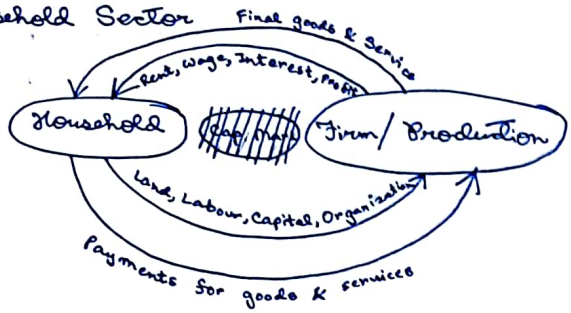
National Income – Macro Economics

Factors of Production:

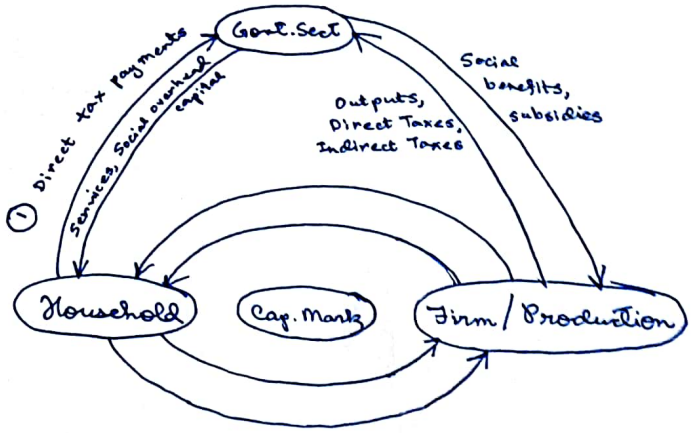
	Payments
1) Land –	Rent
2) Labour	Wage
3) Capital	~~Inter Invest~~ Interest
4) Organization	Profit

1. Firm/Production Sector
2. Household Sector



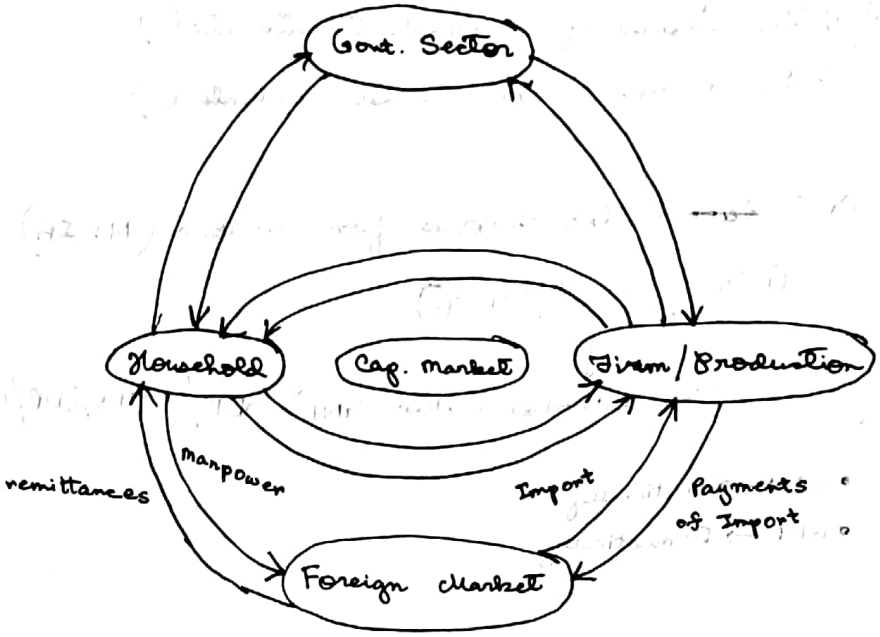
Basic 2 Sector Model

3. Capital Market Sector (Financial) – Interacts between ① and ②
4. Govt. Sector



Closed Economy where the 3 Sectors are clustered together

5. Foreign Market / Export - Import Sector.



4 Sector Diagram (Open Economy)

National Income

$Y = C + I$ (2 Sector Economy)

C → Consumption Expenditure

I → Investment Expenditure

$Y = C + I + G$ (3 Sector Economy)

G → Govt. Expenditure

$Y = C + I + G + (X - M)$ (4 Sector Economy)

X → Exports

M → Imports

GNP → Gross National Product

X ① The incomes of non-residents nationals (+)
② The incomes of non-national residents (−)

Net Factor Incomes from Abroad (NFIA) → ① − ②

① > ② / ① < ② / ① = ②

↓

This determines whether GNP > GDP / GNP < GDP / GNP = GDP

- GNP → Nationally
- GDP → Domestically

- Suppose $C = 60 + 0.8Y$

$I = 250$

$G = 350$

$M(Y) = 20 + 0.1Y$

$X = 150$

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

$= 60 + 0.8Y + 250 + 350 + 150 - 20 - 0.1Y$

$\Rightarrow 0.3Y = 790$

$\Rightarrow Y = 2633.33$

2 60
250
350
150
710
− 20
790

0.3 | 790.0
0.1

263
3 | 7900
6
19
18
10

1) Expenditure Method → $\Sigma C + \Sigma I + \Sigma G$

2) Income Method → all factor incomes (Rent + Wage + Interest + Production)

3) Value Added Method → Here intermediate goods are added only 1 time

Exclusions while

Problems ~~of~~ Measuring National Income :

1) Unpaid domestic services
2) Self domestic consumption
3) Unemployment benefits
4) Pensions
5) Earnings of the beggers
6) Black Market Economy

1) Govt. and business Transfer – Rs 15
2) Indirect business taxes – Rs 30
3) GNP – Rs 630
4) Social Security benefits – Rs 20
5) Personal Taxes – Rs 25
6) Capital consumption – Rs 80
7) Personal consumption – Rs 390
8) Direct business taxes – Rs 40

Values of Net National Product, Personal Income, Personal disposal Income.

GNP (630)

↓ depriciation

NNP (550)

↓ -30

NI [- Indirect business taxes] ← -30

↓

PI (-) corp. profits (+) govt. Tax

(-) corp. consumption capital (+) Direct tax ad benefits

↓ — Personal Taxes

PDI

NNP = Rs 550 , NI = Rs 520

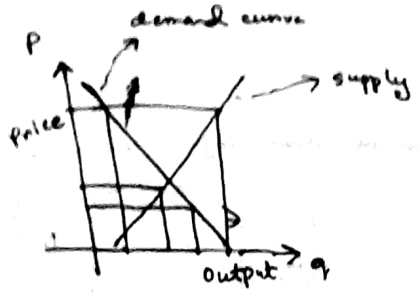
PI = 390 + 15 + 20 + 25 = 450

PDI = 450 - 25 = 425

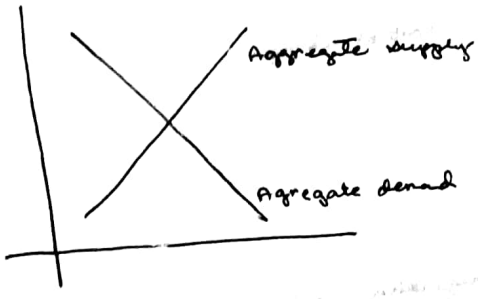
Inflation

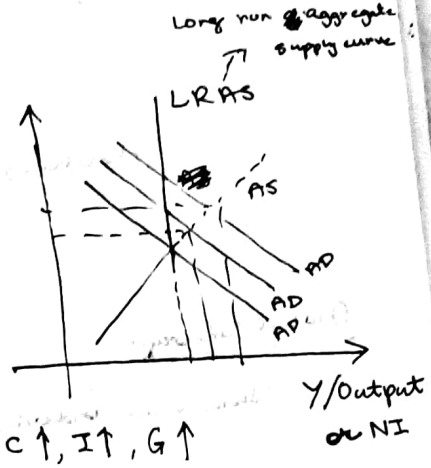
1) Aggregate demand (AD)

2) Aggregate Supply (AS)



The demand curve is negatively slope.
The supply curve is +ve slope

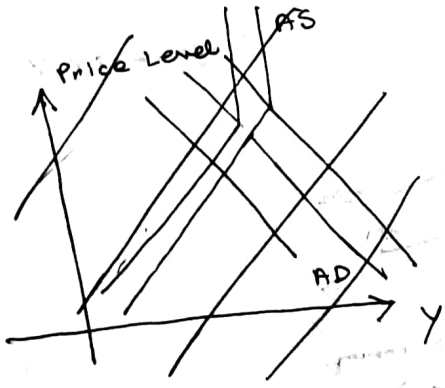


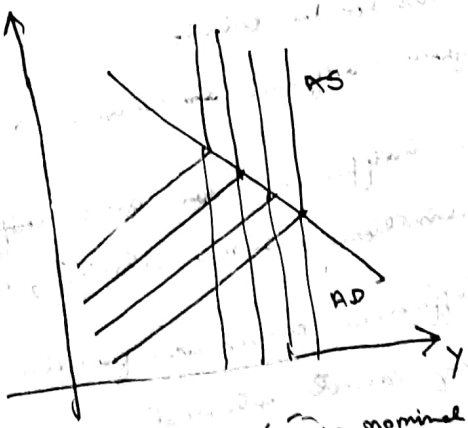


- Demand pull inflation
- Cost push inflation

$$Y = C + I + (G - T) + (X - M)$$

T: Tax





$Y \downarrow \Rightarrow P \uparrow \Rightarrow \left(\frac{W}{P}\right)\downarrow$

W → nominal wages

$\left(\frac{W}{P}\right)\downarrow$ → Real wages

Utility – Microeconomics

Cardinal – measured ; measurement can be done by a unit called utils

Total Utility

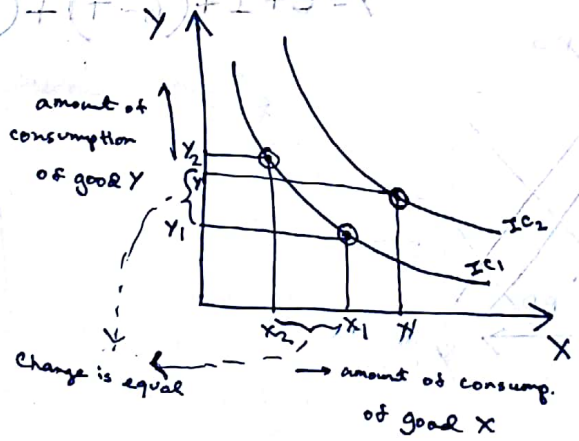
AC min	Total Utility TU	Marginal Utility MU
1	30 utils	30 utils
2	55 utils	25 (55-30)
3	85 utils	30 (85-55)
4	80 utils	-5 (80-85)
5	70 utils	(-)

Marginal → some sort of change

Ordinal Theory:

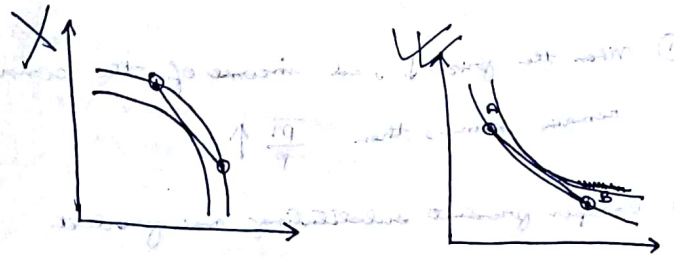
There is an ordering regarding preferences of individuals.

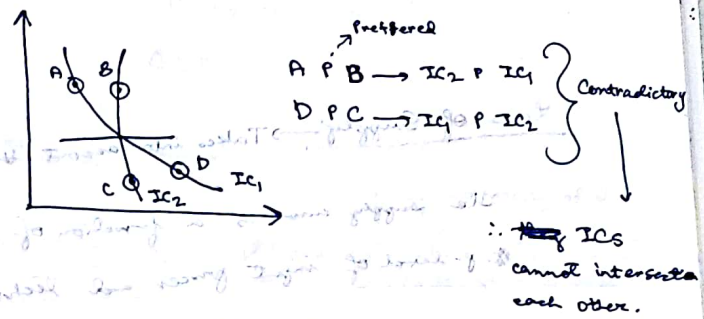
Indifference Curve



2 goods → X, Y

- Convex to the origin
- Higher indifference ~~on~~ curve → higher utility
- The indifference curve gives ~~diffe~~ different combinations, same utility, consumer indifferent.
- Indifference curves are parallel to each other. They cannot intersect each other.





Laws of Demand

Demand is specific need to satisfy human wants backed by personal purchasing power.

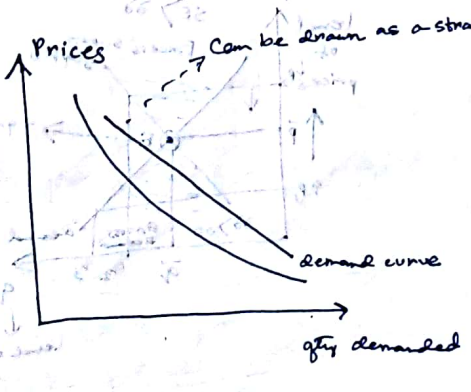
Quantity demanded for a specific quantity,

$$q_d = f(P_1, P_2, P_3, m, t, e^p)$$

- P_1: Price of goods
- P_2: price of complementary goods
- P_3: price of substitute goods
- m: money of crossover
- t: taste of pre of consumer
- e^p: expected price rate

Demand Function

- negatively sloped
  - 1) Income Effect
  - 2) Substitution Effect
  - 3) Diminishing Marginal Utility



① When the prices ↓, and income of the consumer ($\overline{m}$) remains same, then $\frac{\overline{m}}{p} \uparrow$.

② Cheaper product substituting main product.

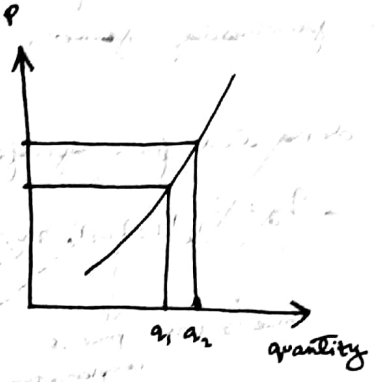
Laws of Supply → Takes into account the side of the producers

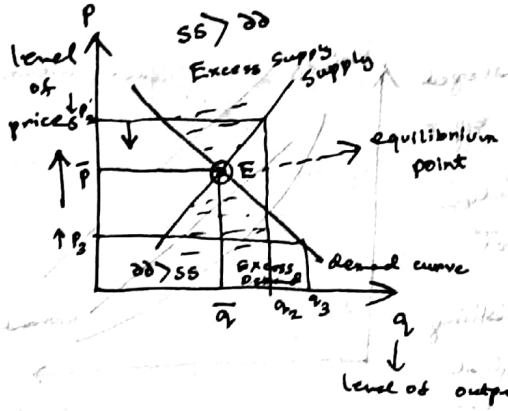
The supply curve is a function of p. level of good, p. level of input prices and Technologies.

$$q_s = f(p_1, \text{input price, Tech})$$

Cateris Paribus → when all other factors remain constant.

$$q_s = f(p)$$





Elasticity

↳ Is some sort of a responsiveness, ie. how they will react when they see some changes.

100 # of 10 Kgs of ↓ 10/ units $\Delta P = 10 - 8 = 2$
12.5 Kgs of ↓ 8 ↓ "

$\Delta q = 2.5$

(own) Price Elasticity of demand

→ basic idea of price elasticity of demand

$$e_p = \frac{\partial q}{(-)\partial p} \cdot \frac{p}{q} = \frac{\frac{\partial q}{q}}{\frac{\partial p}{p}} = (-)\frac{\%\text{ change in quantity demanded}}{\%\text{ change in prices}}$$

e_p ↓ price elasticity of demand

(cross) Price Elasticity of demand

$$e_{xy} = \frac{\partial q_x}{\partial p_y} \cdot \frac{p_y}{q_x}$$

e_{xy} ↓ good x ady

close substitutes

1) goods → meat, fish
$p \uparrow \; dd \downarrow \quad \uparrow dd \; p \uparrow$

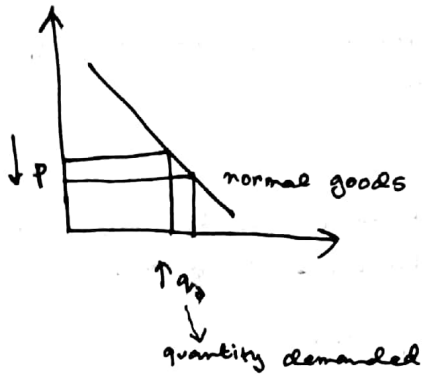
For close substitutes, e_{xy} is positive in nature.

complementary goods

2) goods → Tea, Sugar
$p \uparrow \; dd \downarrow \quad dd \downarrow \; p \downarrow$

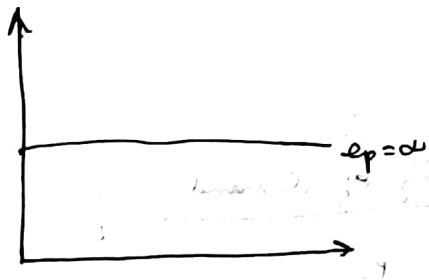
For complementary goods, it is negative.

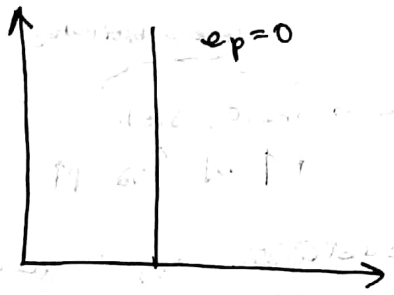
Levels of Elasticity



$\frac{\partial q}{\partial p}$ remain same.

$\therefore e_p = 1$





- Demand function is $q = ap^{-b}$.

$\therefore \frac{\partial q}{\partial p} = -ab\,p^{(-b-1)}$

$\therefore \frac{\partial q}{\partial p} \cdot \frac{p}{q} = -ab\,p^{-b-1} \times \frac{p}{ap^{-b}}$

$= -b\frac{p}{p}$

$= -b$

$$|e_p| = \left| \frac{\partial q}{\partial p} \cdot \frac{p}{q} \right|$$

$$= -b$$

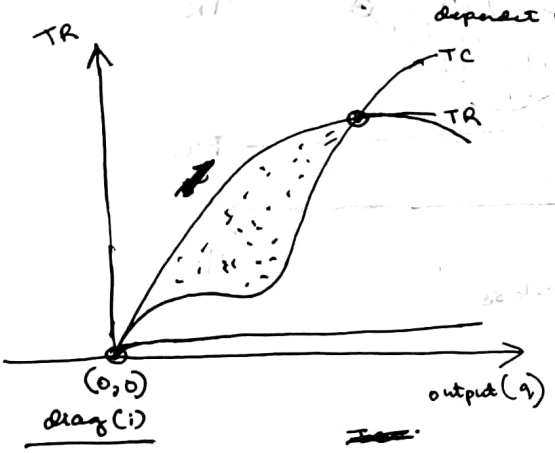
$TC = TR - TC$

- TC → eco profit
- TR → Total Revenue
- TC → Total Cost

$TS \rightarrow$ Total Sales

Total Cost $\rightarrow$ $TVC + TFC$

- TVC → dependent on q
- TFC → independent of level of q



diag (i)

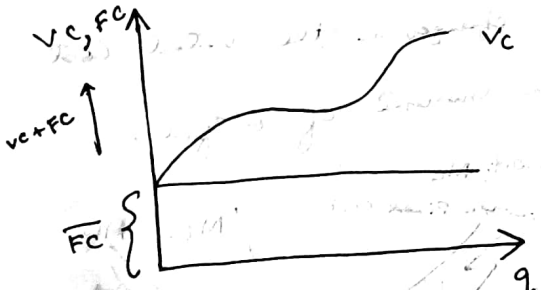
$TC = VC + FC$

$q = 0$

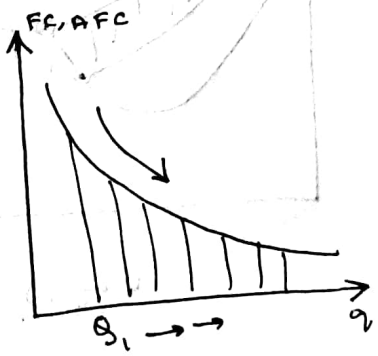
$\therefore VC = 0$

$VC \rightarrow$ Variable Cost

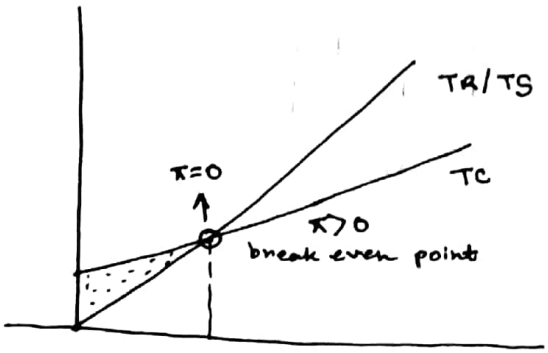
$FC \rightarrow$ Fixed Cost



$TC = VC + FC$



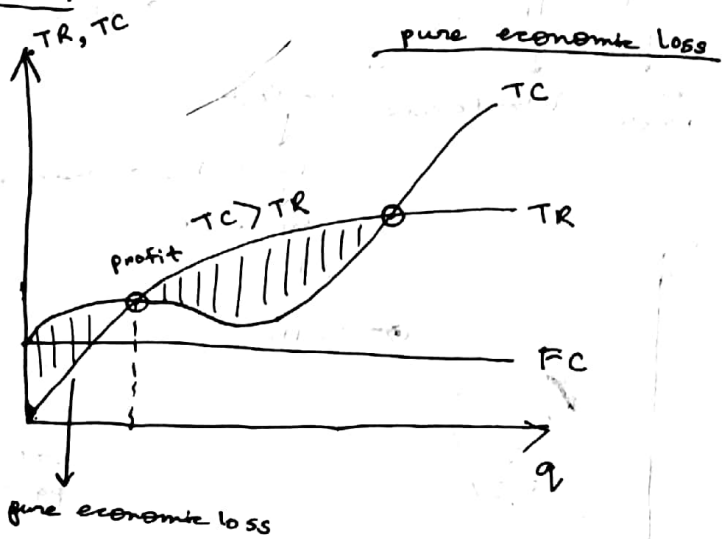
$AFC \rightarrow$ Average Fixed cost



π → Profit

→ TC > TR

diag (i) redrawn:



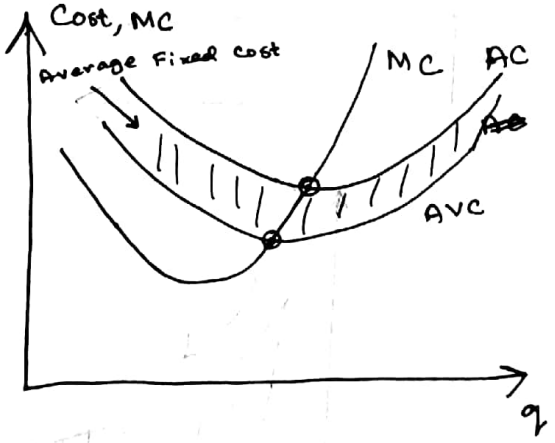
Marginal cost

The amount of the changes in the Total cost for producing extra amount of output.

marginal cost ↑

$$\left(\frac{\partial TC}{\partial q}\right) = \frac{\partial}{\partial q}\left(\underbrace{TFC}_{\text{Total Fixed Cost}} + \underbrace{TVC}_{\text{Total variable Cost}}\right)$$

$$= \frac{\partial}{\partial q}(TVC)$$



Diag (iv)

Average cost: The ratio of the total cost to the total units of output that have been actually produced.

$$AC = \frac{TC}{q}$$

Average Variable Cost:

$$AVC = \left(\frac{VC}{q}\right)$$

$$\text{Average cost } (AC) = AVC + AFC \quad (\text{AFC} \rightarrow \text{Average Fixed Curve})$$

- The marginal cost curve passes through the minimum points of AVC and AC curves. (See Diag (iv))

$$AC = \frac{TC}{q}$$

$$\Rightarrow TC = AC \cdot q$$

$$AVC = \frac{VC}{q}$$

$$\Rightarrow AVC \cdot q = VC$$

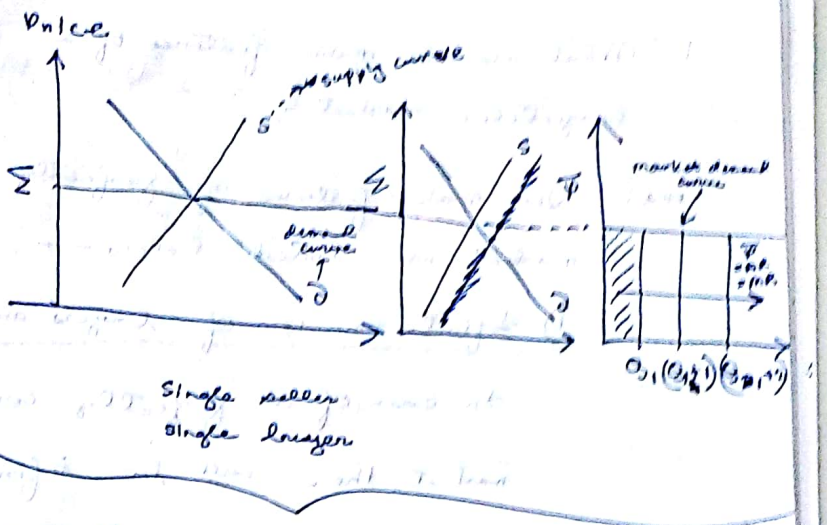
Marginal cost $\longleftarrow \left(\frac{\partial TC}{\partial q}\right) = \frac{\partial AC}{\partial q} \cdot q + AC$

mc min slope

$$\frac{\partial MC}{\partial q} = \frac{\partial}{\partial q}\left(\frac{\partial AC}{\partial q}\right) \cdot q + \frac{\partial AC}{\partial q} + \frac{\partial AC}{\partial q}$$

$= 0 \rightarrow$ equate with 0

$$\frac{\partial MC}{\partial q} = \frac{\partial AC}{\partial q} = 0$$



- buyers are price takers, not makers.

$$TR = P \cdot q \quad (P: \text{Price})$$

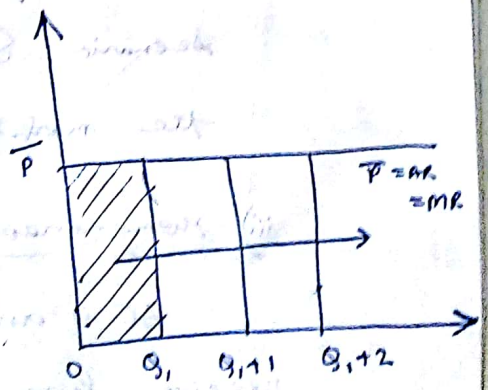
$$AR = \frac{TR}{q}$$

$$\Rightarrow AR = P$$

$$\left(\frac{\partial TR}{\partial q}\right) = P$$

(mR)

Marginal Revenue is the extra amount of revenue needed to produce an extra unit of output.



$$TR = P Q_1$$

$$TR_1 = P(Q_1 + 1)$$

$$TR_1 - TR = P(Q_1 + 1) - PQ_1$$

$$= P$$

restriction regarding the transaction cost.

viii) No govt. interference: This actually implies there will be a self adjusting market mechanism which will automatically and eventually bring the market into equilibrium position.

$\Pi = TR - TC$

$TS = sq$

$TR = pq$

↓ per unit prices

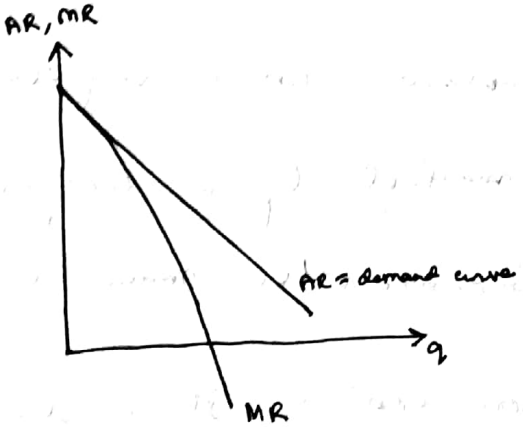
Actual Revenue (AR) $= \frac{TR}{q}$

Marginal Revenue (MR) $= \frac{\partial TR}{\partial q}$

Demand curve is a straight line

$p = a - bq$

↓ slope



Total Revenue $= aq - bq^2$

$MR = a - 2bq$

$AR = p = a - bq$

demand curve

$|-2b| > |-b|$

$$AVC = VC/q$$

$$\Rightarrow AVC.q = VC$$

$$\frac{\partial VC}{\partial q} = \frac{\partial (AVC)}{\partial q} \cdot q + AVC = MC$$

MC

Perfect Competition

Characteristics:

1) Large number of buyer and seller.
2) Buyers and sellers have perfect information.
3) Goods are homogeneous
4) No govt. interference
5) Free entry and free exit
6) No transaction cost

1. What are the main features of a perfectly competitive market?

Ans: The main features of perfectly competitive market are listed below—

i) Infinite number of buyers and sellers:

In case of a perfectly competitive market there will be infinite no. of buyers ad sellers who will be interacting in the market and taking summation of the individual price levels from the interaction of individual buyer ad sellers we get the final market demand curve.

ii) Perfect information: It is believed that both the parties (buyer ad sellers) have perfect info. regarding the market scenario. So there is no issue regarding the market clearance.

iii) Homogeneous/Identical Products:

It is assumed that the buyers can receive homogeneous products across all the different sellers because the quality remains identical.

iv) Free entry and free exit: It is actually assumed that in the case of the short run, the perfect competition actually provide choices for free entry and exit. However in the case of the long run these assumption is not necessarily a holding truth.

v) Perfect factor mobility: This actually implies in the case of the long run, and even for the matter of fact in short run, the factors can be freely moved from one part to ~~the~~ different part of the economic.

vi) Profit Maximization: It is not necessarily a main ~~of~~ motive for a perfectly competitive market. Often welfare maximization becomes the main objective.

vii) No Transaction cost: It is believed that the buyers and the sellers are free to exchange their goods and services when there is no such

restriction regarding the transaction cost.

viii) No govt. interference: This actually implies there will be a self adjusting market mechanism which will automatically and eventually bring the market into equilibrium position.

$\pi = TR - TC$

$TC = sq$

$TR = pq$

↓ per unit prices

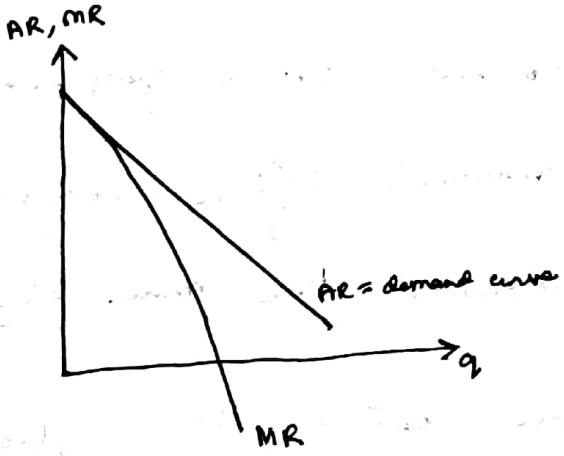
Actual Revenue (AR) $= \frac{TR}{q}$

Marginal Revenue (MR) $= \frac{\partial TR}{\partial q}$

Demand curve is a straight line

$p = a - bq$

↓ slope



Total Revenue $= aq - bq^2$

$MR = a - 2bq$

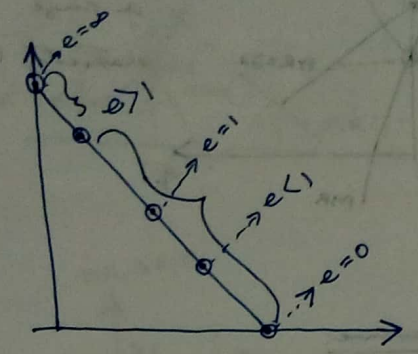
$AR = p = a - bq$

demand curve

$|-2b| > |-b|$

Monopoly

Price elasticity of demand



e_p = lower segment / upper segment

$$MR = \frac{\partial TR}{\partial q}$$

$$= \frac{\partial pq}{\partial q}$$

$$= p + q\frac{\partial p}{\partial q}$$

$$= p\left(1 + \frac{p}{q}\frac{\partial p}{\partial q}\right)$$

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

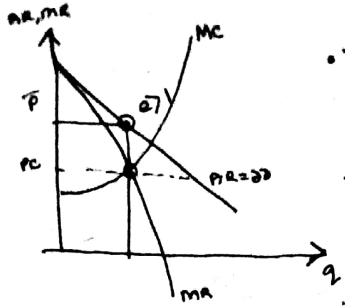
Monopoly Market:

1) No close competition; 2) there is a single seller with large no. of buyers; 3) no close substitute goods;

4) Take it or leave it

Some other features

5) higher price and lower level of output



- The monopolist always intends to operate in a range where the price elasticity of demand (e_p) > 1.

Consumer Revenue:
What the buyers were able to be pay at the highest level at what they are actually paying at the lowest level.

$$MR = P\left(1 - \frac{1}{e_p}\right) > 0$$

$$P\left(1 - \frac{1}{e_p}\right) > 0$$

$$1 - \frac{1}{e_p} > 0$$

$$\Rightarrow 1 > \frac{1}{e_p}$$

$$\Rightarrow e_p > 1$$

$$\frac{\partial \pi}{\partial q} = \left(\frac{\partial TR}{\partial q}\right) \cdot \frac{\partial TC}{\partial q} = 0$$

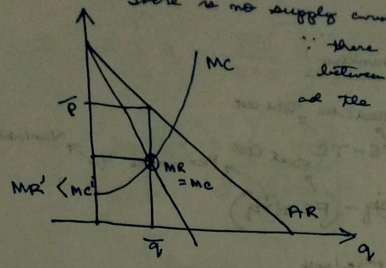
$MR' < MC'$

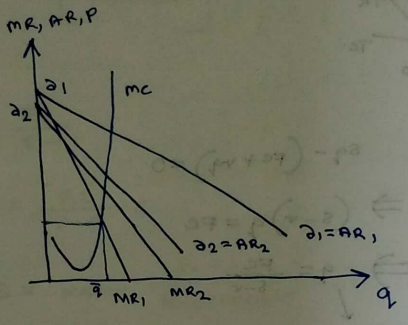
slope

$$MR = MC \rightarrow \frac{\partial}{\partial q}(MR) - \frac{\partial (MC)}{\partial q} < 0$$

2nd Order

There is no supply curve under monopoly, ∵ there is no direct relationship between the price and output, and the monopolist is himself the price maker.

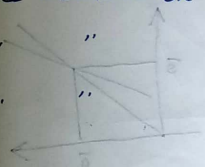




The monopolist always discriminates across different markets, dependent on the different elasticities of the market.

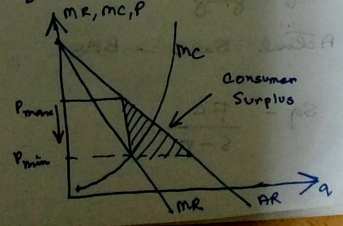
Price Discrimination

1) 1st degree of price discrimination
2) 2nd " " " "
3) 3rd " " " "



1) Eg: Pizza Market.

Cost maximization in the initial phase.



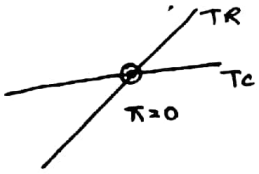
Module 3

Cost Accounting

Profit $\pi = TS - TC$ (Total Sales, Total cost)

$= (Sq) - (FC + (vq))$ (Fixed Cost; Per units VC → Variable Cost)

Selling price / unit



$$Sq - (FC + vq) = 0$$

$$\Rightarrow (S - v)q = FC$$

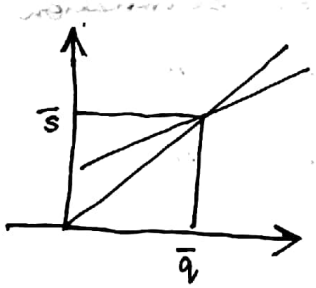
$$\Rightarrow q = \frac{FC}{S - v}$$

Break Even Quantity / Break Even Output (BEQ)

Break Even Sales

$$BES = BEQ \times S = \frac{FC}{S - v} \cdot S$$

- Find the amount of the break even point.
  - Calculate upto the amount of the BES.



- Contribution / unit $= S - v$

Margin of safety

$$= \text{Actual Sales} - BES$$

$$= Sq - \frac{FC}{S - v} \cdot S$$

$$= s\left[q - \frac{FC}{s-v}\right]$$

$$= sq\left[\frac{(sq - vq - FC)}{(s-v)q}\right] \qquad \pi = sq - vc - FC$$

$$= S\left[\frac{\text{Profit}}{\text{Contribution}}\right]$$

- Contribution = $sq - sv$

$$BEQ = \frac{FC}{s-v}$$

$$BES = \frac{FC}{s-v} \cdot s$$

$$MS = \text{Sales} \; \frac{\text{Profit}}{\text{Contribution}}$$

$$= \frac{\text{Profit}}{\frac{\text{Contribution}}{\text{Sales}}}$$

Profit Volume Ratio (P/V Ratio)

$$(P/V) = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$= \frac{\Delta \text{ Profit}}{\Delta \text{ Sales}} \quad (\Delta = \text{change})$$

$$BES = \frac{FC}{\frac{(s-v)q}{sq}}$$

$$= \frac{FC}{(P/V)_{ratio}}$$

1. Consider the following figures —

Sales 120000

Fixed Cost 25000

Variable Cost 45000

Find the contribution, profit, breakeven point and margin of safety

78000 50000 40000 80000

FC = 25000

VC = 45000

$BEQ = \frac{FC}{S-V}$

Contribution = total sales − vc = 120000 − 45000 = 78000 (Ans)

$\Pi = 120000 - (25000 + 45000)$

$= 50000$ (Ans)

$(S-v)q = FC$

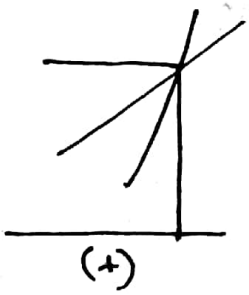
$q = \frac{FC}{S-V}$

BES = 25000

BEP / $BES = \frac{FC}{(S-v)_q} \cdot Sq$

$= \frac{25000}{120000 - 45000} \times 120000$

$= 40000$ (Ans)



Margin of safety = Total Sales − BES

$= 120000 - 40000$

$= 80000$ (Ans)

2. There are 2 plants.

	Plant 1	+	Plant 2
capacity (%)	100		60
Sales	300		120
Variable cost	220		90
Fixed Cost	40		20

a) What is the breakeven capacity of merged plant would be? b) What is the % of breakeven point with respect to the total sales?

c) What will the profit on working at 75% of merged capacity be?

Plant 2

S → 200

VC → 150

FC → 20

$$\therefore \text{BES} = \frac{60}{\frac{500}{100} - 370} \times 500$$

$$= \frac{12}{\frac{60}{100}} \times 42$$

$$= 504$$

$$= \frac{60}{130} \times 500$$

$$= 230.769 \quad \text{(Ans)}$$

$\frac{60}{100} \times x = 120$

$\Rightarrow x = \frac{20}{60} \times 100$

$= 200$

$\frac{15}{90} \times 100$

$\frac{60}{100} \times x = 120$

$\frac{100 \times 120}{60}$

42
$\times 12$
504

b) $\frac{230.769}{500} \times 100$

$= 46\%$ (Ans)

c) Plant 1

225

165

Plant 2

150

112.5

$\therefore \pi = sq - (FC + VC)$

$= 375 - (60 + 277.5)$

$= 375 - 337.5$

$= 37.5$ (Ans)

165.0
+ 112.5
277.5

$\frac{75}{100} \times 150$

112.5
X3
225

$\frac{75}{100} \times 225$

$\frac{75}{100} \times 120$

75
X1.2
150

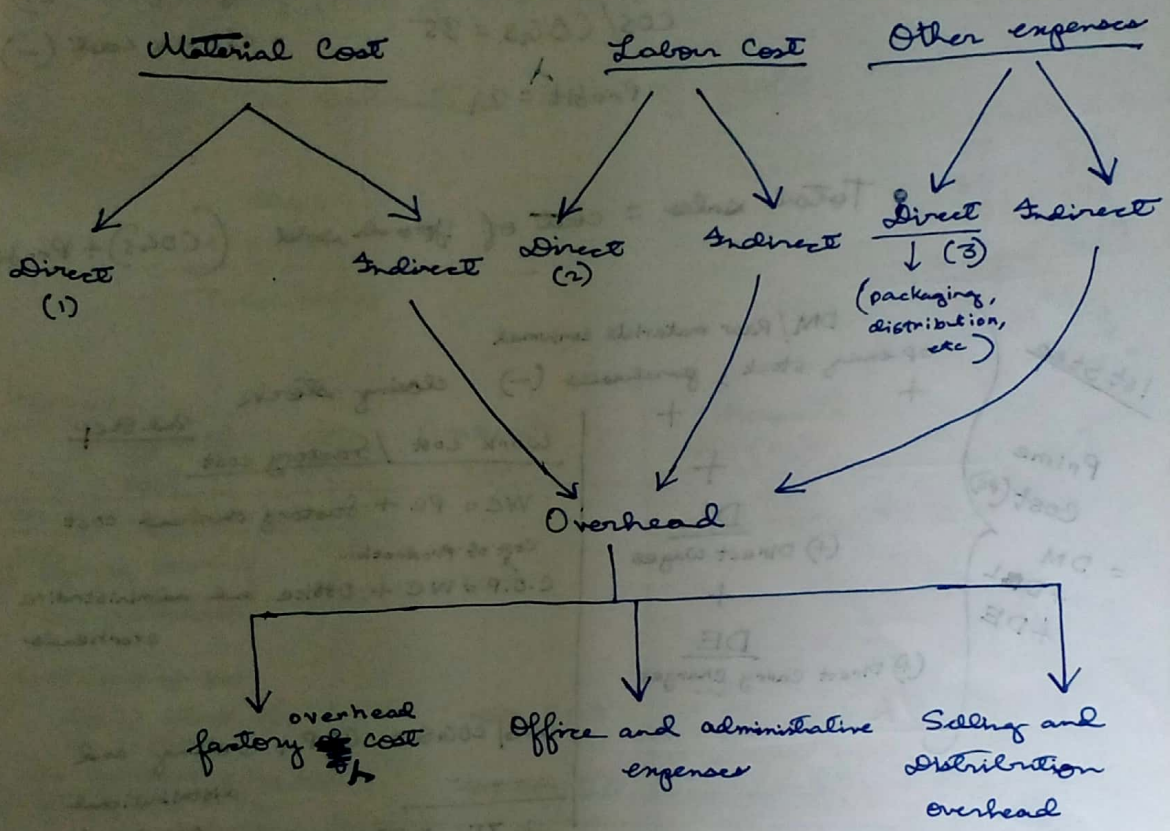
337.5
337.5
75.0

337.5
75.0
900

75

Elements of Cost

- **Material cost**: amount of cost that has to be incurred when a firm is bringing into account some raw materials. Takes place before the production is taking place.
- **Labour cost**: During the time of production.
- **Other Expenses**:



Direct Material cost (DM) + Direct labour cost (DL) + Direct other expenses (DE) = Prime Cost

Cost of Sales (C.O.S) / Cost of goods Sold (C.O.G.S)

total expense (purchase price)

bought Rs 5/- 10 units

Opening Stock = 0

(+) purchase

—

selling - Rs 8/-

total sales → 80/-

7 units sold

7 units × Rs 8/- = 56/-

3 units left

price of the inventory = 3 × 5 = Rs 15/-

if you have inventory from last year's stock, & you are selling something, you will add purchase with a (+) sign

7 × 5 = 35 ⟶ COGS

COGS

COS/COGS = 35

- opening cost (+)
- closing cost (-)

Profit = 21

- Total sales = cost of goods sold (COGS) + Profit

1st Step

Prime Cost (PC) = DM + DL + DE

DM / Raw materials consumed
opening stock, purchases (-) closing stock
+
+
DL
(+) Direct wages
+
DE
(+) Direct exp charges

2nd Step

Work cost / Factory cost

WC = PC + factory overhead cost

Cost of Production

C.O.P = WC + Office and administrative overheads

COS/COGS = COP + Selling and distributional overheads

+ π ⟶ Total Sales

Prime cost (pc)

PC + FO = Factory Cost / Work(s) cost

WC + office ad admi overheads = Cost of production

Cost of Sales / COGS = COP + Selling and distribution ds + op

?.

DM + DA + DS } Total raw material + opening stock of raw − closing stock

1. Consider the following items —

i) opening stock of raw materials — Rs 55,000

ii) closing " " " " — Rs 35,000

iii) factory wages — Rs 80,000

iv) materials purchased — Rs 60,000

v) Sales — Rs 1,54,000

vi) Indirect expenses — Rs 10,000

vii) opening stock of finished goods — Rs 0

viii) closing stock of finished goods — Rs 30,000

Find the estimated level of profit.

COGS
+ profit
Total Sales

55
80
60
10
205
−219

35
154
30
219

219
−205
14

Format:

Types of	Amounts (Rs)	Amounts (Rs)

Type of Cost	Amount (₹)	Amount (₹)
Total Raw materials consumed		
add opening stock of raw materials	55,000	
less closing stock of raw materials	35,000	
Direct material cost / Total Raw materials consumed		
add opening stock of raw mat.	55,000	
add purchase	60,000	
		115,000
less closing stock of raw materials	35,000	
		80,000
Prime Cost		
add Factory wages	80,000	
Work/Factory Cost		1,60,000
add Indirect expenses	10,000	
		1,70,000
COP/Cost of Production		
add Opening Stock of finished goods	0	
less CS of finished goods	30,000	
		1,40,000
Profit		14,000
Total Sales		1,54,000

COP = WF/FC to &A o

FC/WC + office ad admi = COP

- Fuel and electric (add [redacted] Factory Cost/Work Cost)
- Depreciation (add Factory Cost/Work Cost)
- Salary of accountants (add office ad admin)
- Advertisement → (add COS/COGS)

Flexible Budget

- The expenses budget for production of 1000 units are given below —

Particulars		Per unit Rs
Material cost	→	750
Labour Cost	→	200
Variable overhead	→	150
selling expenses (20% fixed)	→	100
Admin expenses	→	2,00,000

Assuming administrative expenses are fixed, prepare a flexible budget for 600 and 800 units.

100% = 1000

60% = 600

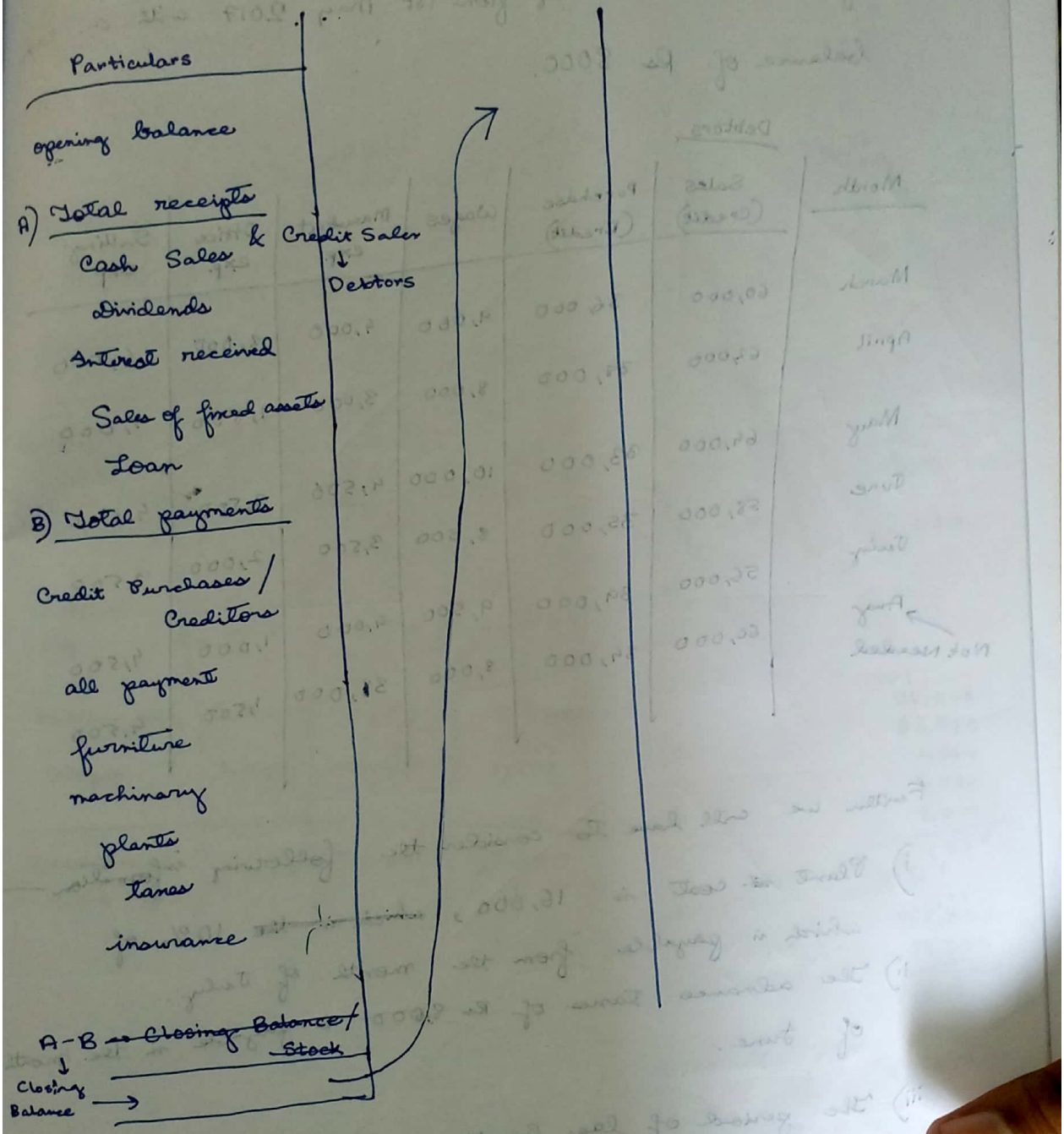
80% = 800

- Fixed cost in Total remain same but varies on per unit basis.
- Variable cost in Total changes but variable cost per unit remains the same

Flexible budget ending on 31st March 2017.

Name/ types of costs	60% cap / 600 units		80% cap / 800 units	
	per unit (Rs)	Total exp (Rs)	Per Unit (Rs)	Total exp (Rs)
variable costs				
Material Cost	750	4,50,000	750	6,00,000
labour cost	200	1,20,000	200	1,60,000
variable overheads	150	90,000	150	1,20,000
Total variable cost (A)				
semi-variable costs				
Fixed selling cost (20%)	33.33	20,000	25	20,000
variable selling exp (80%)	80	48,000	80	64,000
Total semi-vc (B)				
Fixed Cost				
Admin cost	333.33	2,00,000	250	2,00,000
Total vc (C)				

Cash Budget



From the following information prepare a cash budget for 3 months starting from 1st May, 2017 with a cash balance of Rs 8000.

Month	Sales (Credit)	Purchase (Credit)	Wages	Manufact. exp.	Office exp.	Selling exp
	Debtors					
March	60,000	34,000	9,000	4,000	2,000	4,000
April	62,000	38,000	8,000	3,000	1,500	5,000
May	64,000	33,000	10,000	4,500	2,500	4,500
June	58,000	35,000	8,500	3,500	2,000	3,500
July	56,000	39,000	9,500	4,000	1,000	4,500
Aug (Not Needed)	60,000	34,000	8,000	31,000	1,500	4,500

Further we will have to consider the following information —

i) Plant cost is 16,600, ~~which is to be~~ 10% of which is payable from the month of July.

ii) The advance taxes of Rs 8,000 is payable in the month of June.

iii) The period of lag for the customers is 1 month credit and for suppliers 2 months of credit.

iv) The lag in the manufacturing expenses is half a month.

v) The lag in ~~the~~ all other expenses is 1 month.

- Current month – (Current PO – last month PO) X Time Lag

4500 – 750 = 3750

$\frac{1}{2}$ month = $\frac{1}{2}$ (current – last)

current PO – $\frac{1}{2}$ month

	May	June	July
opening balance	8,000	15,750	12,750
Total Receipts			
Debtors	62,000	64,000	58,000
Total Payments			
Creditors	36,000	38,000	33,000
Plant	–	–	1,600 (10% of 16,000)
Advanced Taxes		8,000	
manuf. expenses	3,750	4,000	3750
Office exp.	1,500	2,500	2,000
Selling exp.	5,000	4,500	3,500
Wages	8,000	10,000	8,500
Total Receipts – Total Payments	15,750	12750	18,400

62,000

36,000
3,750
4,500
5000
9,000
54,250

567,600
54,250
15,750

38,000

46,000
50,000
54,500

67.

VOM

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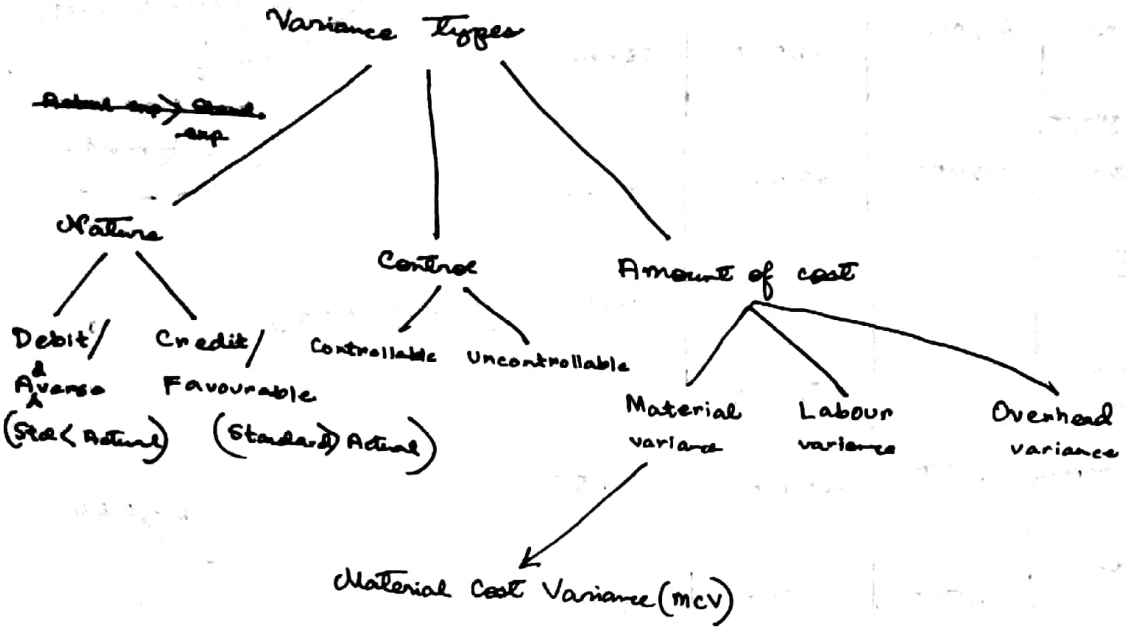
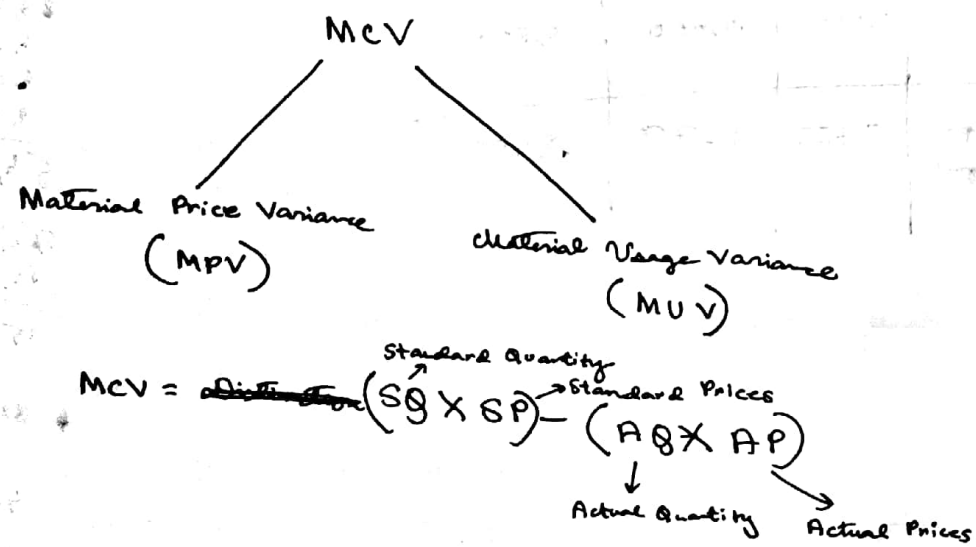
Variance Analysis

Difference between standards and Actuals.





$$MPV = (SP - AP) \times AQ$$

$$MUV = (SQ - AQ) \times SP$$

$$MPV + MUV$$

$$= (SP - AP) \times AQ + (SQ - AQ) \times SP$$

$$= (SQ \times SP) - (AQ \times AP) = MCV$$

Material Variance

MCV = MPV + MUV

Standard > Actual

↓

favourable variance / credit variance

Actual > Standard variance

↓

debit variance

	Std	Act	Act
mat (qty)	20 Kgs		30 Kgs
mat (price)			

Adverse

Std − Act = 20 − 30 = 10 (A) → Adverse

Std − Act = 50 − 40 = 10 (F) → Favourable

10 (A) + 10 (F) = 0

	Standard		Actual		establish
Unit	Price	Qty	Unit Price	qty	
A	1	1010	1.2	1080	MCV = MPV + MUV
B	1.5	410	1.8	380	↓
C	2	350	2	380	(SQ × SP) − (AQ × AP)

Sohan

$MCV_A = 1 \times 1010 - (1.2 \times 1080) = 286\ (A)$

$MCV_B = (1.5 \times 410) - (1.8 \times 380) = 69\ (A)$

$MCV_C = 60\ (A)$

∴ MCV = 415 (A)

MPV = (SP - AP) × AQ

$MPV_A = (1 - 1.2) \times 1080 = 216\ (A)$

$MPV_B = (1.5 - 1.9) \times 380 = 114\ (A)$

$MPV_C = (2 - 2) \times AQ = 0$

∴ MPV = 330

MUV = (SQ - AQ) × SP

∴ $MUV_A = (1010 - 1080) \times 1$

$= 70\ (A)$

∴ $MUV_B = (410 - 380) \times 1.5$

$= 45\ (F)$

∴ $MUV_C = (350 - 380) \times 2$

$= 60\ (A)$

∴ MUV = 70(A) + 45(F) + 60(A)

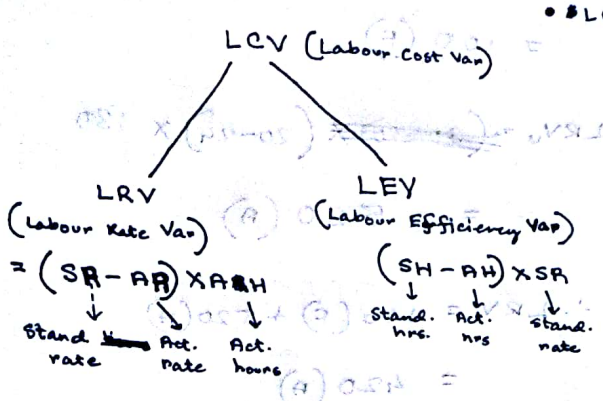
$= 85\ (A)$

∴ MPV + MUV

$= 380(A) + 85(A)$

$= 415\ (A) = MCV$

Labour Variance



• LCV = Standard Cost of Labour − Actual Cost of Labour

1. Suppose for a specific factory, the standard labour cost of producing 40 units of product is 30 hrs by skilled workers at a standard wage rate of Rs 60 per hr. However 90 hrs of the work are done by the unskilled workers at a standard wage rate of Rs 20 per hour. 40 units of products were actually produced for which skilled workers were paid Rs 55 per hr, for 20 hrs and the unskilled workers were paid Rs 24 per hour for ~~Rs 130~~ 130 hrs. Assuming that 9 hrs were lost find the values of LCV, LRV and LEV and show that whether they are equal.

* subtracting 9 hrs from the actual hrs.

	Standard		Actual	
	skill	unskill	skill	unskill
wage	60	20	55	24
	↓×	↓×	↓×	↓×
hour	30	90	20 (11)*	130 (121)*
	1800	1800	1100	3120
	+ 3600		+ 4220	

∴ LCV = (3600 − 4320) = ~~−720~~ 620 (A)

LRV

$\therefore LRV_S = (60-55) \times 20$

$= 100\,(F)$

$\therefore LRV_U = (20-24) \times 130$

$= 520\,(A)$

$\therefore LRV = 100\,(F) + 520\,(A)$

$= 420\,(A)$

$\therefore$ LEV

- Consider the adjusted hrs in case of actual

$LEV_S = (30-11) \times 60$

$= 1140\,(F)$

$LEV_U = (90-121) \times 20$

$= 620\,(A)$

$\therefore LEV = 1140\,(F) + 620\,(A)$

$= 520\,(F)$

- If there was no hour loss, then LCV = LRV + LFV Because of the 9 hrs loss, the equality doesn't hold anymore.