varphi}{dP} \cdot \frac{P}{\varphi}$$

Here φ is qty. supplied not qty. demanded.

29/8/2017

★ Production

A process by which one converts an input into an output with some value addition.

In short time period, certain inputs are fixed & certain are variable.

In long time period, almost all inputs are variable.

Certain facts ~~are~~ can act as both +ve & -ve.
eg, Rain & heavy rain for agriculture.

In long run, $Q = f(L, K)$

- Q → Qty. produced / Total Product (TP)
- L → Labour
- K → Capital

Short run production time", $Q = f(L, \bar{K})$

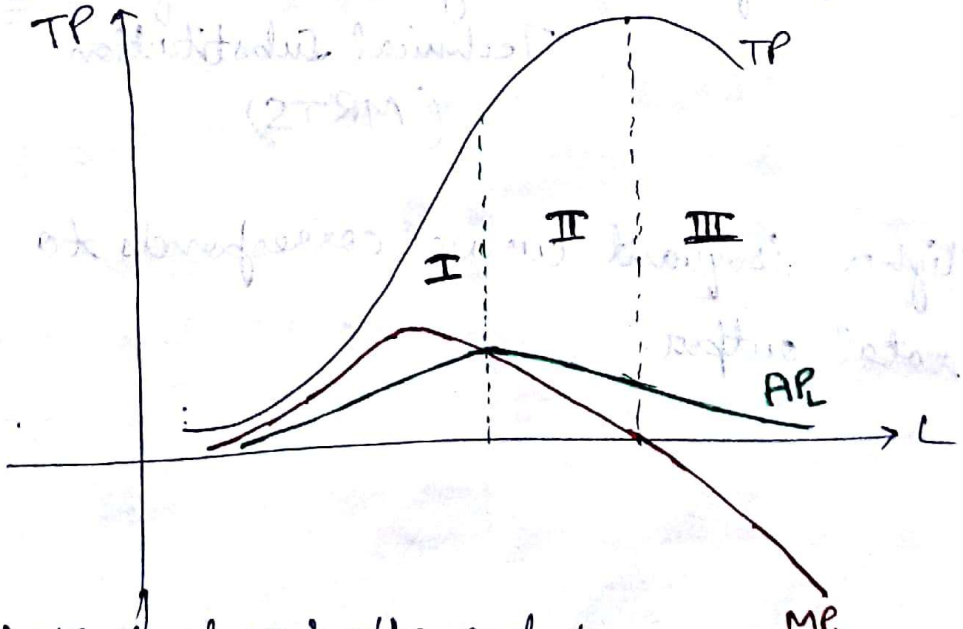
- $\bar{K}$ → fixed capital

~~Avg. product of labour~~

Avg. product wrt labour, $AP_L = \frac{TP}{L} = \frac{Q}{L}$

Marginal product wrt labour, $MP_L = \frac{d(TP)}{dL}$

Law of Diminishing Marginal Return

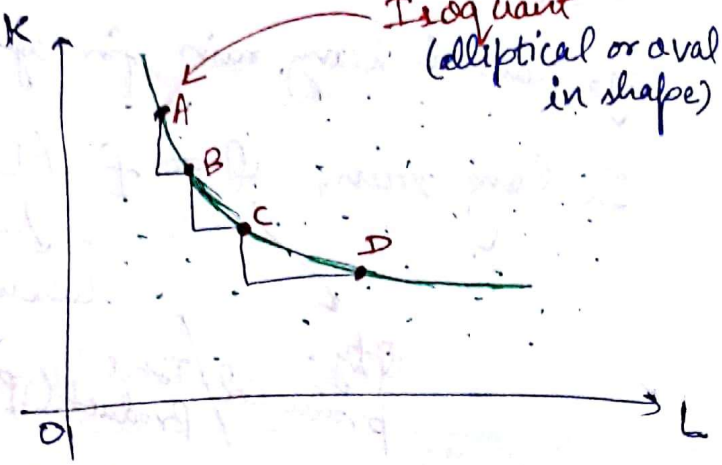


Most desirable ~~is~~ stage is the end of

5/09/2018

In long run, $Q = f(L, K)$

~~Q is measured~~
Q is plotted in Z-axis.



All points on isoquant correspond to different combinations of capital & labour such that the total output remains same.

~~$\Delta K \cdot MP$~~

$$-\Delta K \cdot MP_K = \Delta L \cdot MP_L$$

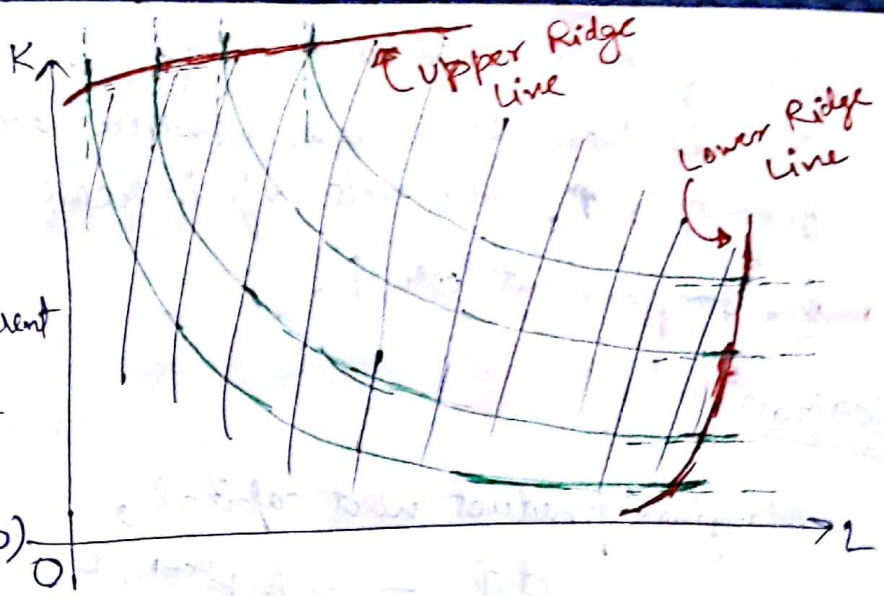
(moving from A to B, loss due to capital must be compensated by gain due to labour.)

$$\Rightarrow -\frac{\Delta K}{\Delta L} = \frac{MP_L}{MP_K}$$

* Slope of Curve / Marginal Rate of Technical Substitution (MRTS) $= \frac{-\Delta K}{\Delta L}$

Higher isoquant curve corresponds to higher total output.

Upper Ridge Line is the locus of all points on different isoquants where slope becomes infinite. ($MP_K = 0$)



Similarly, Lower Ridge Line is when slope becomes zero. ($MP_L = 0$)

The shaded area (/////) b/w the two ridge lines is called the Economic ~~Area~~ Region of Production.

Law of Returns To Scale

Cobb-Douglas production func^n,

$$Q = A K^{\alpha} L^{\beta} \quad , A = \text{constant}$$

Suppose $K \to hK$ & $L \to hL$

$$\Rightarrow Q \to hQ$$

$$\therefore hQ = A(hK)^{\alpha} A(hL)^{\beta}$$

$$= h^{\alpha+\beta} A K^{\alpha} L^{\beta}$$

if $\alpha+\beta > 1 \Rightarrow h > k \to$ Increasing returns to scale (Homogenous of degree more than 1)

$\alpha+\beta = 1 \Rightarrow h = k \to$ constant returns to scale (Homogenous of degree 1)

$\alpha+\beta < 1 \Rightarrow h < k \to$ Decreasing returns to scale (Homogenous of degree less than 1)

By default we assume $\alpha+\beta=1$.

In all these three cases, nowhere output is ↓. Output is ↑, the rate of increase in output is ↓, constant or ↑.

12/09/2017

Marginal product wrt capital,

$$\frac{d\varphi}{dK} = \alpha A K^{\alpha-1} L^{\beta}$$

$$= \alpha A K^{\alpha-1} L^{1-\alpha} \quad (\text{for } \alpha+\beta=1)$$

$$= \alpha A \left(\frac{K}{L}\right)^{\alpha-1}$$

Marginal product wrt labour,

$$\frac{d\varphi}{dL} = \beta A K^{\alpha} L^{\beta-1}$$

$$= \beta A \left(\frac{K}{L}\right)^{1-\beta} \quad (\text{for } \alpha+\beta=1)$$

Cobb-Douglas production fun^{n} is homogenous & degree of its homogenity depends on sum of the powers of its factors.

$$\frac{d\varphi}{dK} \cdot \frac{K}{\varphi} = \alpha A K^{\alpha-1} L^{\beta} \cdot \frac{K}{\varphi} = \alpha \frac{A K^{\alpha} L^{\beta}}{\varphi}$$

$$= \alpha$$

↑ elasticity

Similarly, $\frac{d\varphi}{dL} \cdot \frac{L}{\varphi} = \beta$

α also represents relative distributive share of capital in Q.

* Actual cost & Opportunity cost.
  - Actual cost → The cost we are ~~getting~~ incurring actually in ~~business~~
  - Opportunity cost → Not actually a cost. It is actually the returns from ~~the~~ your next best alternative

* Business Cost & ~~Total~~ Full cost.
  - Business Cost → Whatever cost you are incurring in your business (fixed cost + variable cost).
  - Full cost → Opportunity cost + Business Cost

Normal Profit → amount of profit you expect to remain in a business (some desirable minimum profit.)

Explicit cost & Implicit cost

Explicit cost → Whichever is actually happening in one's book of records.

Implicit cost → While working in your factory/company/firm, you yourself manage certain jobs for which you may not take any money. But if you hire some other employee for those jobs, you'll have to pay them.

Private Cost & Social cost

Private cost → Whatever I'm incurring as an individual for my business.

Social cost → Private cost & ~~External~~ ~~Extended~~ ~~External~~ cost

~~External~~ cost → The cost that the society has to bear due to waste generation from your production. (or externality)

3/10/2017

Cost

$$TC = TFC + TVC$$

i.e. Total cost = Total Fixed Cost + Total Variable Cost
(In short-run).

eg, $TC = 10 + 15\phi + 2\phi^2 + \dots$

Here $TC(\phi = 0) = 10$.

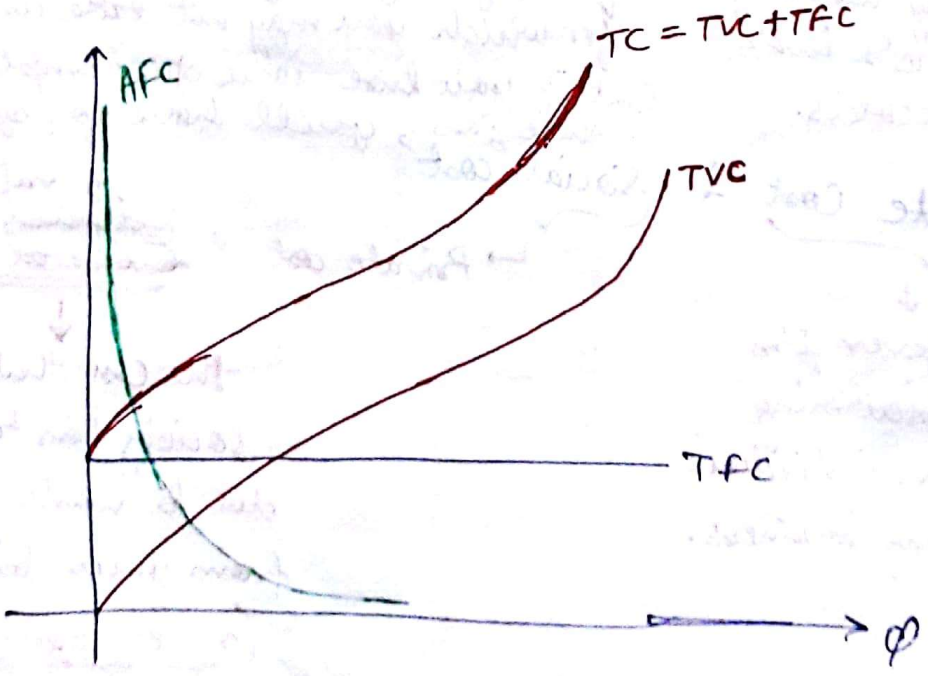
$\therefore$ 10 is the TFC.

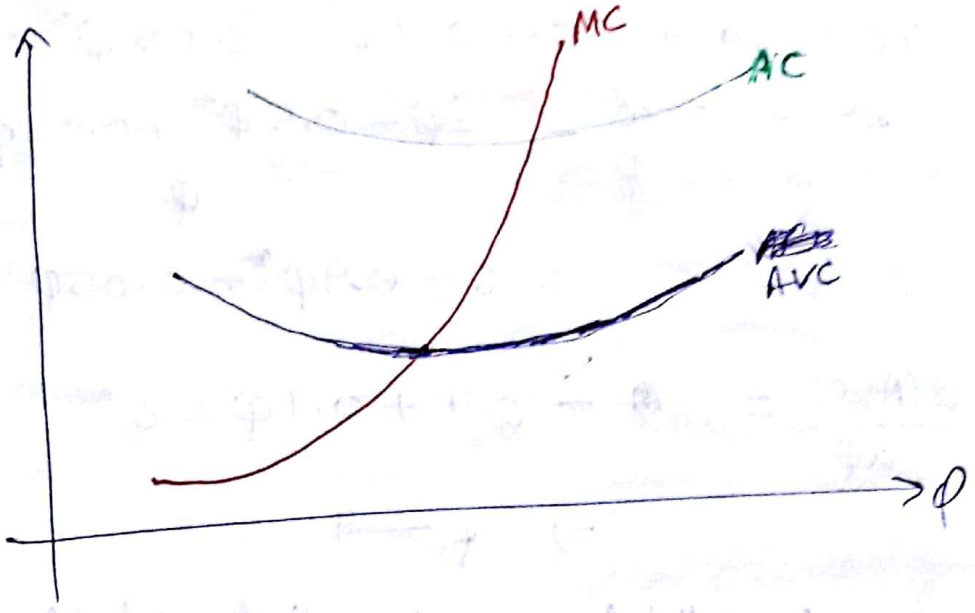
Average Cost, $AC = \frac{TC}{\phi}$

Avg. fixed Cost, $AFC = \frac{TFC}{\phi}$

Avg. Variable cost, $AVC = \frac{TVC}{\phi}$

Marginal Cost, $MC = \frac{d(TC)}{d\phi}$





$$MC = \frac{d(TC)}{dQ} = \frac{d(TVC + TFC)}{dQ}$$

$$= \frac{d}{dQ}(AC \cdot Q)$$

$$= AC + Q\frac{d(AC)}{dQ}$$

$$\Rightarrow \frac{d(AC)}{dQ} = \frac{1}{Q}(MC - AC)$$

16/10/2017

Case 1: $MC < AC$

$$\Rightarrow \frac{d(AC)}{dQ} < 0$$

Case 2: $MC = AC$

$$\Rightarrow \frac{d(AC)}{dQ} = 0$$

Case 3: $MC > AC$

$$\Rightarrow \frac{d(AC)}{dQ} > 0$$

Critical value of Output : The value of output where (Q) not AC/AVC value of AC/AVC is min.

g) $TC = 10 + 6\varphi - 0.9\varphi^2 + 0.05\varphi^3$

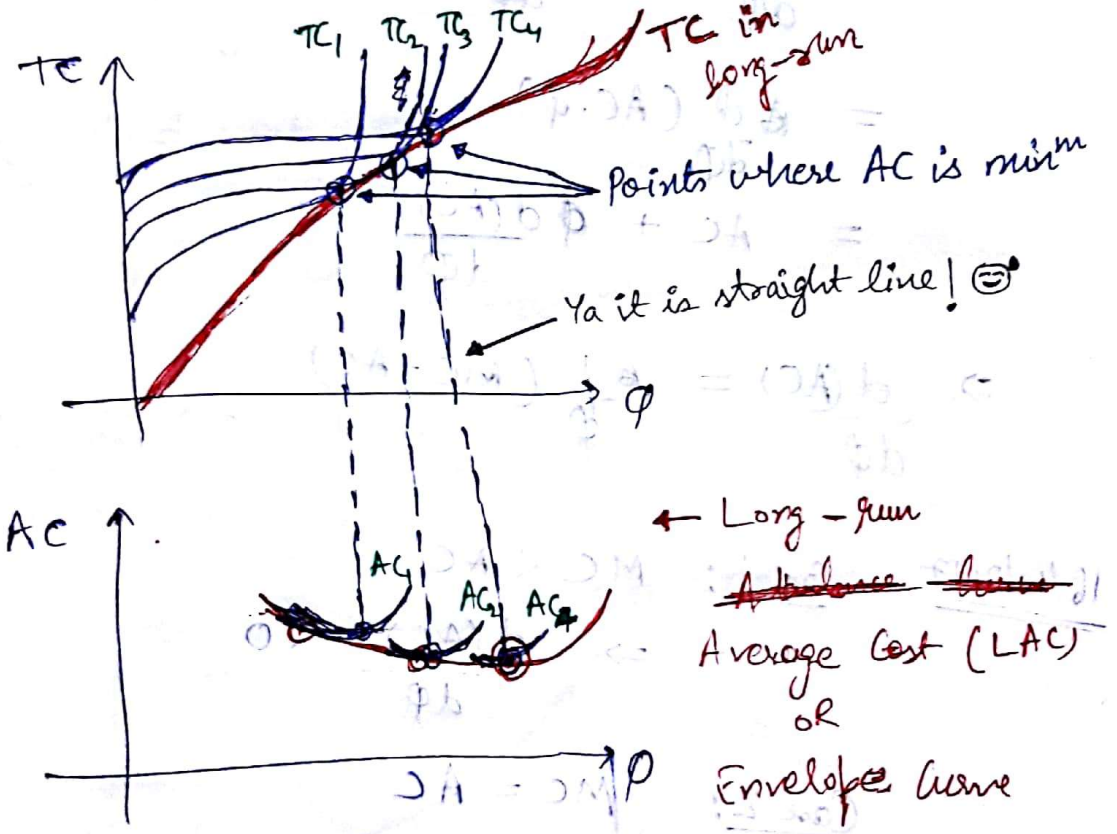
$$AVC = \frac{TVC}{\varphi} = \frac{6\varphi - 0.9\varphi^2 + 0.05\varphi^3}{\varphi}$$

$$= 6 - 0.9\varphi + 0.05\varphi^2$$

$$\frac{d(AVC)}{d\varphi} = 0 - 0.9 + 0.1\varphi = 0$$

$$\Rightarrow \varphi = 9$$

∴ Critical value of output wrt AVC = 9.



$TC_1, TC_2, TC_3, \ldots$ → Total Cost curves for every prod^n cycle (1 week / 1 month / 1 year / blah blah)

$AC_1, AC_2, AC_3, \ldots$ → Corresponding Avg. Cost Curves of TC_1, TC_2, TC_3, etc.

Read about "reserved capacity".

23/10/2017

Economies & Diseconomies of Scale

Economies of scale means mostly bcoz of large scale prodⁿ & increase in efficiency, avg. cost of prodⁿ is coming down.

Diseconomies of scale means when with increase in the scale of prodⁿ, avg. cost of prodⁿ increases rather than remaining constant or decreasing.

Internal Economy & External Economy

↓ It is internal to your production environment. You are directly controlling most of these parameters.

Economies & Diseconomies of Scale are discussed under Internal Economy.

↓ It is related to you, but not specifically you. eg, Govt. introduces some scheme to promote coffee products. Being a coffee manufacturer, ~~not~~ you'll be benefitted. But all other coffee manufacturers will also be benefitted & not only you! ~~(unless you are Robert Vadra!)~~ 😊

Economies of production: Due to increase in your level of production, avg. cost of production comes down. This is bcoz you are getting more & more output, ~~but~~ but cost is not increasing proportionately. In addition to this, many of your fixed inputs will be then ~~better~~ utilized better.

Diseconomies of production: Now you start producing ~~such~~ level of output ~~that~~ that needs investment in

the newly invested in fixed input will be not completely utilised. So there'll be rise in the avg. cost of prodⁿ.

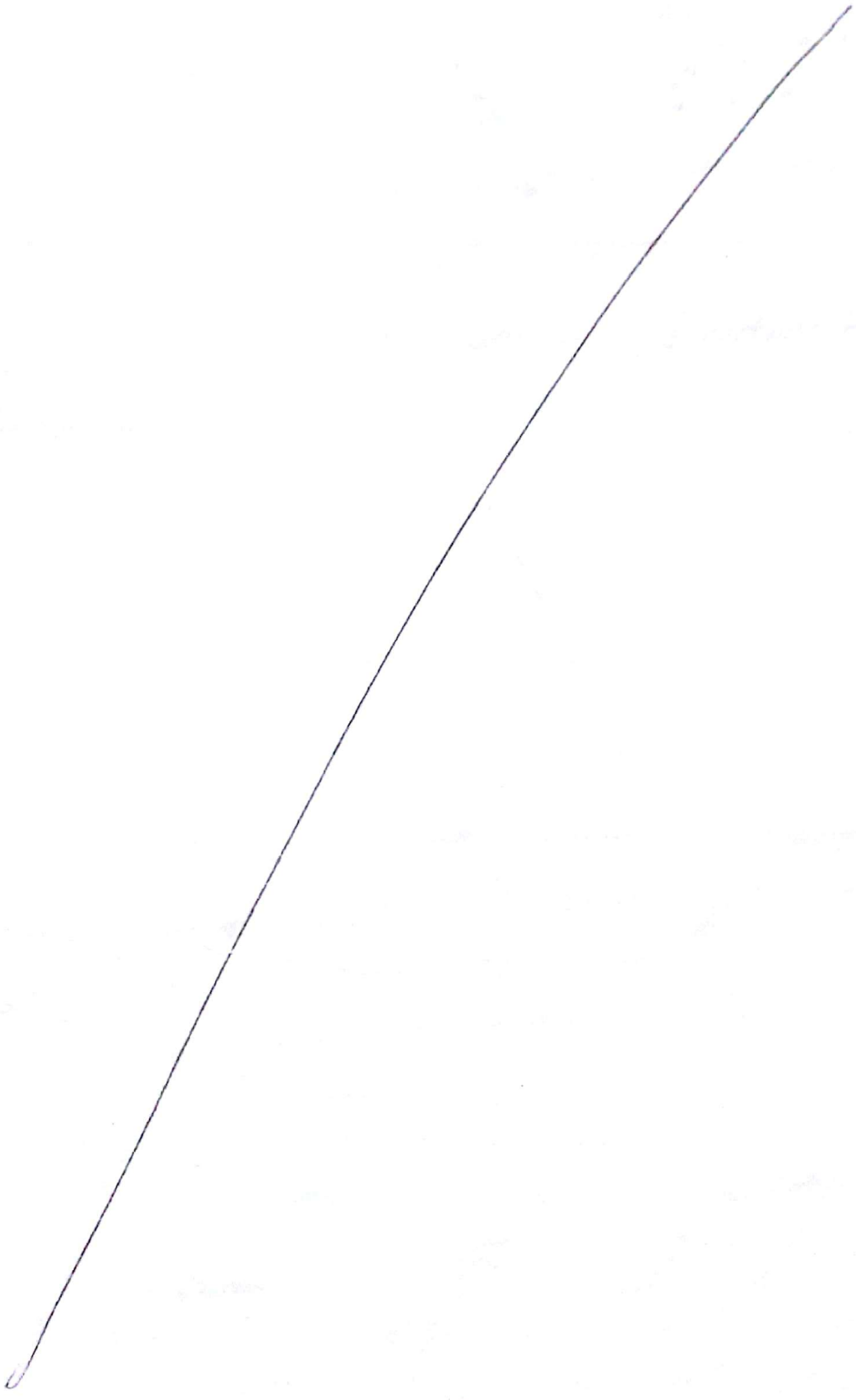
Managerial Economy:
When you start expanding your business, you (or a person you've hired) can't manage it efficiently & thus with an increase in the level of output, avg. cost of prodⁿ goes down.

Managerial Diseconomies:
Now the output is at such level that it is not smooth anymore to efficiently manage the business. As a result, output increases, but at a decreasing rate. ∴ avg. cost of prodⁿ goes up.

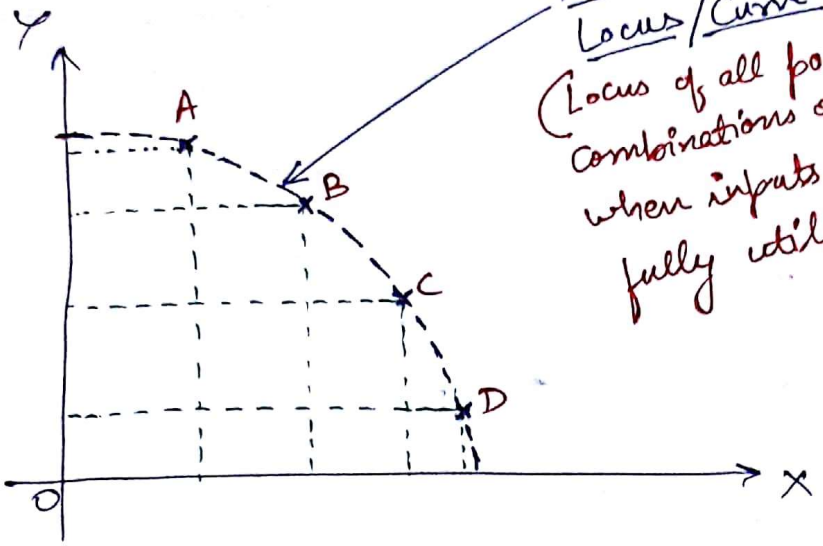
Economies of Buying & Selling:
~~Duration~~ Frequency of buying & selling of the raw material is such that the fluctuation in market price of that raw material in the market doesn't affect you for a good duration of time (may happen due to the storage & advanced buying).

Diseconomies of Buying & Selling:
Frequency of buying & selling ~~the~~ of the raw material is such that change in market price of that raw material affects you frequently. Thus, avg. cost of prodⁿ will ~~go~~ go up.

Economies of Transportation
Diseconomies of Transportation.
Economies of Storage
Diseconomies of Storage



6/11/2017



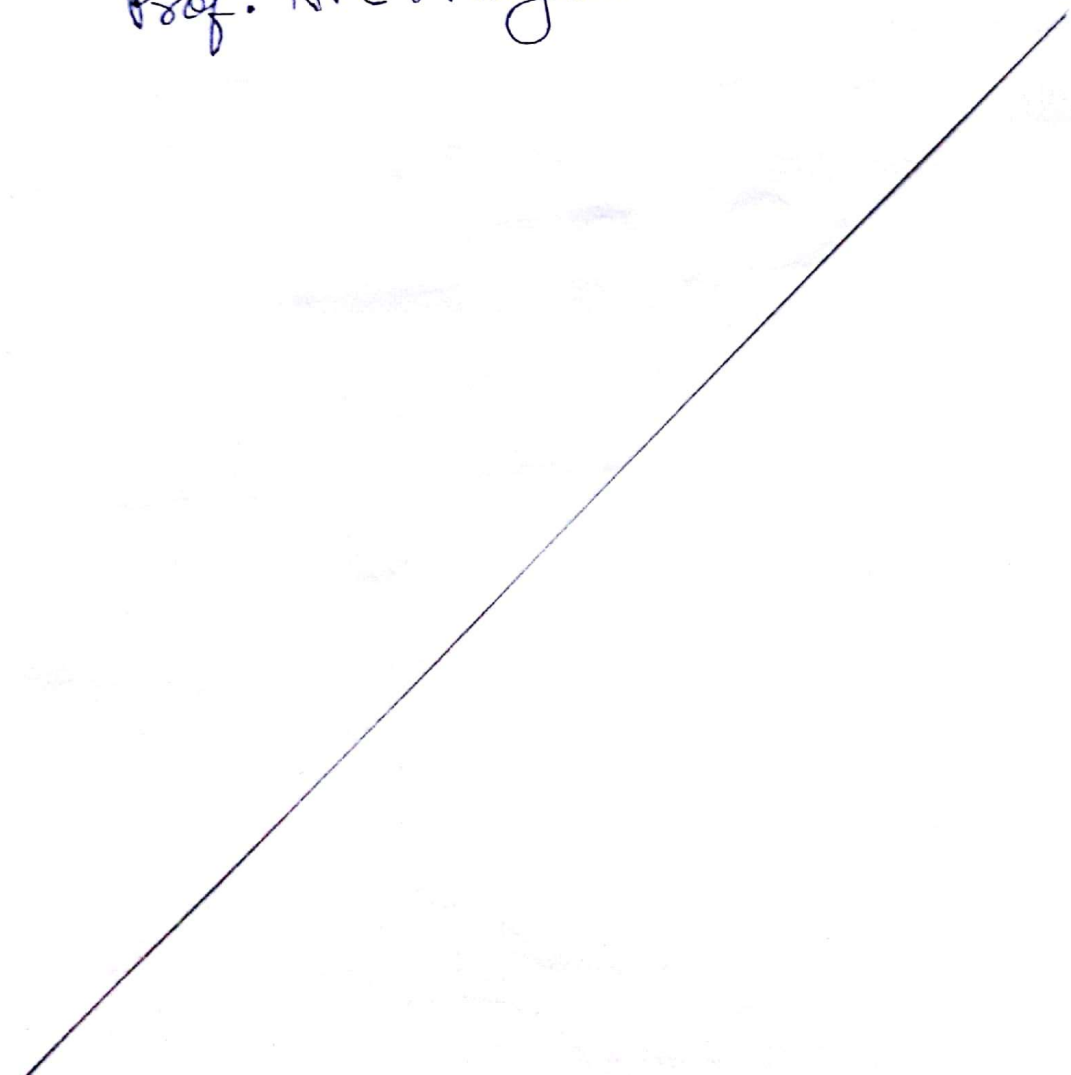
Production Possibility Locus/Curve
(Locus of all possible combinations of X & Y when inputs are fully utilised)

X & Y are two products being produced by a producer.

Reason of changes in this curve are technology changes (wrt X, wrt Y, wrt some input and many more),

MACRO ECONOMICS

Prof. N. C. Nayak.



Goods

Consumer goods

Producer goods or Capital goods

Factors of Production :

1. Land → Rent
2. Labour → Wage/Salary
3. Capital → Interest
4. Entrepreneurship → Profit

Labour

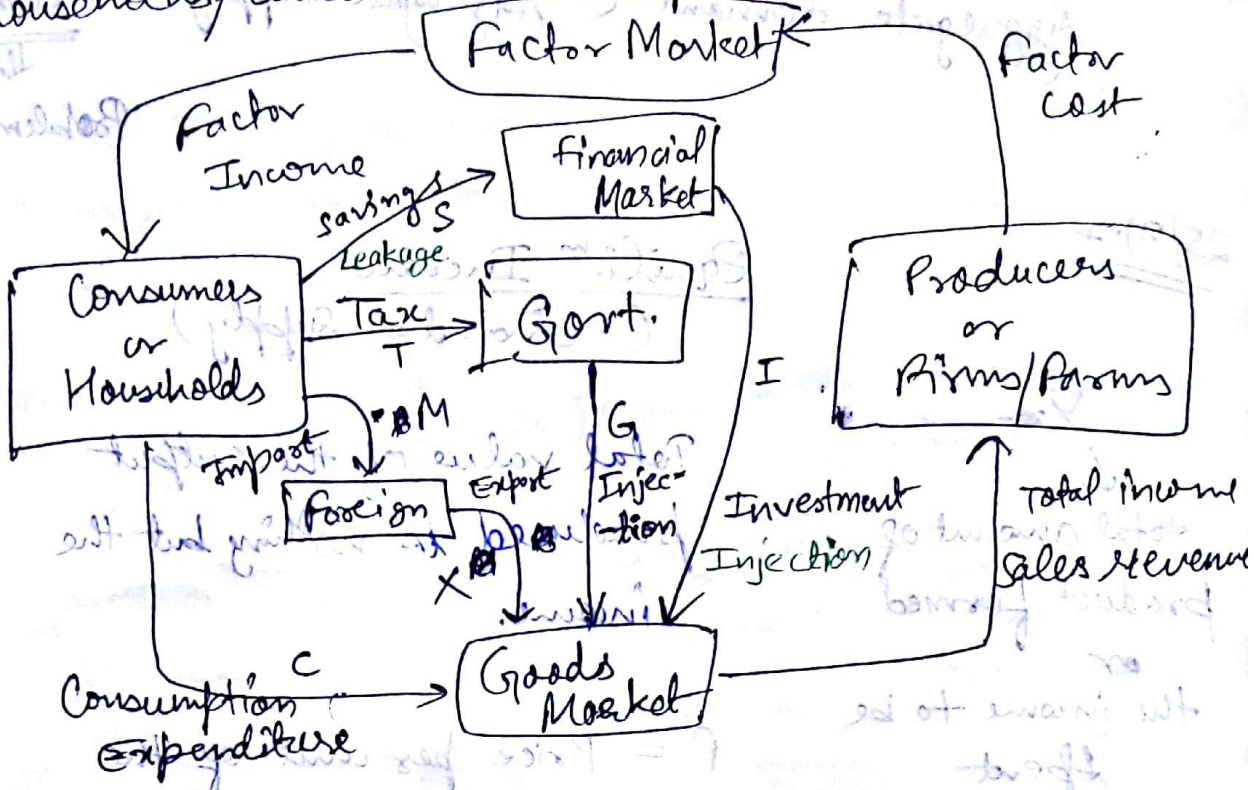
Skilled

Unskilled

Semi-skilled

Consumers or Households | Govt. | Producers or Firms/Farms

All the factors of production are supplied by the households/consumers to the producers.



Market: Anything that serves the purpose of demand & supply of a goods or service. It may or may not exist physically.

The price for a commodity depends on the relative strength of demand & supply.

Total Income $Y = C + I + G$

$Y = C + S + T$ {Ideality}

$S = I$

$T = G$

$S + T = I + G$

$$Y = C + I + G + X - M$$

$$S + T + M = I + G + X \quad \text{(Ideal)}$$

Aggregate demand > Aggregate supply (Prosperity)

Aggregate demand < Aggregate supply (Recession)

Problematic

25/7/17

Equilibrium Income

(Demand = Supply)

Y → total amount of product formed or the income to be spent

Total value of the output produced is nothing but the income.

P = Price per unit of the output produced

Q = Total qty (physical) of the output produced.

Total income to be spent is equal to the ~~amount~~ total value of output produced or the total demand is equal to the total supply. This is called Equilibrium income, i.e.

$$Y = C + S \quad \{\text{Assuming no govt.}\}$$

$$S = I$$

$$\Rightarrow Y = C + I$$

Keynesian Theory

Given by J. M. Keynes

Y = disposable personal income

$C = a + bY$ { consumption func^n

$Y = C + S$

Properties → ~~prosperity~~ propensity

① Marginal ~~propensity~~ to ~~con~~ consume (MPC) is ~~constant~~ constant. (in short terms)

② $0 < MPC < 1$.

③ Average ~~propensity~~ propensity to consume (APC) is always ∞ at zero unit of income & then it declines but will remain above MPC.

$b = MPC = \frac{dC}{dY}$

$APC = \frac{C}{Y}$

E. Shapino
N. G. Mankiw

eg,

Y	0	40	80	120	160
C	20	50	80	110	140
S	(-20)	-10	0	10	20

↳ dis-savings

$MPC = \frac{dC}{dY} = \frac{50-20}{40-0} = \frac{30}{40} = \frac{3}{4}$

Dis-saving → withdrawal of past savings
→ borrowing

a = autonomous consumption

Autonomous consumption:

The consumption that is independent of one's income. This is required to meet the basic requirements. It will be there even if at zero unit of income.

Induced consumption:

The consumption that is dependent on one's income.

In the above eg, $C = -20 + \frac{3}{4}Y$

$C = a + bY$

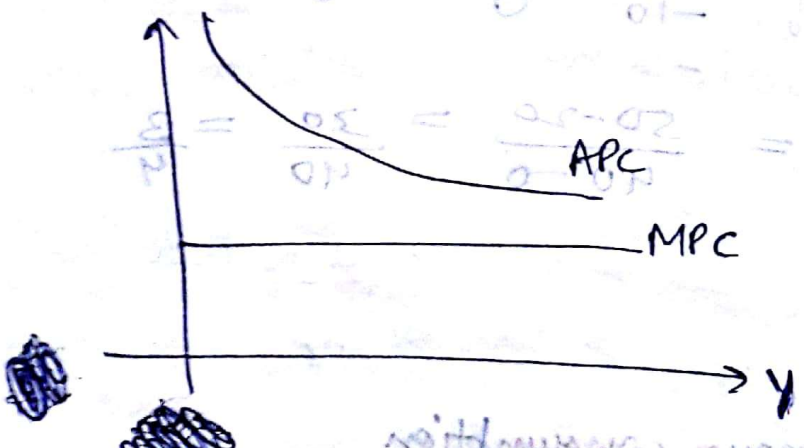
$\therefore APC = \frac{C}{Y} = \frac{a}{Y} + b = \frac{a}{Y} + MPC$

As income ↑, fraction of income consumed ↓, fraction of income saved ↑.

$\therefore$ investment must ↑ to cater this leakage, otherwise recession can't be avoided.

In long run, $C = bY$.

$\Rightarrow APC = b = MPC$



1/08/2017

Investment func^n

Investment $\Rightarrow$ add^n to capital stock.

$\Rightarrow$ Investment $\neq$ Capital
(flow) (stock)

★ Income is a flow, wealth is stock.
" " " " , money " " .

Income = money × velocity
= total money supplied × rate of change of hands experienced by that money.

★ Anything that is flow variable, changes its value in short times.

★ Stock variables has constant value over a long time interval, after which they too may have a change in their value.

$$I_t^g = K_t^g - K_{t-1}^g$$

i.e., gross investment in time period t = gross capital stock in time period t − period $(t-1)$

$$I_t^n = I_t^g - D$$

i.e., net investment in time period t = gross investment in time period t − Depreciation

Similarly, $K_t^n = K_t^g - D$.

* In context of net capital stock or infrastructure, talking about net investment is better.
While in context of generating employment, talking about gross investment is better.

Types of investment →

1) Business Fixed Investment

2) Residential Investment

3) Inventory Investment → Stock piling activity

- Raw materials
- Semi-finished goods
- Finished goods

8/08/2017

$I = f(MEC, r)$

- MEC → Marginal Efficiency of Capital → Annual rate of return or cost in the capital investment
- r → Rate of Interest / Cost of raising capital / Cost of borrowing

MEC is that discount rate which equalises the present value of the perspective yield with the initial amount of capital income.

NOTE:- Three reasons due to which money value changes over time are —

1> Interest 2> Inflation 3> Risk

1> Interest

Future value after 1st year = present value + present value × rate of interest (nominal rate)

$$\Rightarrow FV_1 = PV(1+r)$$

$$FV_n = PV(1+r)^n \quad \{\text{Assuming Compound interest}\}$$

$$\text{or } FV_n = PV(1+nr) \quad \{\text{Assuming simple interest}\}$$

2> Inflation

Nominal rate of interest = Real interest rate + Inflation rate

$$\Rightarrow PV_{\#} = \frac{FV_1}{1+r}$$

→ Real interest rate or Inflation adjusted rate of interest

3> Risk

Ease of doing business.

$$PV = \frac{FV_1}{1+r}$$

→ Risk adjusted inflation adjusted rate of interest

$$\sum_{t=1}^{n} \frac{R_t}{(1+i)^t} - \sum_{t=1}^{n} \frac{C_t}{(1+i)^t} = 0$$

i = MEC

If $i > r \Rightarrow$ accept

$i < r \Rightarrow$ reject

$i = r \Rightarrow$ neutral

eg, Suppose TATA wants to invest 1000 Cr. on a steel plant in some state in 2017. The expected revenues are (for a 5 yr. term)

2018	2019	2020	2021	2022
300 Cr	400 Cr.	500 Cr.	400 Cr.	600 Cr.

∴ for calculating MEC,

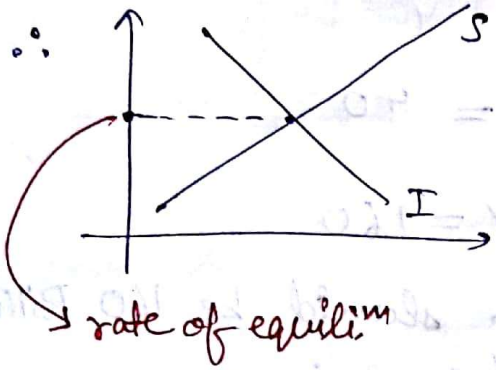
$$\frac{300}{1+i} + \frac{400}{(1+i)^2} + \frac{500}{(1+i)^3} + \frac{400}{(1+i)^4} + \frac{600}{(1+i)^5} - C_0 = 0 \qquad [C_0 = 1000 \text{ Cr.}]$$

$\Rightarrow i = ?$

Let say $r = 3\%$ in 2017.

If $i = 4\%$ $(> r)$, then the project will be accepted.

Acc. to

Classical economics	Keynesian economics
$S = f(r)$	$C;\ S = f(Y)$
$I = f(r)$	$I = f(i, r)$
$I\uparrow, r\downarrow$	$\therefore S = I$
$S\uparrow, r\uparrow$	or $S \neq I$
$\therefore$ 	both are possible.
$\therefore$ r can be adjusted so that $S = I$.	

Factors affecting MEC :-

- Infrastructure
- Governance
- Labour standard
- Location

21/8/17

Multiplier

Identity $\Rightarrow$ $Y = C + S$

Eqm income $\Rightarrow$ $Y = C + I$

$\Rightarrow I = S$

$\because S = f(Y)$ & $I = f(r, MEC)$,

$\therefore S = I$ is an exception rather than

Suppose India's consumption at present is given by

$$C = 20 + \frac{3}{4}Y$$

and $I = 20$

for eq^m income, $Y = C + I$

$$= 20 + \frac{3}{4}Y + 20$$

$$\Rightarrow \frac{1}{4}Y = 40$$

$$\Rightarrow Y = 160$$

∴ the total income of India should be 160 Billion $ to ensure eq^m. (ideal income)

Suppose actual income at present in India is

$Y_A = 200$ billion $.

$$\therefore C = 20 + \frac{3}{4} \times 200 = 170 \text{ billion } \$$$

$I = 20$ billion $.

$\therefore C + I = 190$ billion $

i.e., $Y \neq C + I$

∴ demand < supply

Let's assume that the producers ↓ the production to 190 billion $ to meet with the demand exactly, after some time maintaining 200 b. $.

$\therefore Y_A' = 190$

$\therefore C+I = 182.5$

Now $Y_A'' = 182.5$

$\therefore C = 20 + \frac{3}{4}(182.5) =$

∴ the gap b/w Y & (C+I) keeps on ↓ing & eqm is attained in some time.

Now suppose Y_A = 120 billion $.

$\therefore C = 20 + \frac{3}{4}(120) =$ ~~130~~ 110 b.$

$\therefore C+I = 130$ b.$

i.e., demand > supply

Now $Y_A' = 130$ b.$

$\therefore C = 137.5$ b.$

$C+I = 157.5$ b.$

Now $Y_A'' = 157.5$ b.$

$\therefore C = 20 + \frac{3}{4}(157.5)$

$=$

$C+I =$

} Boom in Economy (Prosperity)

∴ eqm can be again attained.

Now, let us assume

$I = a_1 + b_1 Y$

Now ~~in charge of~~ chance of recession, I ↑ must ↑ to attain eq^m (which will be a new eq^m).

∵ $b_1 Y$ is profit induced, which is less during recession ∴ investment in this won't be desirable.
∴ govt. should come to invest in autonomous investment.

i.e. if $I = 20 + \frac{1}{4} Y$

then $I_1 = 30 + \frac{1}{4} Y$, (say)

$I_2 = 40 + \frac{1}{4} Y$ (say) ← autonomous investment changed due to investment by govt.

Govt. should invest in public utilities. (eg, public infrastructure projects)

Now, $Y_1 = C_1 + I_1$
$= a + bY_1 + I_1$

and $Y_2 = C_2 + I_2$ (increased income but attained another new eq^m)
$= a + bY_2 + I_2$

$Y_2 - Y_1 = b(Y_2 - Y_1) + I_2 - I_1$

$\Rightarrow \Delta Y = \left(\frac{1}{1-b}\right) \Delta I = K \cdot \Delta I$ ($\Delta Y = Y_2 - Y_1$, $\Delta I = I_2 - I_1$)

K = multiplier.

$0 < b < 1$

$\Rightarrow 1 < K < \infty$

b = MPC

$1 - b$ = MPS ($\because$ MPS + MPC = 1)

Higher the MPC, higher will be value of K.
or " " MPS, lower " " " " " ".

We can assume that $C = a + bY$ (a = autonomous consumption)
(i.e. every demand func^n has a slope coeff.) $I = a_1 + b_1 Y$ (a_1 = autonomous investment)
$G = a_2 + b_2 Y$ (a_2 = autonomous govt. purchas

Suppose it's a closed economy in which there are 3 players, consumers, investors & govt.
Theoretically, if $I = a_1 + b_1 Y$ changes to $I_1 = a_1' + b_1 Y$ & leads to change in Y, then C changing from $a + bY$ to $a' + bY$ or G changing from $a_2 + b_2 Y$ to $a_2' + b_2 Y$ (keeping other two players' func^n stable) will also have the same impact on Y.

i.e. for $I = a_1 + b_1 Y \rightarrow I_1 = a_1' + b_1 Y$, $\Delta Y = K \Delta I$
for $C = a + bY \rightarrow C_1 = a' + bY$, $\Delta Y = K \cdot \Delta C$
for $G = a_2 + b_2 Y \rightarrow G_1 = a_2' + b_2 Y$, $\Delta Y = K \Delta G$

or, in general, $\Delta Y = K \cdot \Delta D_a$
↳ change in autonomous demand

In this case, $0 < b + b_1 + b_2 < 1$

and $K = \frac{1}{1 - b - b_1 - b_2}$

$= \frac{1}{1 - \text{marginal propensities}}$

29/08/2017

eg;

Period	ΔI	$\Delta C = b\Delta Y$ [Let assume $b = 0.5$]	ΔY ($Y = C + I$)	$\Sigma \Delta Y$
1	10,000	—	10,000	10,000
2	—	5,000	5,000	15,000
3	—	2,500	2,500	17,500
4	—	1,250	1,250	18,750
⋮				
t	0	0	0	20,000

$$K = \frac{1}{1 - \frac{1}{2}} = 2 \checkmark$$

If ΔI is temporary / once-over type,

let us assume $C = 20 + \frac{3}{4}Y$

$I = 20$

~~and $I = 160$~~

and $Y = C + I$ (at equilm)

$= 160$

Period	C	I	$\Delta C = \frac{3}{4}\Delta Y$	ΔI	Total spending (demand)		Total supply (output)	Y	ΔY	Planned I		Realised I
1	140	20	—	—	160	=	160	160	—	20	=	20
2	140	20	—	10	170	>	160	160	—	30	>	20
3	140	20	7.5	—	167.5	<	170	160	10	20	<	22.5
4	140	20	5.6	—	165.6	<	167.5	160	7.5	20	<	21.9
⋮												
∗	140	20	0	—	160	=	160	160	0	20	=	20
									$\Sigma\Delta Y = 40$			

Realised I = Planned I + Unplanned I

If ΔI is permanent/continuous,

Period	C	I	$\Delta C = \frac{2}{4}\Delta Y$	ΔI	Total Spending		Total output	Y	ΔY	Planned I		Realised I
1	140	20	—	—	160	=	160	160	—	20	=	20
2	140	20	—	10	170	>	160	160	—	30	>	20
3	140	20	7.5	10	177.5	>	170	160	10	30	>	22.5
4	140	20	13.1	10	183.1	>	177.5	160	17.5	30	>	24.4
⋮												
t	140	20	30	10	200	=	200	160	40	30	=	30

If ΔI is temporary	If ΔI is permanent
$\Delta Y_1 = b\Delta I$	$\Delta Y_1 = \Delta I$
$\Delta Y_2 = \Delta C_1 = b\Delta Y_1 = b\Delta I$	$\Delta Y_2 = \Delta I + b\Delta I = \Delta C_1 + \Delta I$
$\Delta Y_3 = \Delta C_2 = b\Delta Y_2 = b^2\Delta I$	$\Delta Y_3 = \Delta I + b\Delta I + b^2\Delta I$
⋮	⋮
$\Delta Y_t = b^{t-1}\Delta I$	$\Delta Y_t = \Delta I + b\Delta I + b^2\Delta I + \dots + b^{t-1}\Delta I$

5/09/2017

Capital Budgeting / Investment Project Appraisal

Processes involved –

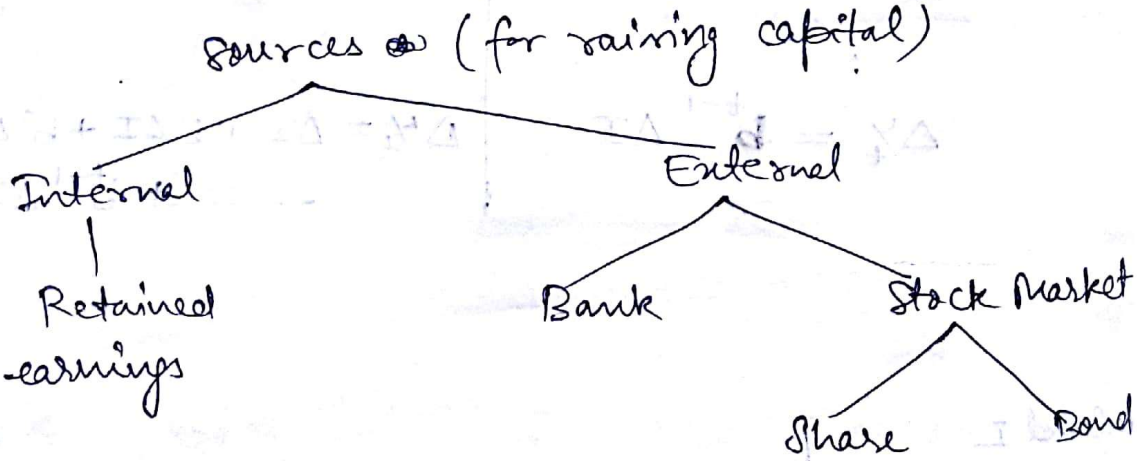
1) To estimate the cost of the project & identify the sources of raising capital.
2) To desire net cash flows over the life of the project.
3) To apply suitable methods of evaluation.

for eg, C = 1000 Cr.

Machinery cost = 500 Cr.

Reorganisation of the activities = 300 Cr.

Land acquisition cost = 200 Cr.



Part of profit distributed among the shareholders is aka dividend. The undistributed profit is called retained ~~ear~~ earnings.

12/09/2017

Net Cash Flows

Lets assume initial capital required,

C = 1000 Cr.

which includes Machinery cost = 500 Cr.

Reorganisation of the activities = 300 Cr.

Land acquisition cost = 200 Cr.

Lets assume the life of project to be 5 yrs.

	R_1	R_2	R_3	R_4	R_5
Gross Sales Revenues (P.Q) [Expected to ↑ by 10% annually (say)]	1000 Cr.	1100 Cr.	1210 Cr.	1331 Cr.	1462 Cr.
(–) Variable cost (say 30% of Gross Sales Revenues)	300 Cr.	330 Cr.	363 Cr.	399 Cr.	438 Cr.
(–) Fixed Cost (say 100 Cr.)	100 Cr.	100 Cr.	100 Cr.	100 Cr.	100 Cr.
(–) Depreciation [Machinery Cost – Salvage Value (say 50 Cr.)]	90 Cr.	90 Cr.	90 Cr.	90 Cr.	90 Cr.
Profit before Tax	510 Cr.	580 Cr.			

Every good has some second hand value even if it is completely depreciated. This is called as Salvage Value / End Value / Scrap Value (of the machinery, if talking about machinery).

Tax (say 30%)	153 Cr.	184 Cr.			
Profit after Tax	357 Cr.				

Total revenue generation = Profit after Tax + Depreciation

Returns at the end of project (last year's returns) = R_5 + Salvage Value + Recovery of working capital

3/10/2017

Methods of accepting / rejecting a project

Methods of Evaluation of a Capital Budget

- Non-discounting
  - Pay-Back Period (PBP)
- Discounting
  - Net Present Value (NPV)
  - Internal Rate of Return (IRR)
  - Capital Rationing (CR)
    - aka Profitability Index Ratio (PIR)

Profit = Returns − Cost

Outflow = Capital invested
Inflow = Returns forthcoming

PBP

least possible time to recover the capital invested.

eg, There are two projects A & B which have same initial requirement of capital

Project	R_1	R_2	R_3	R_4	R_5	R_6	R_7	R_8	R_9
A	300	300	400	400	500	—	—	—	—
B	200	300	400	500	600	700	800	900	1000

Now project A reaches **breakeven point** (profit = loss = 0), at the end of three years (initial capital invested is totally recovered) while project B takes more than 3 years. So, project A will be approved & not project B.

Drawbacks: (or limitations)

① We don't consider the life of a project, & thus the total returns from a project.

② We are comparing uncomparables.

(Simply adding up $R_1, R_2, \ldots R_n$ is not valid bcoz they are not standardised to the present value. {future value is not discounted to derive the present value.})

{can be eradicated by adding the present value of consecutive returns.}

Why it is used:

① Indian entrepreneurs want to invest in a project which gives them returns ASAP, ∴ mfg sector is not preferred over IT sector for investment.

② Longer the time period over which recovery happens, greater is the risk of doing the business.

③ India faces lots of political instabilities which leads to business uncertainties.

④ That's why business houses like to reach breakeven point ASAP.

⑤ Small companies/startups will like to reach breakeven ASAP unlike big/established companies able to float shares & bonds

capital.

NPV

$$NPV = \sum \frac{R_t}{(1+r)^t} - \sum \frac{C_t}{(1+r)^t}$$

↳ risk adjusted inflation adjusted interest rate

= Present value of the Net Cash flows
− Present value of the Initial Capital Invested

$= R_0 - C_0$

$NPV > 0 \Rightarrow$ Accept

$NPV < 0 \Rightarrow$ Reject

$NPV = 0 \Rightarrow$ Neutral

Compounding Method
When present value of all money is converted into future value.

9/10/2013

IRR

$$\sum \frac{R_t}{(1+i)^t} - \sum \frac{C_t}{(1+i)^t} = 0$$

i = IRR ⇒ it is an annual rate of return

$i > r \Rightarrow$ Accept

$i < r \Rightarrow$ Reject

$i = r \Rightarrow$ Neutral

for a single project, both NPV & IRR ~~be~~ will have same accept/reject ~~results~~ proposition.

Now suppose ~~there~~ there are two projects under consideration which are mutually exclusive, i.e. the company can ~~allow~~ pass only one of them. Let the initial capital required for both the projects be same.

The NPV & IRR value be −

~~Proj~~	NPV	IRR
Project A	150 Cr.	15%
Project B	160 Cr.	12%

* Hypothetical data

Now here both NPVs > 0 & both IRRs > r

Going by NPV, we should select project B but going by IRR, we should select project A. So what to do? We must go with the proposition of NPV in this case. This is bcoz generally the time period involved in calculation of IRR is long & the data is fluctuating, which leads to unreliable value as a result of IRR. One more thing is that we are over-estimating the returns to the re-investable amount ~~Capital Budgeting~~ in case of IRR.

Capital Rationing

~~PIR~~ =
- $\frac{NPV}{C_0} = \frac{PV - C_0}{C_0}$ } ~~Net Profit~~ Net Benefit-Cost Ratio (NBCR)
- $\frac{PV}{C_0}$ } Benefit-Cost Ratio (BCR)

Can be calculated in two ways.

NBCR > 0 $\iff$ BCR > 1 $\Rightarrow$ Accept

NBCR < 0 $\iff$ BCR < 1 $\Rightarrow$ Reject

NBCR = 0 $\iff$ BCR = 1 $\Rightarrow$ Neutral

C = 100 (capital constraint) { let }

And ~~the~~ suppose the projects considered are -

~~Project~~ Project	A	B	C	D	E	F
Capital req.	50	80	20	30	70	90
BCR	1.5	1.7	1.3	1.2	1.5	1.1

∴ we can choose combinations of projects such that the capital constraint is satisfied & the average BCR corresponding to that combo will be the criteria for deciding which set of project(s) to be approved.

10/10/2017

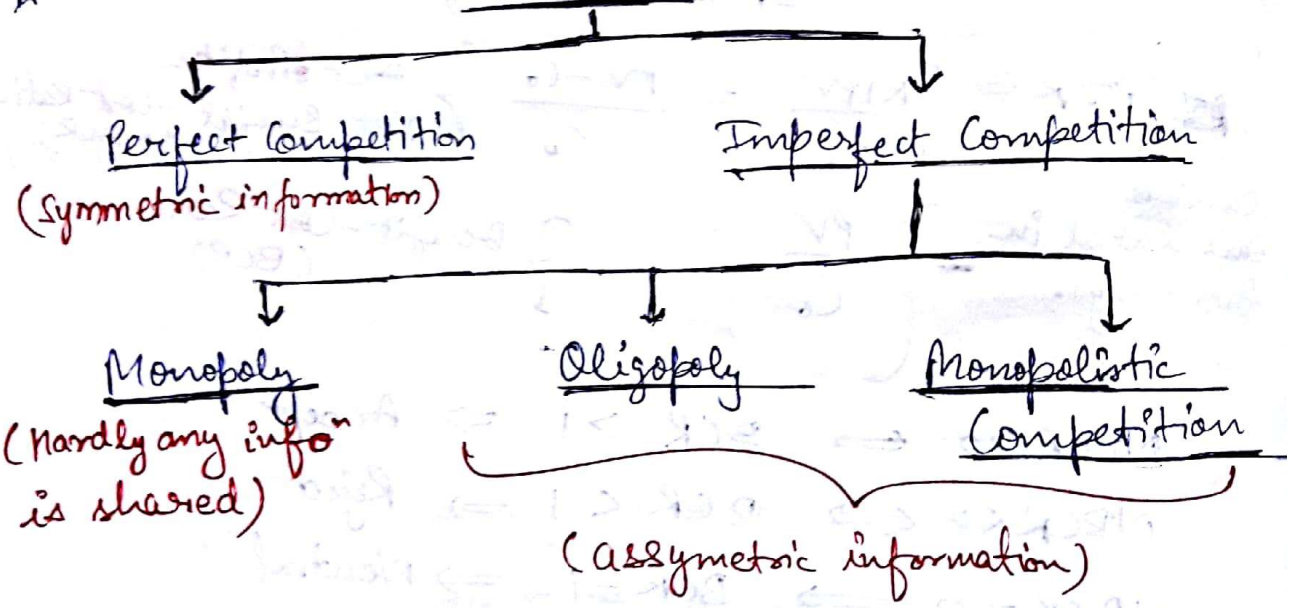
Market forms (Topic of Microeconomics)

★ Market is not a physical place where some product or service is bought or sold. It is an invisible institution dealing with demand & ~~Aff~~ supply.

~~★ Monopoly & Oligopoly~~
~~★ Perfectly competitive~~

∴ it is the nature of demand & supply, how many people are selling & how many people are buying which decides the market form.

★



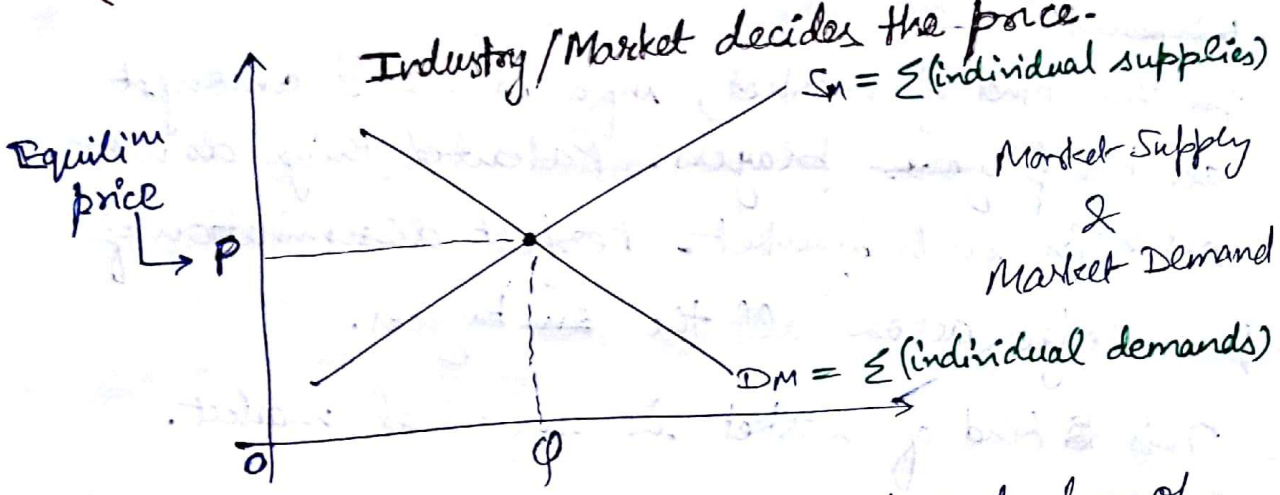
★ Perfect Competition ≡

Attributes:

(1) Large number of ~~f~~ buyers ~~f~~ & sellers.
(2) There is product homogenity.
(3) Free entry & exit.
(4) Perfect knowledge about the market.
(5) Perfect mobility of the products & factors.

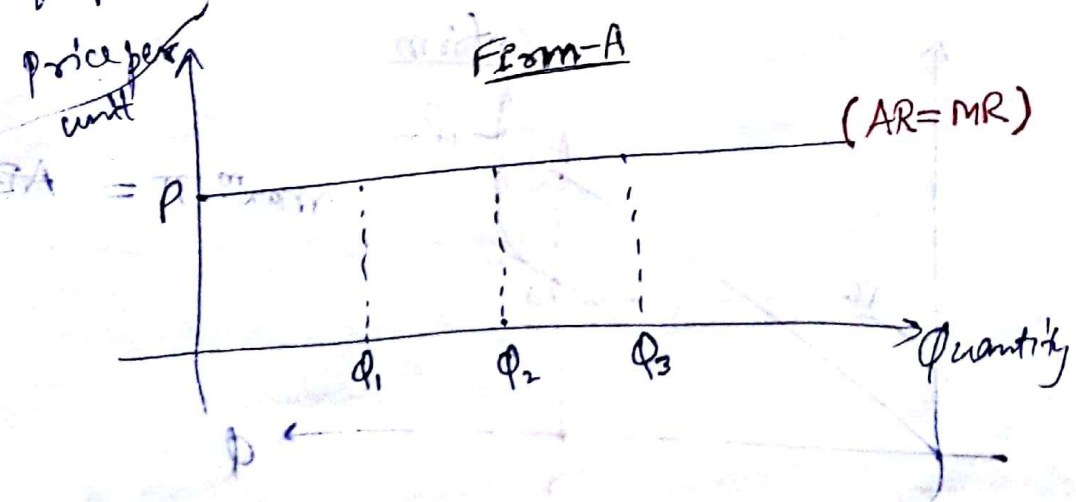
There is complete absence of rivalry among the producers.

NOTE:
- Firm / Producer / Supplier / Company / Seller → all same
- Consumer / Buyer / Demander → all same
- Industry $\Leftrightarrow$ Firm ; Industry $= \sum_{i=1}^{N} \text{firm}_i$



Agriculture is a perfect example of such form of market. (Shimla apple & Kashmiri apple example)
(No further differentiation in Shimla/Kashmiri apples of two vendors.)

~~Product~~ Product is not standardised in these forms of market (dynamic fare example) i.e., there is no question of differentiation in the prices of ~~fare~~ the same product. (no price discrimination)



17/10/2017

Any new individual firm can ~~exist~~ enter in a business, and any existing firm can exit whenever they ~~will~~ wish to.

For any product, free ~~use~~ entry & exit are possible only in the long run, not in short run.

~~When there is~~

In this kind of market, info is shared amongst all the ~~players.~~ players. Patented things do not exist in such market. Perfect dissemination of knowledge across all the ~~the~~ buyers.

This ~~is~~ kind of market is an ideal market.

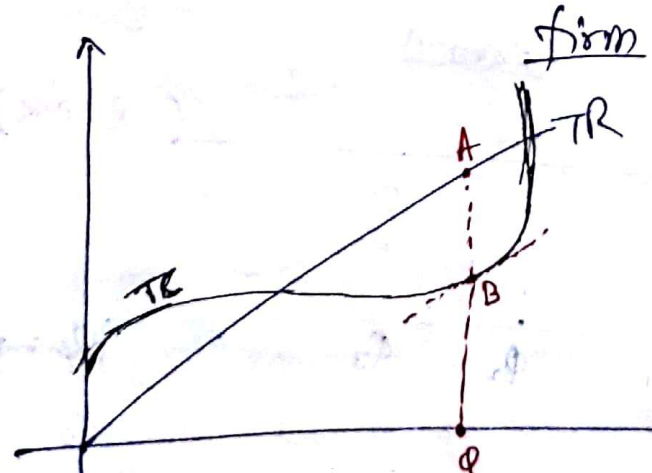
Stock market is another example of such market.

Such markets do not exploits the ~~huge~~ consumers.

Equilibrium Condⁿ / Condⁿs of Profit Maximisation:

Profit = Revenue - Cost

$\Rightarrow \pi = R - C$



$\max^m \pi = AB$

for max^m π, $\frac{d\pi}{d\varphi} = 0$ (necessary)

$\Rightarrow \frac{dR}{d\varphi} - \frac{dC}{d\varphi} = 0$

$\Rightarrow MR = MC$. ——①

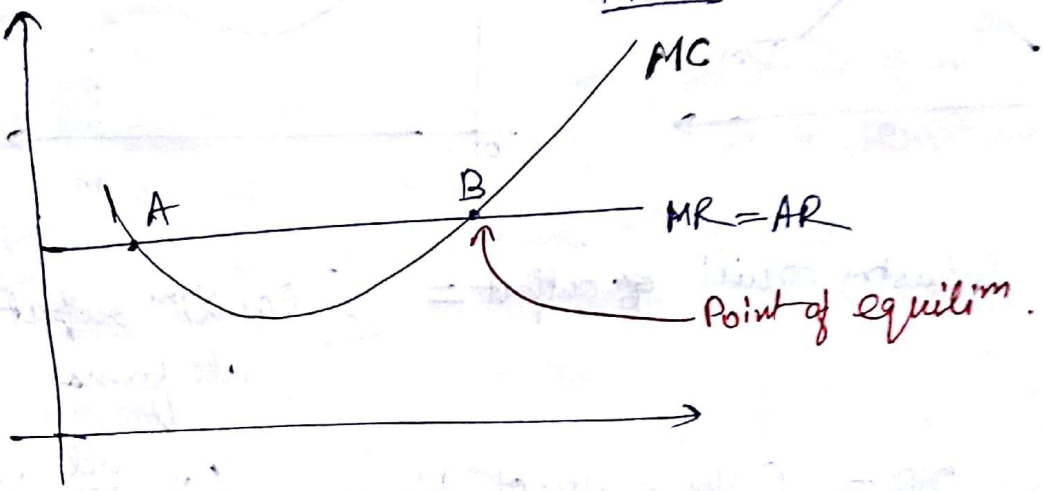
Also, $\frac{d^2\pi}{d\varphi^2} < 0$ (Sufficient)

$\Rightarrow \frac{d^2R}{d\varphi^2} - \frac{d^2C}{d\varphi^2} < 0$

$\Rightarrow$ slope of MC > slope of MR ——②

eqn ① & ② gives the condns of equilim or condns of profit maximisation

Firm



$TR = AR \cdot \varphi$
$= \sum MR$.

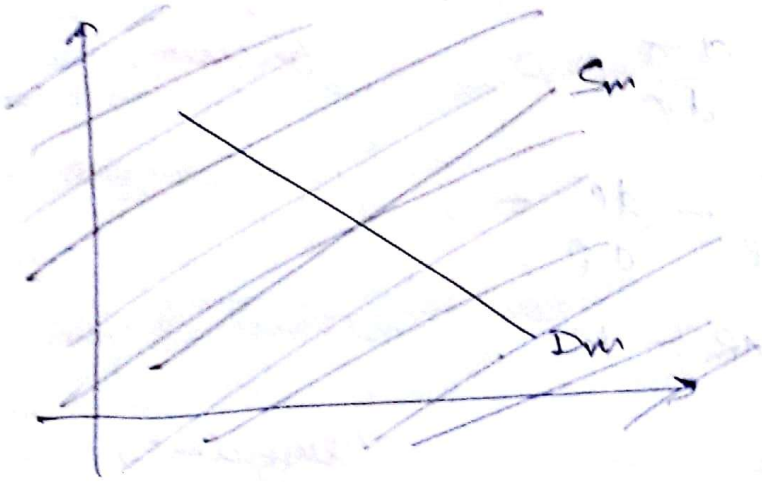
$TC = AC \cdot \varphi$
$= \sum MC$

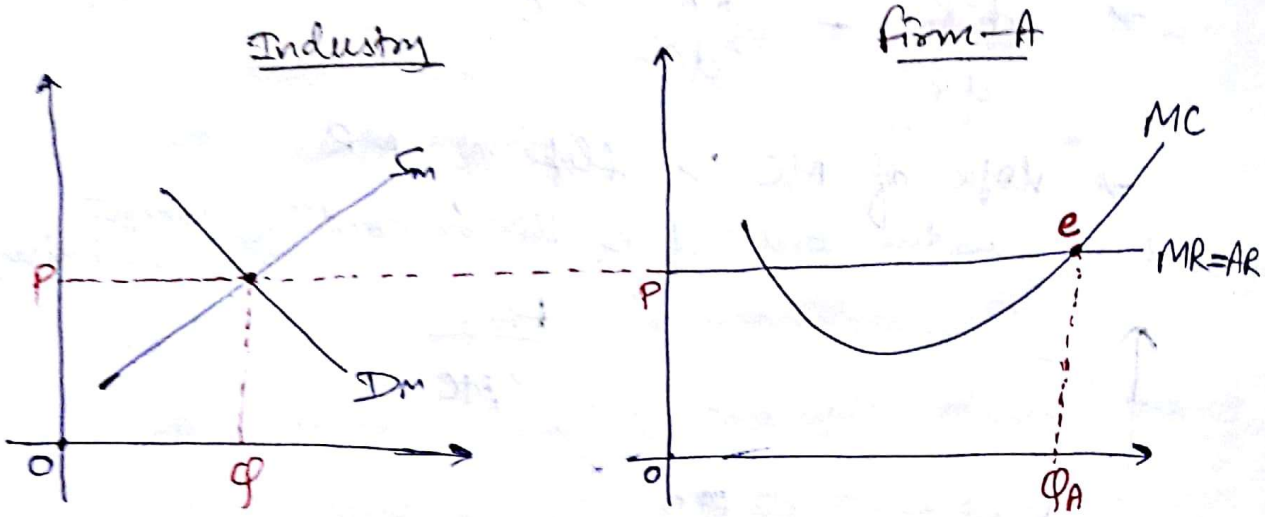
24/10/2017

Short-run Equilibrium:

(1) In short-run, atleast one of the factors of prodn will be ~~variable~~ fixed.

(2) In short-run, practically speaking, free entry





Industry equilim output = $\sum$ Equilim output of all firms

i.e., $OQ = OQ_A \times$ no. of firms (if all firms are identical)

Profit maxm

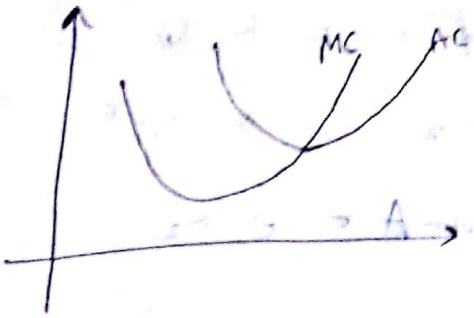
MC = MR

Profit

AR > AC ⇒ super normal profit or abnormal profit

AR < AC ⇒ loss

AR = AC ⇒ normal profit (no profit, no loss)



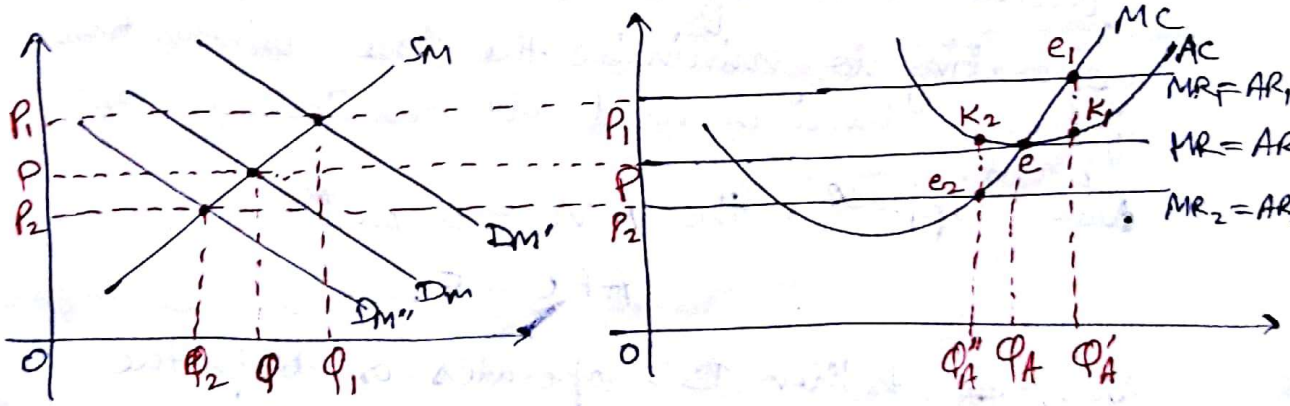
Let $AR = AC = 10$

AC = Avg. wage + Avg. rent + Avg. interest + Avg. Normal rate of return to Entrepreneur

wage = 2, rent = 3, interest = 3, Normal rate of return = 2

Normal profit is the amount of money that atleast (/otherwise) assured of.

Normal profit is the amount of profit that the entrepreneur is otherwise assured of (atleast he will be paid that much amt of money).



for DM, $AR = AC = e Q_A$ * normal profit *

for DM', $AR_1 = e_1 Q_A'$ and $AC_1 = K_1 Q_A'$

$\Rightarrow AR_1 > AC_1$ * supernormal profit *

supernormal profit of firm A = $e_1 K_1 * O Q_A'$

for DM", $AR_2 = e_2 Q_A''$ and $AC_2 = K_2 Q_A''$

$\Rightarrow AR_2 < AC_2$ * loss *

per-unit loss of firm-A = $e_2 K_2$

Here, MC & AC curve doesn't changes bcoz prod" func" & thus cost func" is a funct of capital & labour & not demand.

Now, should a firm ~~if~~ ~~is~~ ~~else~~ stop the business if it is incurring loss?

eg, let Big Bazaar is having AR = 5 and

AC = 10 where AVC = 4

and AFC = 6

~~Also~~ At present BB is incurring loss of 5. But if it stops the business, it'll be still paying the AFC; ~~which~~ in which case it will incur a loss of 6. ∴ it'll keep on operating to minimise the loss. Minimisation of loss goes hand in hand with maximisation of profit.

Now suppose, the AVC = 5 and

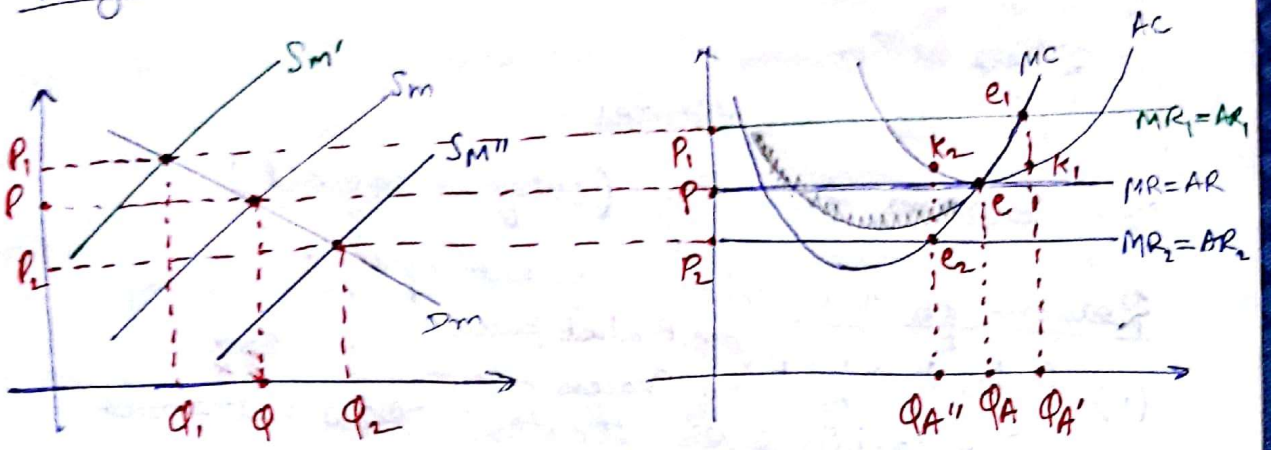
AFC = 5.

Now, ~~in~~ whether BB operates or stops the business, it'll incur loss of 5. This is called shut-down point. It is a signal that any further decrease in price or increase in AVC will lead to shut-down of business for the store.

∴ cond^{n} for shut-down of business,

$AVC \geq AR$.

Long-run Equilibrium:



for S_M, normal profit.

for S_M', supernormal profit ⇒ new firms will enter

⇓

supply ↑ while demand remains same ⇒ Price ↓ ⇒ Supply curve shifts right

⇓

restores to S_M ⇒ normal profit.

for S_M'', loss ⇒ existing firms will leave

⇓

supply ↓ while demand remains same ⇒ Price ↑ ⇒ Supply curve will shift left

⇓

restores to S_M ⇒ normal profit.

∴ A perfectly competitive firm experiences

(i) supernormal profit, normal profit or loss* in short-run equilm

(ii) only normal profit in long-run equilm.

* in case of loss, it'll try to minimise it.

31/10/2017

✱ Monopoly

Attributes:

(1) Single seller.

(2) No close substitutes

(3) Barrier to entry (entry is blocked)

Reasons for the existence of monopoly:

(1) Patent right → Product patent / → Process patent

(2) Ownership over strategic raw materials

(3) Natural monopoly (economics of large scale production)

*(4) Limit Pricing Policy

*(5) Mergers & Acquisitions

* Involve strategy.

(1) When a company enjoys some patent right(s) on a product over a stipulated period of time, no other company can manufacture or sell the product without the permission of one who enjoys the patent right(s).

(2) Now this happens when the manufacturing of a product requires some raw material which is mined out. Generally, mines are leased out to companies for a fixed period of time. If there is only one mine of say Bauxite which is leased out to company A for a period of say 120 years, company A will enjoy monopoly over Aluminium industry for 20 years.

(3) If you produce output in large qty^s at one place, the overhead cost relatively is lesser & as a result the avg. cost of production will be lower which then reflects in the price of the product & thus the consumer is benefitted. So when we realise that there are some products which have the natural tendency to reduce the cost if produced in large volume at one place so that the price can become lower, we take the decision to monopolise it.

eg, Indian Railways.

(4) Limit pricing policy is a price strategy adopted by the existing monopolist to discourage the entry of the new firms into the existing business.

(5) Merger is a situation where the two companies merge together such that there is sharing of their resources, shares etc.

In terms of acquisition, one company acquires the assets of the other company which then ceases to exist.

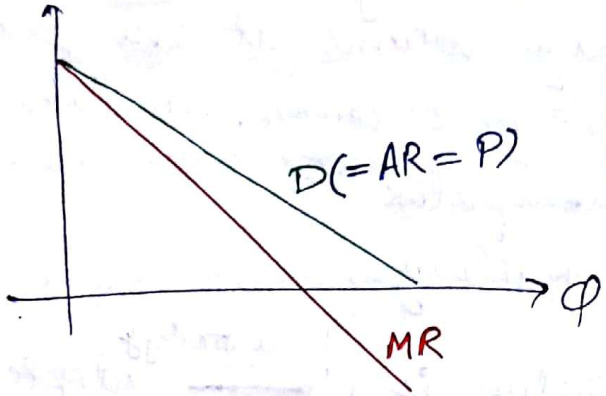
Merger happens among two almost equal level of companies while in acquisition, a big company buys the assets of small company.

But in both the cases, it leads to monopoly power.

7/11/2017

Equilibrium:

In monopoly, ~~the~~ a firm is itself the industry.
⇒ market demand curve is -vely sloped (for normal goods).

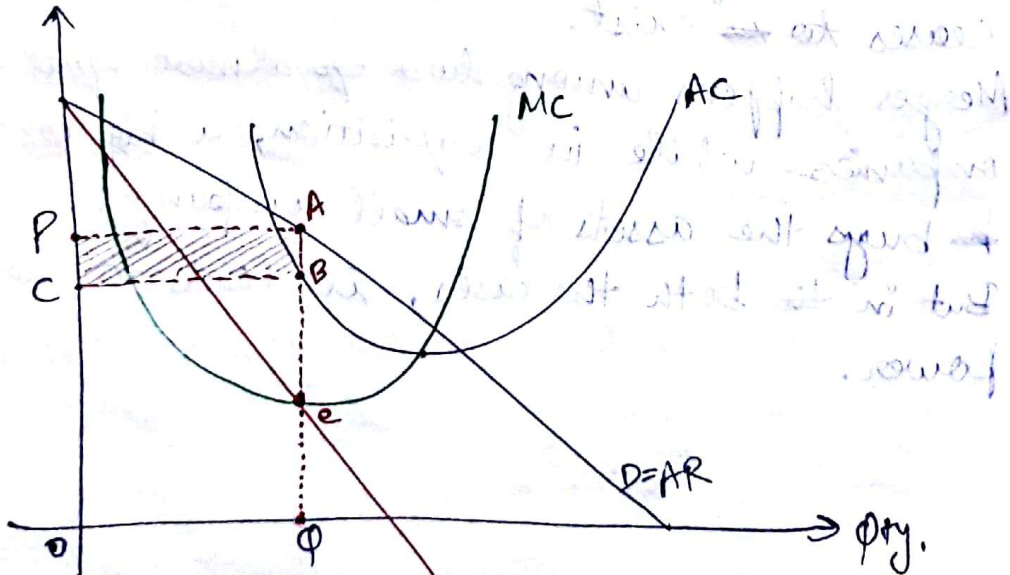


$$\frac{d(MR)}{dQ} = 2 \times \frac{d(AR)}{dQ}$$

↳ In case of linear AR curve

A monopoly firm can either fix price or qty. but not both simultaneously.
Cost is a derived func^n from the production func^n.
∴ cost curve will remain same.
There is a need to ~~advertise~~ products in monopoly, though not on a large scale/aggressively.

Short-run Equilibrium:



Equilim output = $O\varphi$

Equilim price = $A\varphi = OP = AR$

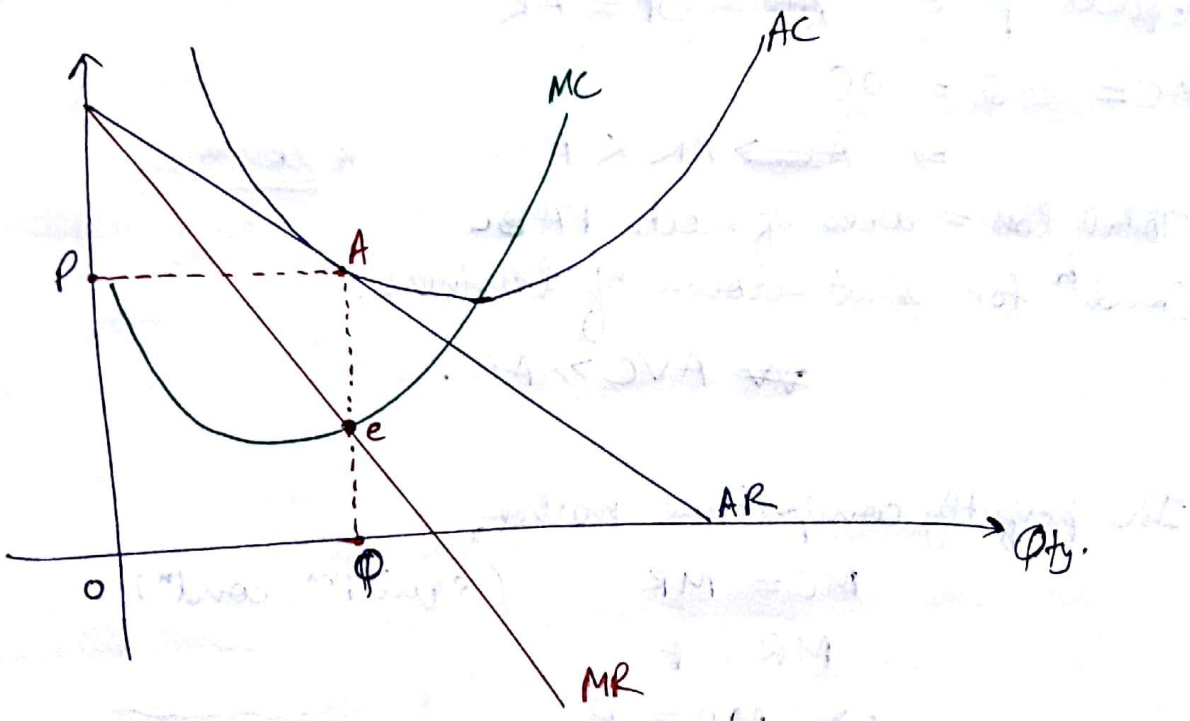
$AC = B\varphi = OC$

$\Rightarrow AR > AC$ * supernormal profit *

Per unit supernormal profit = CP

Total supernormal profit = $CP * O\varphi$

= area of rect. $ABCP$



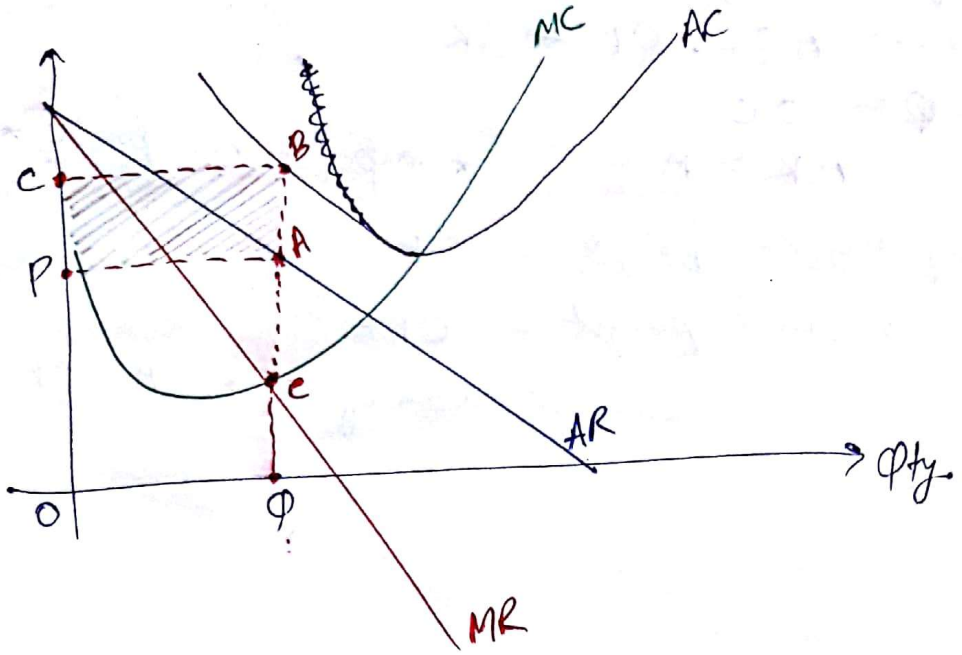
Equilim output = $O\varphi$

Equilim price = $A\varphi = OP = AR$

$AC = A\varphi = OP$ ~~= AR~~

$\Rightarrow AR = AC$ * normal profit *

Total revenue = Total cost = area of rect. $OPA\varphi$



Equilim output = OQ

Equilim price = AQ = OP = AR

AC = BQ = OC

$\Rightarrow$ ~~$\Longleftrightarrow$~~ AR < AC * loss *

Total loss = area of rect. PABC

Cond^n for shut-down of business,

~~$\Leftrightarrow$~~ AVC > AR.

In perfectly competitive market,

MC = MR (equilim cond^n)

MR = P

$\Rightarrow$ MC = P

In monopoly market,

MC = MR (equilim cond^n)

MR < P

$\Rightarrow$ MC < P

$\Rightarrow$ Monopoly price is always higher than the perfectly competitive price.

But monopoly qty is lower than perfectly competitive ~~#~~ qty.

∴ a consumer ~~is~~ is exploited in a monopoly both in short and long run but not in perfectly competitive market.

A perfectly competitive market operates at the min^m of AVC curve at the point of shut-down optimally utilising its variable factors of production. While a monopoly always ~~work at~~ operate at the point where its resources are under-utilized.

Long-run equilim^m :

Even in the long-run, entry is blocked.

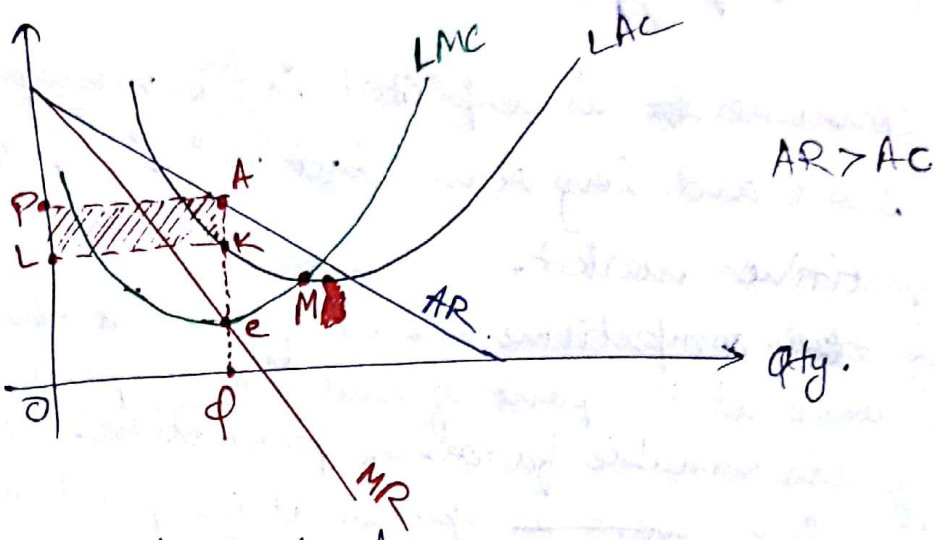
AC curve is same as AVC, ∵ there is no fixed cost.

So a monopoly will always earn supernormal profit in the long-run.

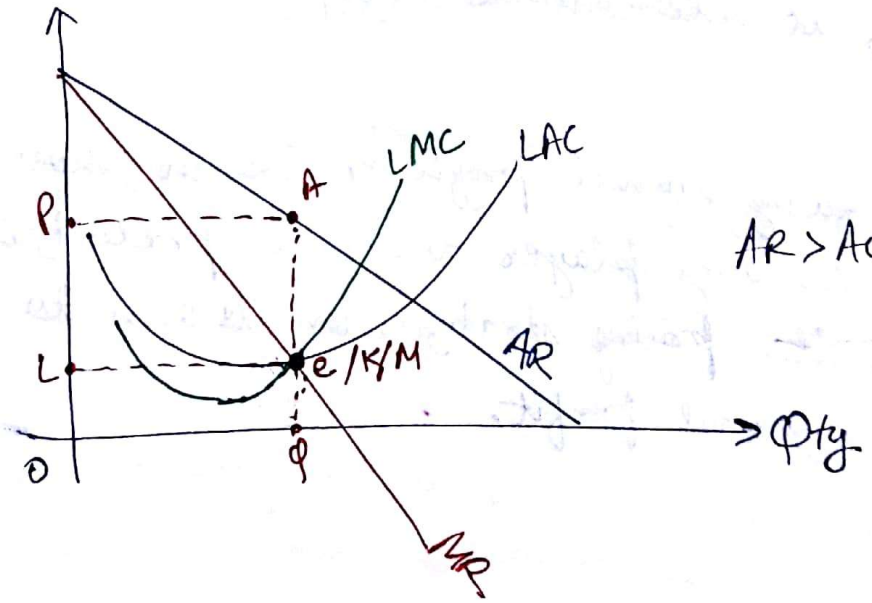
If it was enjoying supernormal profit in the short-run, it will continue to enjoy it in the long-run.

If it was facing normal profit or loss in short-run, ~~it will~~ being the only player to sell the product, it can change its pricing strategies on its own to earn supernormal profit.

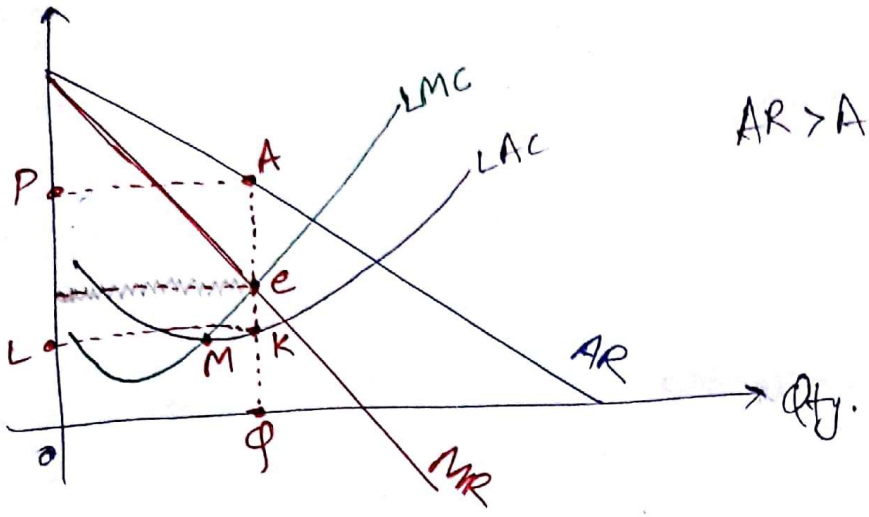
14/11/2017



OQ = Output produced
This is the case of sub-optimal output bcoz we are operating left to the min^m point of LAC curve.



This is the case of optimal output bcoz we are operating at the min^m point of LAC curve.



This ~~is~~ is the case of above optimal output because we are operating ~~at~~ right to the min^m point of LAC curve.

Human ~~cost~~ consequence.

★ Oligopoly & Monopolistic Competition

	Oligopoly	Monopolistic Competition
	Few sellers	Many sellers
size →		
type →	• Pure oligopoly (identical products) • Differentiated oligopoly (close substitutes)	Differentiated which are close substitutes