Chapter 11 - International Factor Movements & Multinational Enterprises.

- We have discussed flow of int'l goods
- We now discuss the flow of factors of prod^n in world economy.

Productive factors move from nat^n where they are abundant to nations where they are scarce when —

- Differences in returns. (such as wages etc.)
- as long as there are large enough to more than outweigh the cost of moving from one country to another (especially L).

eg:- A labour scarce nation (a K-rich) can import cheap L-intensive goods or labour skills (or both)

Int'l trade in G & S and flows of productive factors are substitutes of each other.

1) Role of int'l K flows (investment)
   - Acts as a substitute for trade in K-intensive good. ~~(MNCs & MN~~

2) MNE and int'l reallocation of K.

3) Analysis of int'l mobility of L.
   - Acts a substitute for trade L-intensive goods.

⇒ Multinational Enterprises (MNE) :- Diversified Operations.

→ Some of the identifiable features :-

* Operat^n in many host countries
* Often conduct R & D activities apart from manufacturing, mining, extraction & business service operation.
* Direction from a company, planning units, distant from host country.
  - Parent / home country.
* Cutting across national borders.

MNE : Diversified Operations :-

1) Vertical integration
   - A) Backward integration :
     - Ligeid on global value chains are used
     - Extract^n & processing of raw materials
   - B) Forward integration
     - Direct^n towards final consumer mkt.

2) Horizontal Integrat^n :-
   - Parent company set up subsidiary & produce identical pdt in host country.

3) Conglomerate Integration -
   - Diversify in non-related markets.

⟹ Supplying to Products to foreign buyers :-
whether to produce domestically or abroad.

US firm named AB firm
1) set up a plant in US
to sell product to another country or
⇒ US consumers

domestic : US consumers — foreign consumers :-

One of the least cost method —
1) set up plants in its own country meet needs of both domestic & foreign consumers
(Direct exporting)

2) set up plant in foreign (Canada) & sell it to Canadian consumers. (FDI)

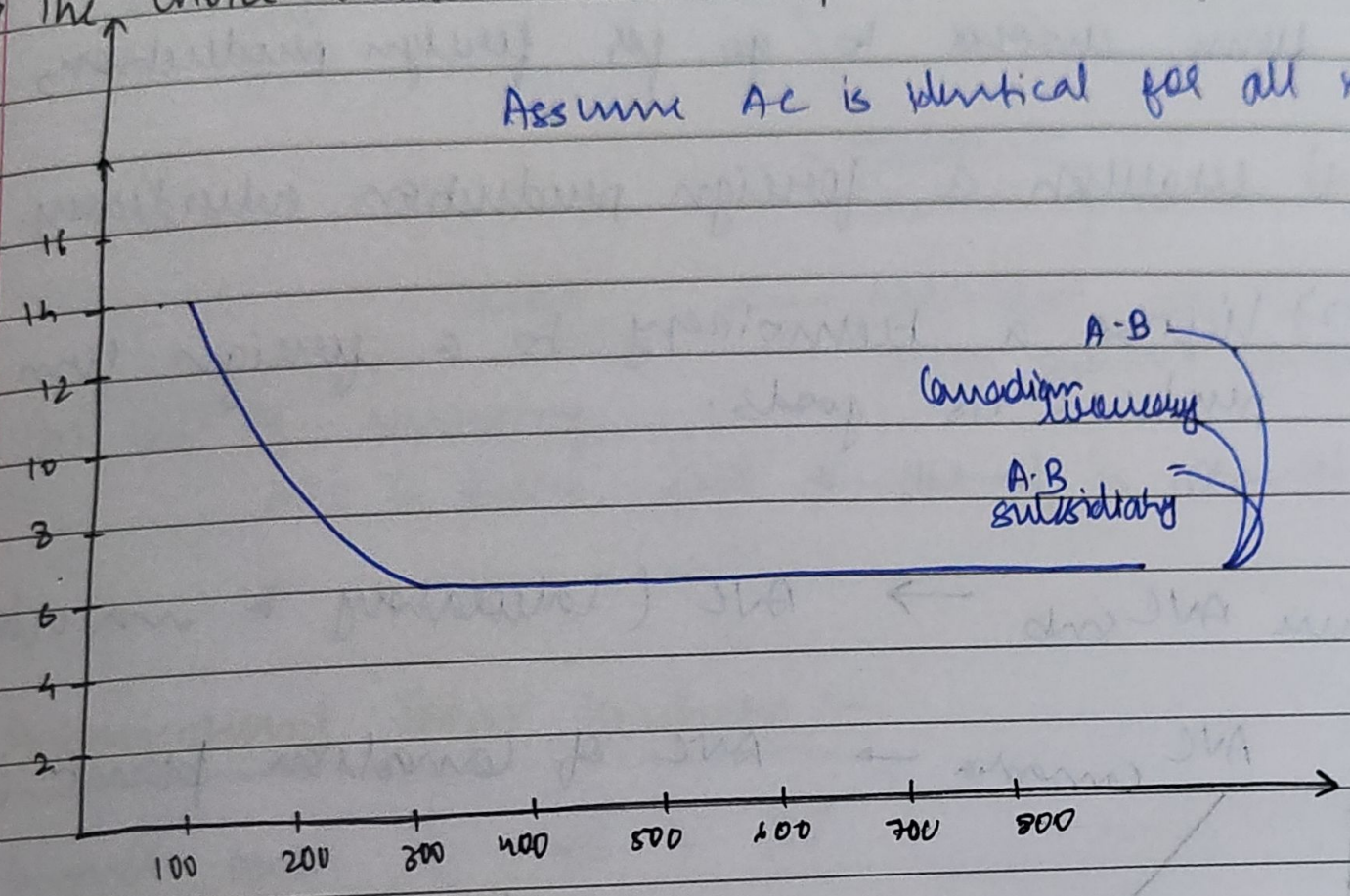
3) (Licensing) — license rights to a Canadian plant to produce & sell in Canada.

Method AB choices depends on factors —

- Economies of scale
- Transportation & distribution cost
- International trade barriers.

→ The Choice between Direct Exporting - FDI / Licensing

Assume AC is identical for all three cases



Beer

Suppose AB firm of US estimates
- US consumers 200Q (economies of scale) | AC tend to $8/unit
- Canadian consumers 100Q – Assess: No trade barriers, transportation cost is less

Given cost difference < transportation cost.
⇒ best option is to go for instance of FDI / license of product.

So if foreign demand is very less
↳ economies of scale & direct exporting.

If foreign demand is very significant.
↳ FDI & licensing.

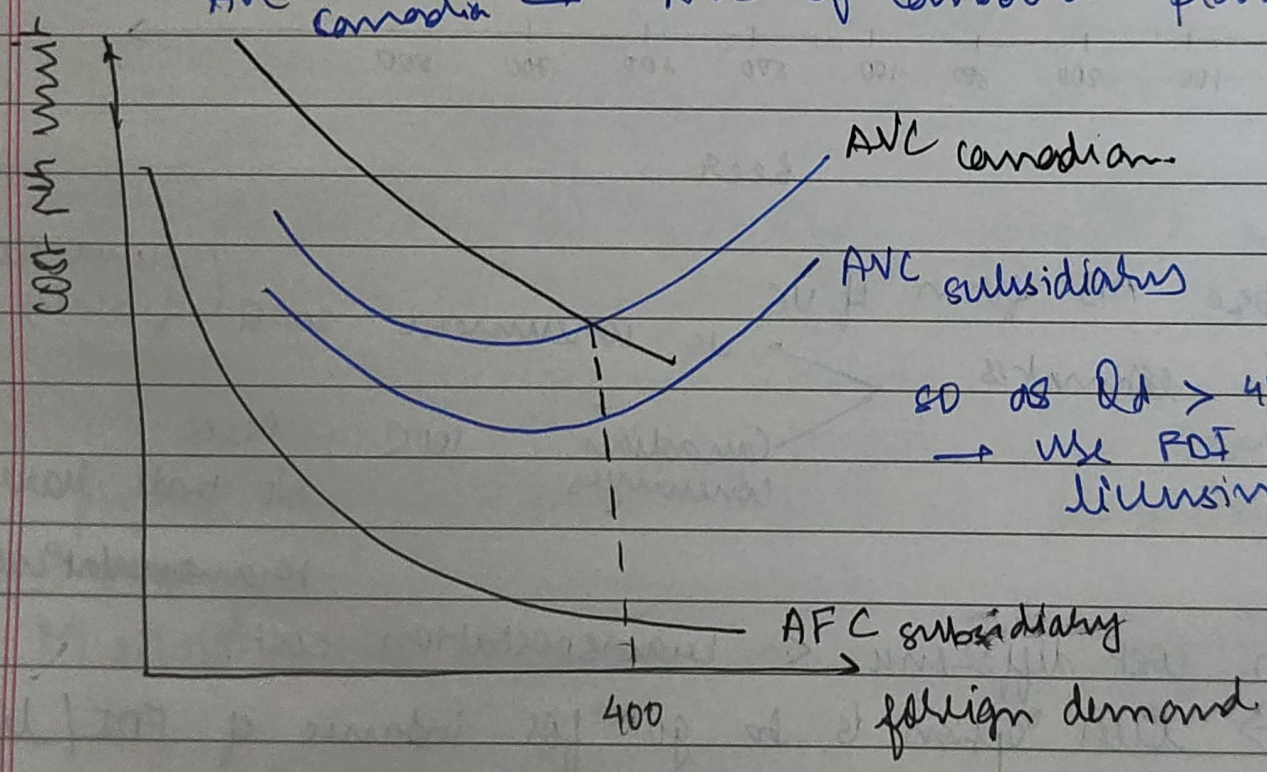
If firm chooses to go for foreign production,

1) establish a foreign production subsidiary.

2) license a technology to a foreign firm to produce its goods.

Curve AVC_{sub} → AVC (labour + materials)

$AVC_{canadian}$ → AVC of Canadian plant. (License



so as $Q_d > 400$
→ use FDI like licensing.

Canadian plant has higher AVC
↳ lack of capital goods
→ lack of economies of scale
→ license cost.

In case of subsidiary plant, you're using the expertise of same country for production
∴ is cheaper.

AST

ATC = AVC + AFC
Sub (FDI)

- Salaries, building bills, etc.

extra AFC. ← Additional cost to coordinate with parent company in US

In case of licensing,
AFC is more, but ~~in case of~~ its normal (salaries) one.

⇒ International Joint Venture :-

Another area of MNE is JV.

- A business organisation that is being established by two or more companies that combines skills and assets.

Many examples are JV b/w US & foreign companies.

Reason justifying creation of JV.
Costs too large to be absorbed by a single company
Risk sharing OR Market access

Disadvantages of A JV :-
- Divided control; problems of 2 masters
- Cultural failures depends on companies working together, managing differences

Welfare effects –

Welfare gains :

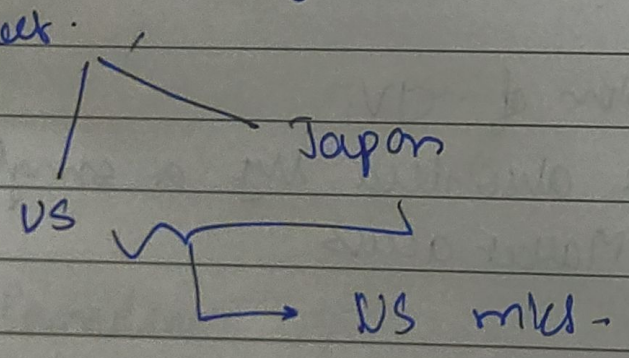
- Provides ability to enter new markets that neither parent companies could have entered individually.

  Yields cost reduction unavailable if parent firm separately.

Welfare loss :-

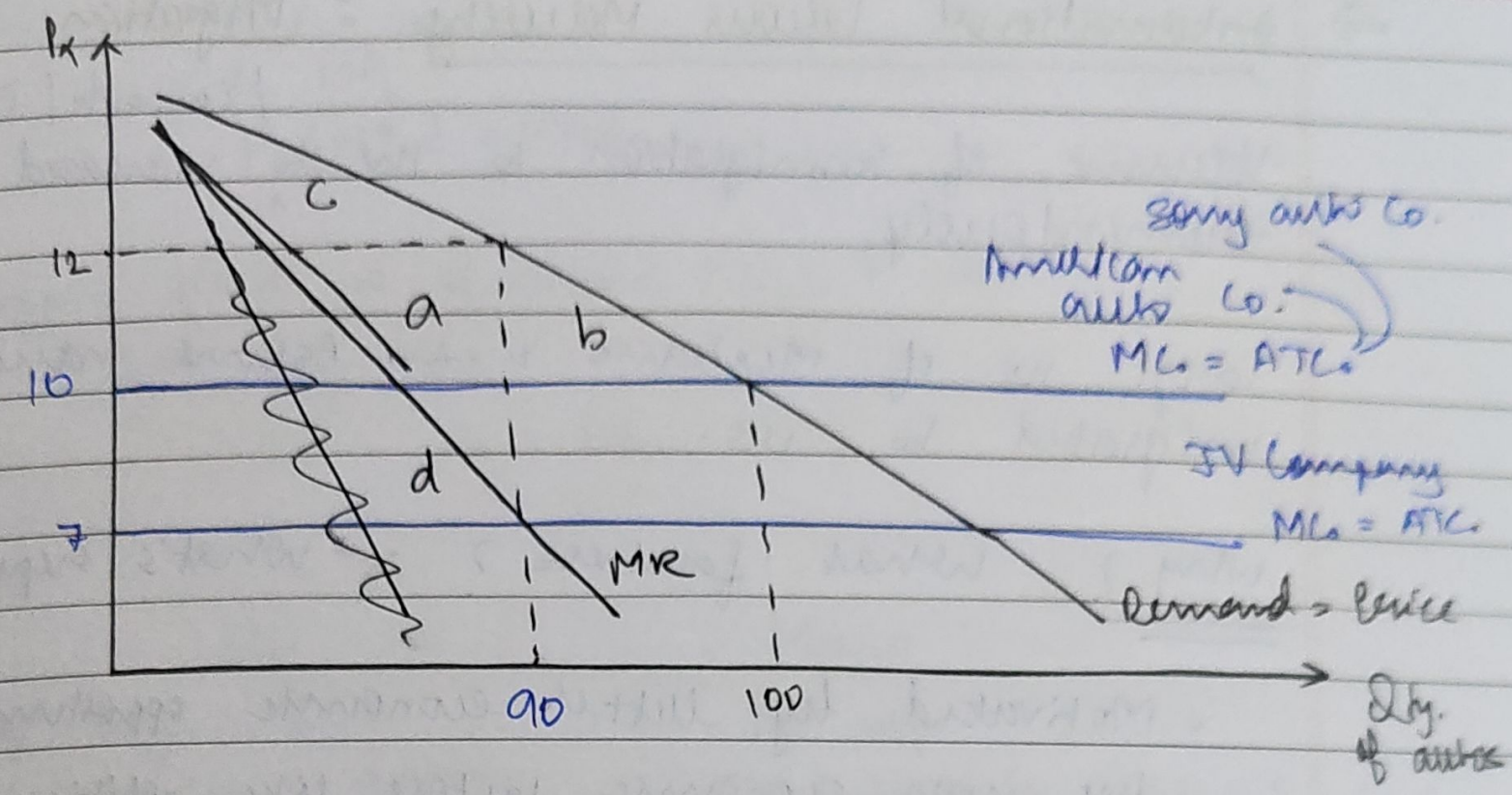
May give rise to increase market power; greater ability to influence mkt D/S & price.

Two competing companies sell autos in domestic market.



The two competitors form JV that operates as a single seller (a monopoly) in the domestic mkt (price competitors)

JV → monopoly.



Suppose 2 firms have constant LRAC, which indicates $\Rightarrow$ $ATC = MC = \$10000$

The firms operate as price competitors.

$\therefore$ for eq^m – $P = MC$. ($D = SS$)

$\therefore P = \$10000$

$\therefore Q = 100$ units

$CS = a + b + c$.

$PS = 0$

JV → prod^n efficiency

→ red in LR costs.

$MC = ATC = \$7000$

Act as a monopoly, JV maximizes π

$MR = MC$.

$P = \$12000$

$Q = 90$

$CS = c$ red.

$PS = a + d$ → due to prod^n efficiency

CS to PS

$DWL = b$

Net welfare gain / loss → compared d and b.

$d > b \Rightarrow$ gain

⇒ **International Labour Mobility : Migration**

Volume of immigration to the US / Canada / Europe increased tremendously

Large no. of Mexicans & ~~Are~~ Asians have migrated to US.

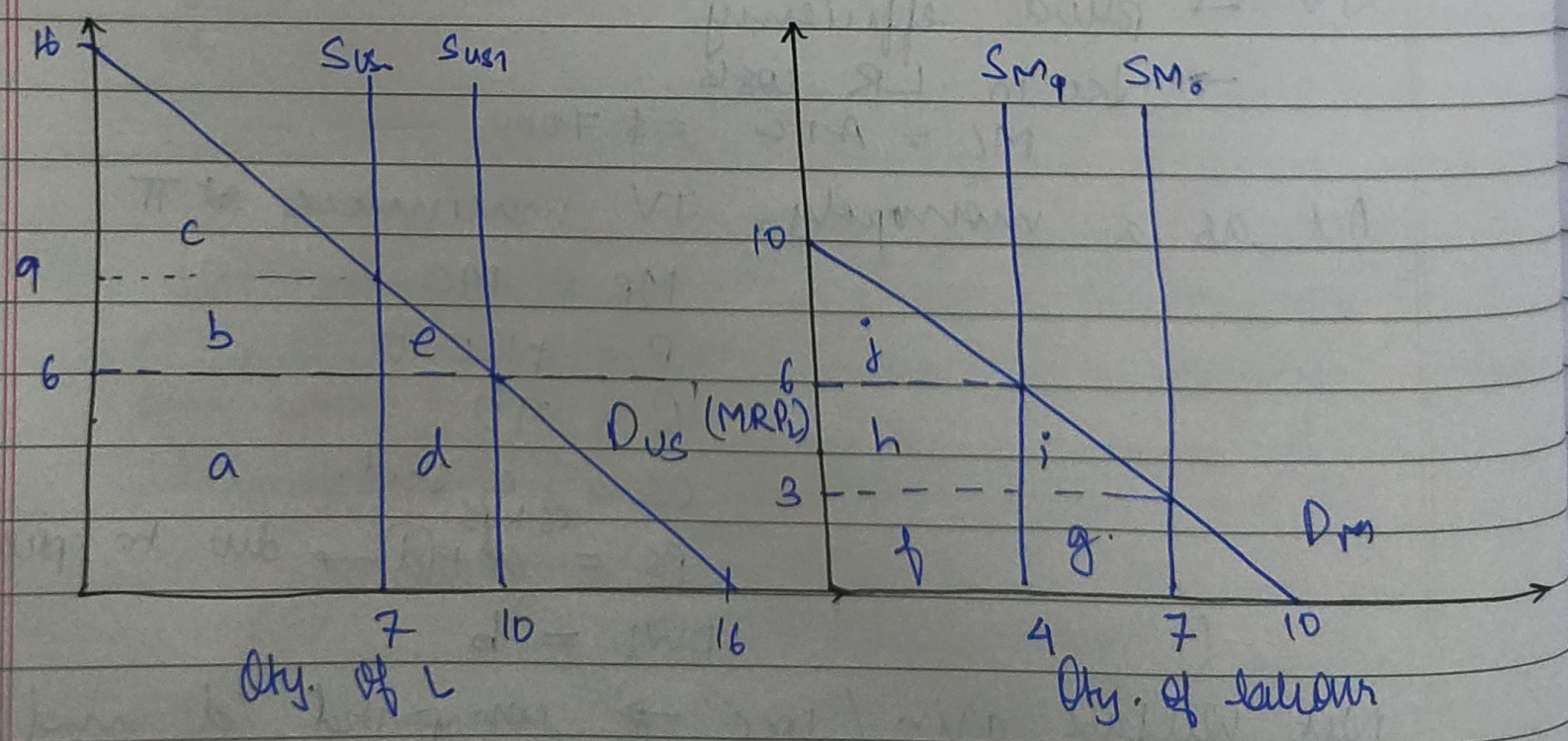
Why ? What factors ? & What's repercussion.

- Motivated by better economic opportunities & by non economic factors like politics, war & religion.

Although, a lot of int'l labour migrations taking place can enhance world economy's efficiency, they're restricted by govt. controls.
sometimes.

US limits immigration by enacting laws.

→ Effect of labour migration :-



$Dd_L \rightarrow MRP_L$ curve
$= P_x . MP_L$
$= P_L (W^*) = MRP_L$.

Suppose fixed no. of labour = L = 7 workers
Eqm wage rate
$S_s = Dd_L$

US	Mexico
Eqm wage = \$9	Eqm wage = \$3
Total income/op = a+b+c = ~~60~~ \$87.5	Total income/op = j+h+f+i+g = 45.50
Total labour income = a+b = \$63	Total labour income = f+g = \$21
Remaining area = share of income devoted to capitalists (owners of K) = c = 24.5	Remaining capitalist share = j+h+i = \$24.5

World income prior to labour migration = \$133.

Mexican labour migrate to US.
(costless migration is assumed) → its gonna continue until the wage difference is ~~continued~~ zero. b/w the two nations.

3 labourers migrate from Mexico to US.

After migration.

US	Mexico
wage = \$6 (used from \$9)	Eqm wage = \$6 (used from \$3)
Total o/p used by = d+c = \$22.50	Total o/p has used by = i+g = \$13.50

US

Net gain in world o/p = \$9

Q1. World output after migration = \$133+9 = \$142

US | Mexico

Mexican immigrants = d = \$18

e = extra income to owners of capital K.

Q1. What is the impact on world income?

Q2. What is the impact on distribution of income b/w factors of production?

US

labour share of US labourers = a = \$42

Capitalists share = c + b + e = \$50

b → transferred from the labour share to capitalists share.

⇓

∴ Capitalists are said to be gaining the most from migration.

∴ Native labourers are at max. loss.

Mexican —

labour share given to = h + f = \$24

Capitalists share = j = \$8

h → transfer of income from capitalists share to labourers in mexico.

1) Redistribution of income from L → K in US

2) Redistribution of from K → L in Mexico.

Balance of Payments Accounting :-

Imp. Concepts :

1) Goods A/c
2) services A/c
3) Unilateral ~~Service~~ Transfers Payment
4) Short term Capital A/c
5) Long term Capital A/c
6) Int'l liquidity A/c → Mechanism to balance BoP.
↳ Official settlement A/c

1, 2, 3 } Current A/c, UTP

4, 5 } Capital A/c.

In accounting sense, BOP must always balance.
No double entry.

1) What is the meaning of "deficit" & "surplus" in BoP?

Debit entry in Int'l liquidity A/c. = surplus

Credit entry in Int'l liquidity A/c = deficit

A) If autonomous credit > autonomous debit : Surplus

B) If autonomous credit < autonomous : Deficit

2) If the BoP always balances, what is the meaning of "disequilibrium" in BoP?

- If autonomous credit = autonomous debit
  ↳ Equilibrium
    ↳ zero entry in int'l liquidity A/c.

Autonomous N/B Accomodating

We have credit & debit entry in all cases.

All transⁿ in 1st 5 a/c except Int'l liquidity a/c, is a part of autonomous txn

if autonomous credit > autonomous debit.
of all 5 taken into a/c together.
↳ so there is a difference b/w Current & Capital A/c. balance.
So to accomodate / equalize credits & debits we put deficit or credit in int'l liq. a/c to equalize debit & credit in total for all 6 a/c.
↳ accomodating txnⁿ.

Q3. Why do countries talk about BoP settlement

Balance → Book keeping concept
Equilibrium → meaningful.

∴ There can be disequilibrium with presence of balance in the BoP a/c.

Q. Whether deficit in BoP always bad & surplus is always good?
Answer based on location and duration

→ If current A/c deficit existing → deficit is bad.
↳ exports (X) < imports (M)

→ If Capital A/c deficit → existing

↓

If its cause
of long-term K a/c

If natⁿ is borrowing

↓

its good if the borrowed
money is invested properly
and earns good returns
in future.

Duration :- till what time is deficit / surplus is
persistent ?

If persistent surplus in all 5 a/c →
what are its effects :-
Credit > Debit (Surplus)
persistent

too much accumulation of foreign reserves
↳ inflationary nature
↳ fall in exchange rates. } bad for nation.

⇒ BOP settlement & Adjustment –

When accounting balance is produced w. the
help of accomodating trxⁿ there is settlement.

When accounting balance is produced w/o
help of accomodating trxⁿ there is → Adjustment

Open Economy Macroeconomics

1) How nation's current A/c is affected by price changes under fixed & flexible exchange rate system —

Elasticity Approach to BoP Adjustment.

Chap 16 — Price Adjustment Mechanism with Flexible & Fixed Exchange rate Syst

2) How nation's current a/c is affected by income changes in nation & abroad —

- Income approach to BoP Adjustment.

Chap 17: Income Adjustment Mechanism & BoP Adjustment.

Chapter 16 :-

Much of it with deal directly/indirectly with exchange rate

We deal with → Nominal exchange rate :-

- Real exchange rate

The method of correcting a deficit in nation's current A/c and/or overall BoP by a depreciation/devaluation of nation's currency.

Depreciation — A flexible exchange rate system

→ you're officially depreciating.

Devaluation – A deliberate increase (change) in exchange rate by nation's monetary authority.

Price adjustment mechanism relies on depreciation & devaluation of the currency to adjust the current A/c of BoP.

3 times INR was been devalued.

1) 1949 → 4.76 rs/$

2) 1966 (Indo-China War) → 7.50

3) 1991 → 22.74

Right now, $1 = Rs83.09

max. $1 = 8

Much of this section is directly/indirectly concerned w exchange rate.

→ Nominal Exchange Rate :-

Relative price of two currencies

- Often expressed as number of units of local currency reqd. to buy a unit of foreign currency

- We will take USD as home, EMU (€) as foreign country.

- Nominal/currency exchange rate (R or e) is

$$R \text{ or } e = \frac{\text{home currency}}{\text{foreign currency}}$$

$$R \text{ or } e = \frac{\$}{}$$

If e increases the value of the $ falls (↓)

If e decreases the value of $ ↑ses

It is important when looking at e data to be aware of which currency is the home country.

⇒ BOP Adjustments with Exchange rate changes

Assumptions:-

Only 2 economies in the world: US & EMU

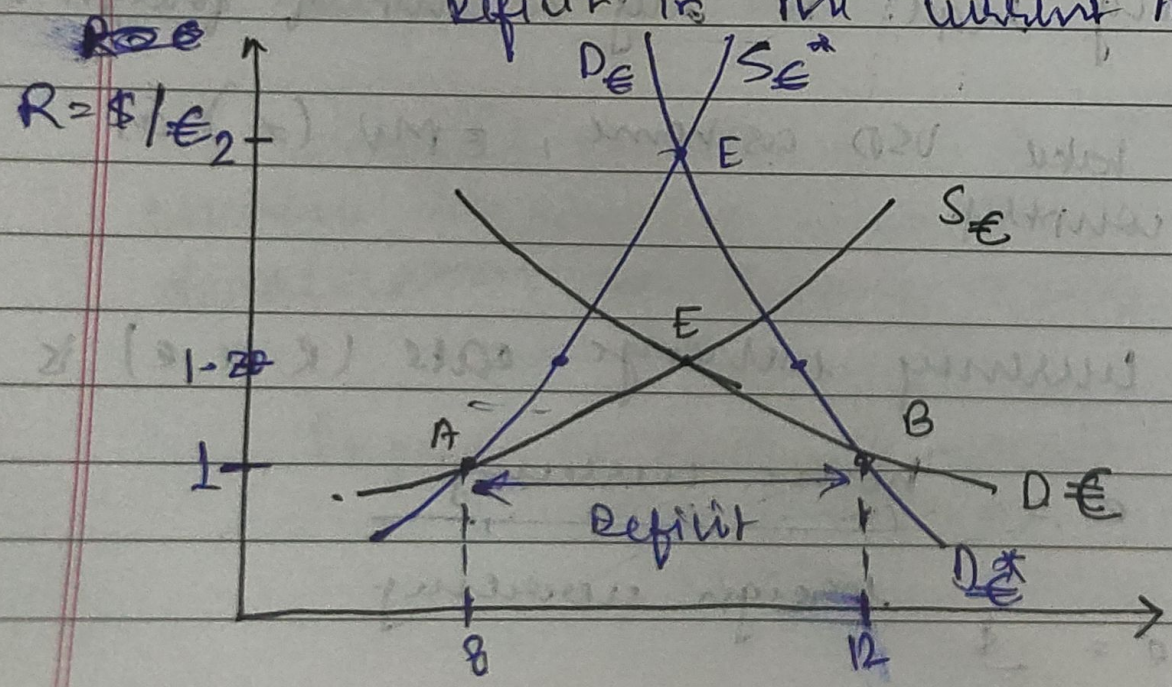
There are no international capital flows

- US dd & ss curve for euros reflect only trade in G & S.

→ It implies, we are only dealing with current A/c in BOP.

⇓

Deficit in the current A/c.



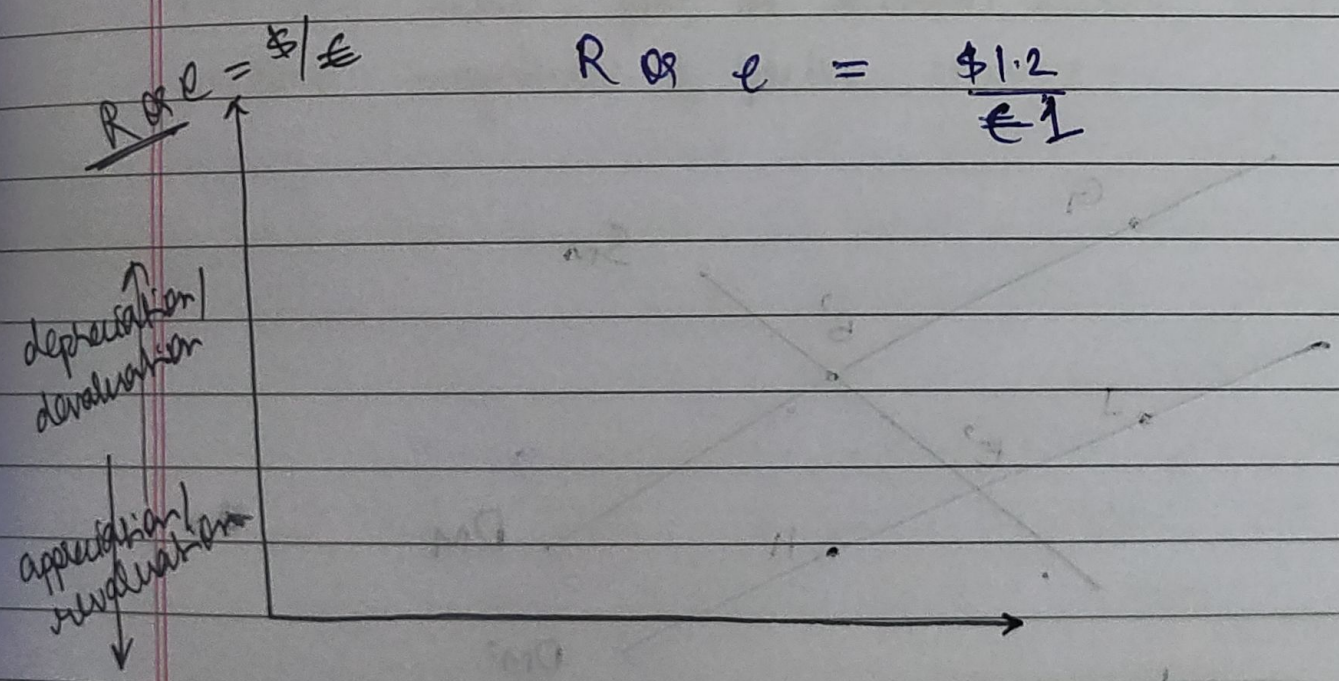
Initial $\begin{cases} D_€ \rightarrow \text{Dd curve for foreign exchange } (€) \\ S_€ \rightarrow \text{Ss " " " " } (€) \end{cases}$

At exchange rate of R or e = $\frac{\$1}{€1}$

the quantity of € demanded by US is 12 billion €
Qty. of € supplied is 8 billions.

Deficit of 4 billion €

Initially with $D_€$ & $S_€$ curves,
20% depreciation of dollar would
lead to the eqm point E.



Let the new set of Dd & Ss. → $D_€^*$ & $S_€^*$.
→ 100% depreciation of dollar needed to eleminate
the deficit that is existing.

New eqm point is at E^*

→ 20% depreciation of dollar, is done
↳ deficit exist = CF

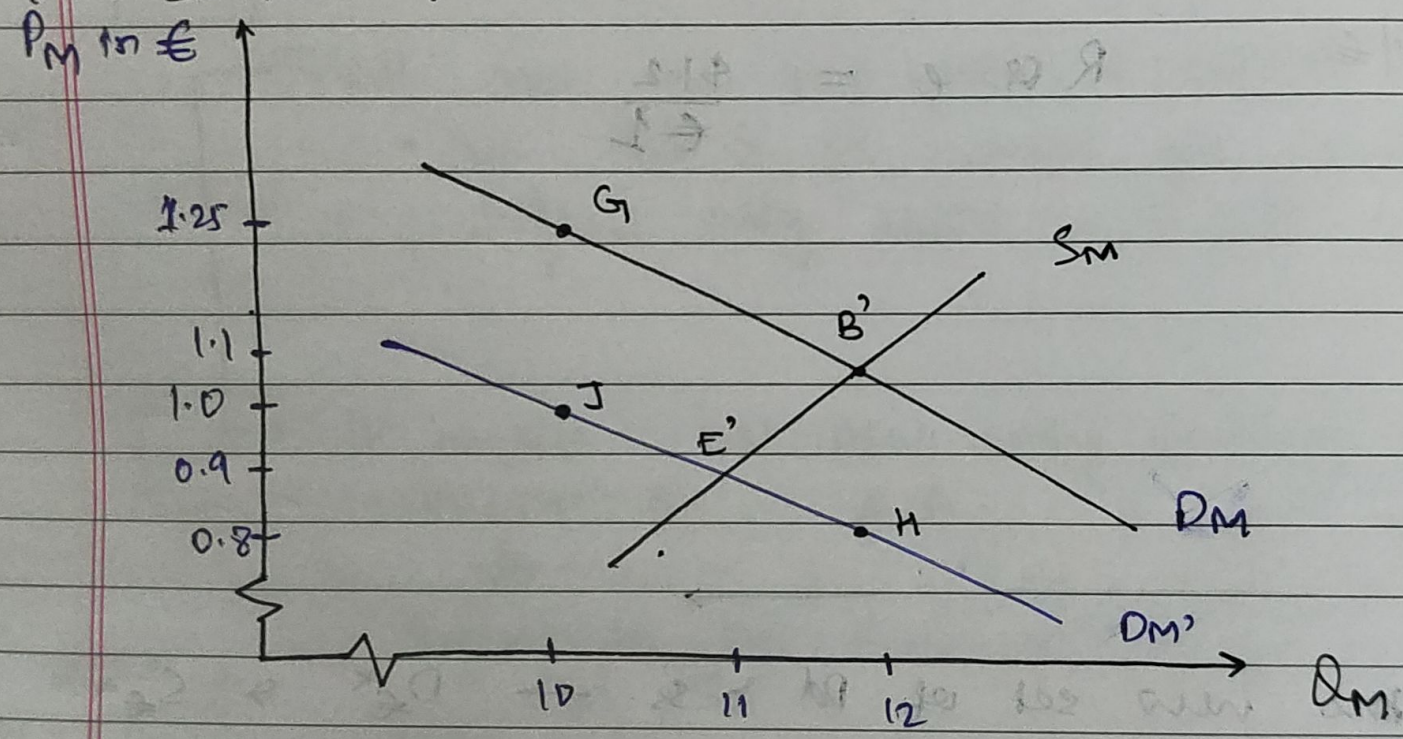
Q1. How much of depreciation/ devaluation is needed?
Elasticity of dd & ss of foreign exchange.

Q2 How a nation's dd & ss schedules for foreign exchange determined?

- Derivation of Dd curve for foreign exchange (i.e., Ds for US's import mkt.

Derivation of Ss curve for foreign exchange (Se curve)
- US's export market.

→ Derivation :-



D_M → US demand for imports from EMU in terms of € at $R = \frac{\$}{€}$.

S_M → ~~supply~~ EMU supply of imports to US in terms of € at $R = \frac{\$}{€}$

Initially, the eq^m point : is B' at $R = \frac{\$1}{€1}$

imports = 12 billion units of imports.

(implies) ⟹ you are also demanding 12 billion units of euros

If \$ depreciates by 20% ⟹ a new demand curve D' is expected, with 20% appreciation.

→ New eq^m E' → 0.9€ > 11 billion demanded.

To continue to dd same 12 billion, how much US is expects to

Devaluation of dollar ↑ price of

TOT can rise, fall, or remain same, depending on relative magnitude of price changes.

⇒ Stability of Foreign Exchange :-

A stable forex mkt. when a disturbance from the eqm exchange rate gives rise to automatic forces that push the exchange rate back toward the equm.

The forex mkt. is stable when

Stable
1) Ss curve of forex is +vely sloped.

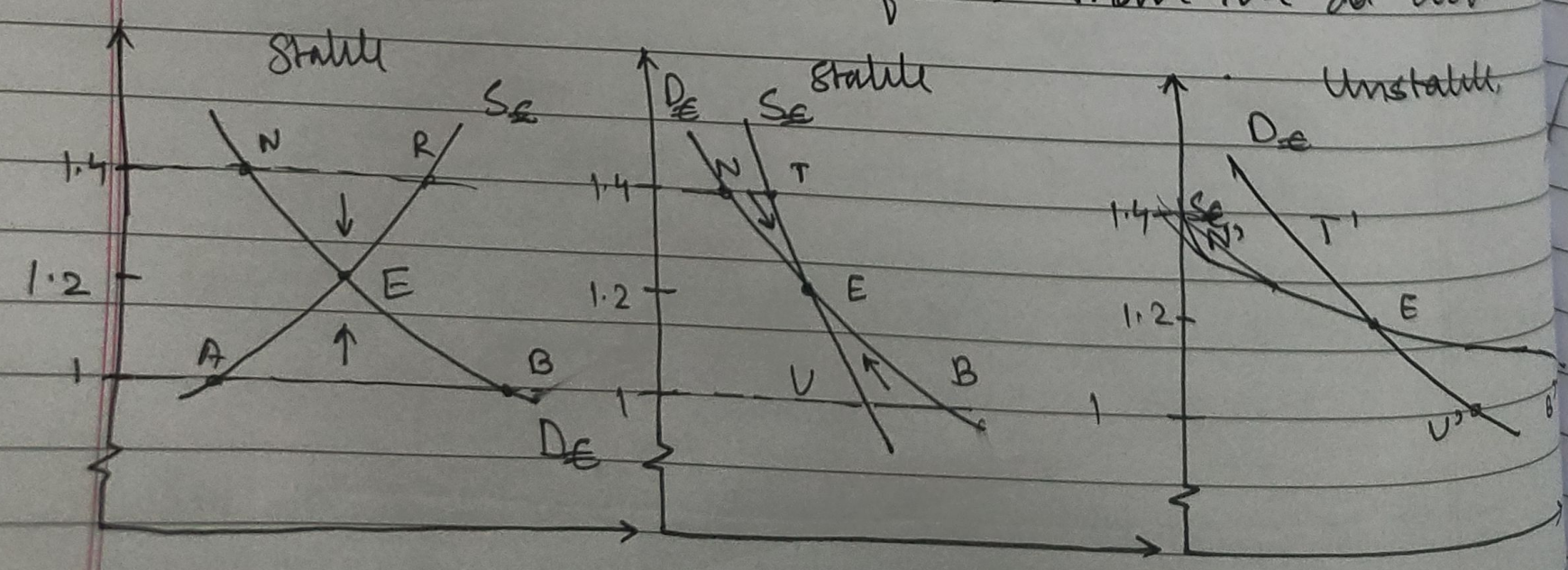
OR

2) even if the Ss curve is negatively sloped, is less elastic (steeper) than the demand of foreign exchange.

* An unstable foreign ex. mkt. when a disturbance from the equm exchange rates pushes the exchange rate further away from equm.

The foreign ex. mkt. is unstable.

Unstable → → If the supply curve is -vely sloped ~~but steeper~~ and more elastic (flatter) than the dd curve



How to tackle deficit in current A/c ?

→ devaluation / depreciation.

At $R = \frac{\$1}{€1}$

R = 1.00

I

(deficit Dd € > Ss €)

II

(deficit still there but less than that of I)

III

persistent

Surplus → inflationary in nature.

~~supply~~.

surplus appreciation of home currency

Stability of Foreign Ex. Mkt — Marshall-Lerner Condn.

In the real world, the slope & the position of the dd & ss curves are not known.

Under this situation, Marshall & Lerner gave a solⁿ.

→ <u>Marshall-Lerner condition:</u> Sum of the price elasticities of demand for imports & ~~exports~~ demand for exports (in absolute terms) indicates degree of forex mkt. stability.

- > 1 = stable forex. mkt.
  → revaluatⁿ (depreciatⁿ is reqd. to correct BoP defictⁿ

- < 1 ⇒ unstable forex mkt.
  → Revaluation/ appreciation is reqd. to correct BoP deficit

- Equal 1 ⇒ change in exchange rate leaves BoP unchanged.

Chapt 17 : Income Adjustment & BOP Mechanism

Objective:
→ eqm level income is determined in open economy.
→ meaning of foreign repercussion
→ how the absorption approach works.

The income adjustment mechanism relies on induced changes in the national income of the deficit / surplus nations to bring adjustment in the BOP

The income adjustment mechanism → Keynesian &
↳ while price adjustment mechanism → classical.

- Assumptions:
  - Deficit / Surplus arises in current A/c.
  - All prices, wages & int. rates remain const.
  - Natn operates under fixed exchange rate system.
  - Natns operate @ less than full employment

⇒ Income determination in closed economy –

In a closed economy (no int.l trade) w/o a govt. sector, the eqm level of national income or production (Y) is determined by planned flow of consumption (C) + planned investment (I):

$$Y = C(Y) + I$$

I : → autonomous / exogenous variable / independent

Why? → depends on int. rate r.

C : increase w ↑ in income, at a less rate than rise of Y. ∴ MPC < 1

- Desired saving is function of income.

MPS < 1. as MPC + MPS = 1

⇒ Income determination in a closed Economy

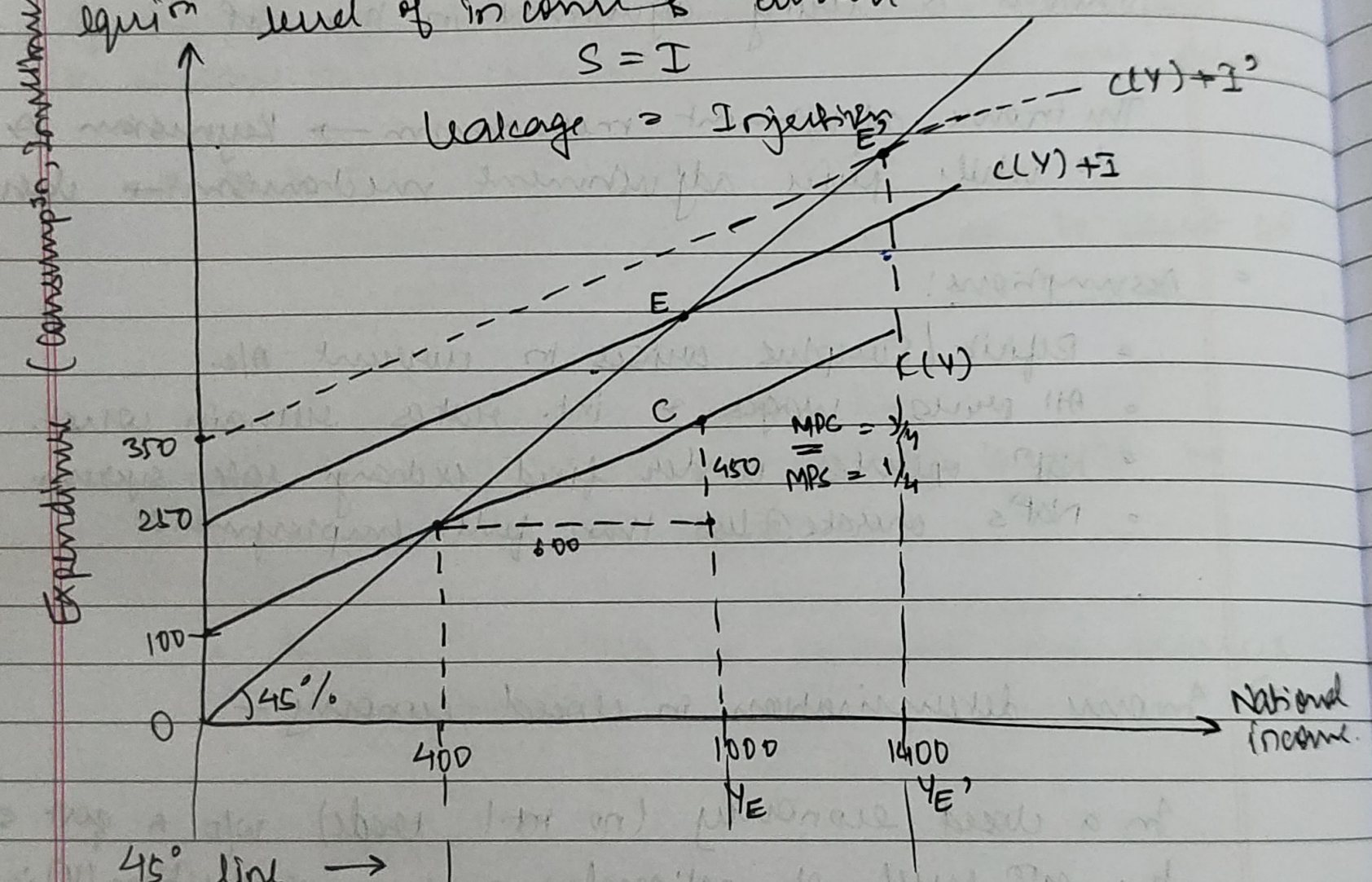
Investment (I) is an injection into the system as it adds to the total expenditures & stimulates production.

Savings (S) is an leakage out of the system as it represents income generated but not spent.

equim level of income is where

S = I

Leakage = Injections



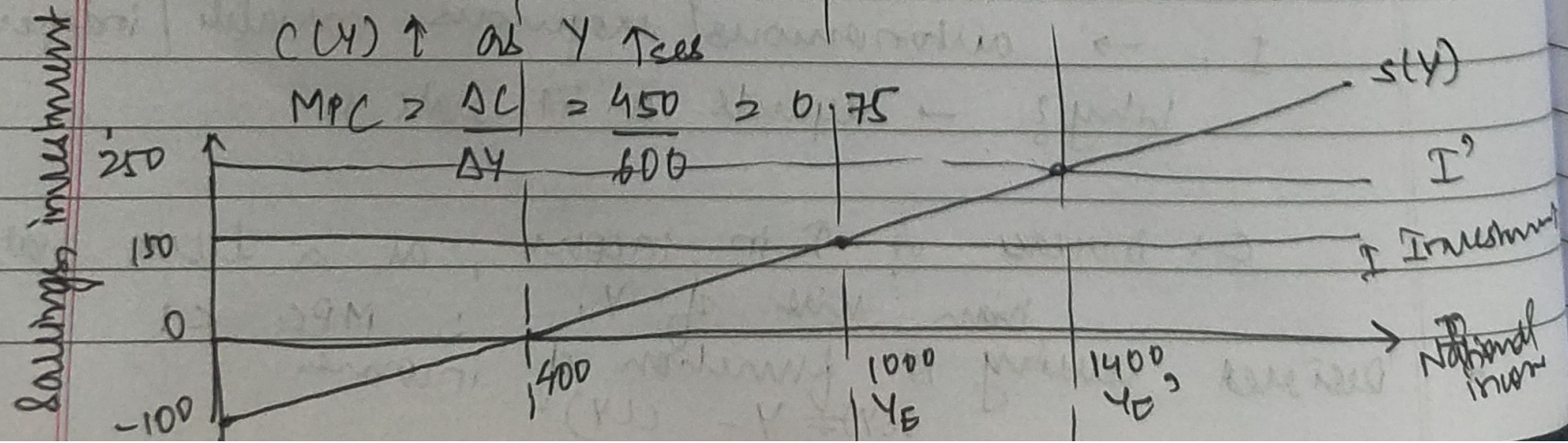
45° line →

c(Y) = 100 when Y = 0

↳ from borrowing / past accumulated saving

c(Y) ↑ as Y ↑ces

$MPC = \frac{\Delta C}{\Delta Y} = \frac{450}{600} = 0.75$



$I = 150$

At $Y_E = 1000$, $Y = C + I$
(Actual) = (Desired expenditure)

$\Rightarrow Y_E > 1000$

Actual o/p produced > Desired level of exp.
↳ ∴ Accumulation of inventory
↳ price of commodity ↓.
↳ producers ↓ p Qty ss.
↳ move back to eqm.

$\Rightarrow Y_E < 1000$

Actual < Desired exp.
∴ Price of comm. ↑
↳ ss supply more.
↳ move towards eqm.

Autonomous Savings —

$$\boxed{S(Y) = -100 + 0.25Y}$$

$S = I$ (Eqm level of income/output)
$= 150$

⇒ Used economy multiplier :—

$$(k) = \frac{1}{MPS} = \frac{1}{1/4} = 4$$

If investment ↑sed from 100 to ~~100~~ 250 (by 100) :—

~~$\Delta I = k\Delta Y$~~

$$\Delta Y = k\Delta I$$

$$\boxed{\Delta Y = 400}$$

Induced change in savings.

$$\boxed{\Delta S = MPS \times \Delta Y}$$

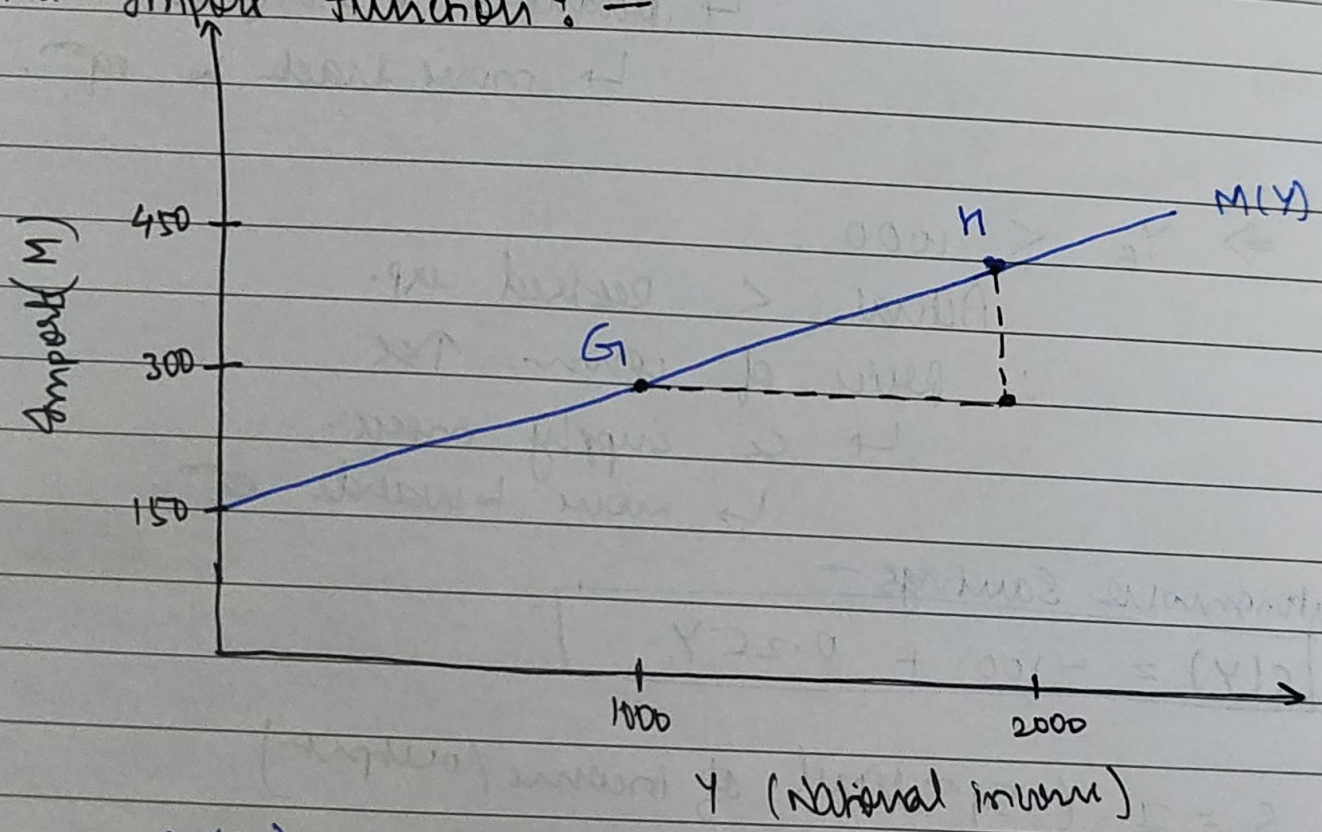
At new eqm level of income, $\Delta I = \Delta S$

Autonomous savings → savings function → normal savings

Induced savings $= \Delta S = MPS\,(\Delta Y)$
(induced change in savings)

So $Y_E = 1000$ $(S = I)$

⇒ The Import Function :-



M(Y) → level of national income.

M = 150, Y = 0, by virtue of past accumulated reserves of external borrowing

When Y ↑, M ↑.

Slope of Import function = Marginal Propensity to Import.

$$MPM = \frac{\Delta M}{\Delta Y} = \frac{150}{1000} = 0.15$$

$$M(Y) = 150 + 0.15Y$$

$$APM = \frac{M}{Y}$$ APM ↓ with ↑se in Y.

$APM_G = 0.3$

$APM_J = 0.225$

Income elasticity of imports :-

$$\eta_x = \frac{\% \Delta M}{\% \Delta Y} = 0.5$$

higher value of, higher is the dependency on imports of the nation.

⇒ Determination of equi^m National Income in small open economy

In an small open economy like saving, imports are called leakages.

↳ as money country's system are given to another country.

Exports are injections.

In small economy, exports are also taken to be exogenous / autonomous of level of income.

- Export function is horizontal to the income axis.

  Why?

  Because it depends on the income of your trading partner and not your own country's income.

While imports are dependent on your own 'Y'.

The small economy, equim condition relating to Y with injections & leakages.

→ Injections = Leakages

→ $X + I = S + M$

= ~~Investment + Imp~~

This condit^n of equim does not imply that the BOT is in ~~eq~~ equilibrium.

Only when $X = M$ & $X + I = S + M$ only then BOT is in equim

→ By rearranging this,

$$\boxed{X - M = S - I}$$

imply that A surplus in the nation's trade balance $(X - M)$ must be accompanied by an equal excess of domestic savings over domestic investment at the equim level of National equim.

An deficit in the BOT is accompanied by excess of domestic investment over domestic saving.

* BOT disequilibrium takes of both surplus & deficit
$(X > M)$ $(X < M)$

So all the excess savings ← $(S > I)$
is being saved & not invested.

Again rearranging, $I + (X - M) = S$

If $(X - M)$ is positive, it refers to net foreign investment

so, domestic investment + net foreign investment = amount of domestic saving

If $(X-M)$ is $-ve$, the domestic inv. exceeds saving by amount of foreign disinvestment.

→ Income determination in Small Open economy

The equilibrium condition relating to injections & leakages in the income stream is:

$$I + X = S + M$$

or

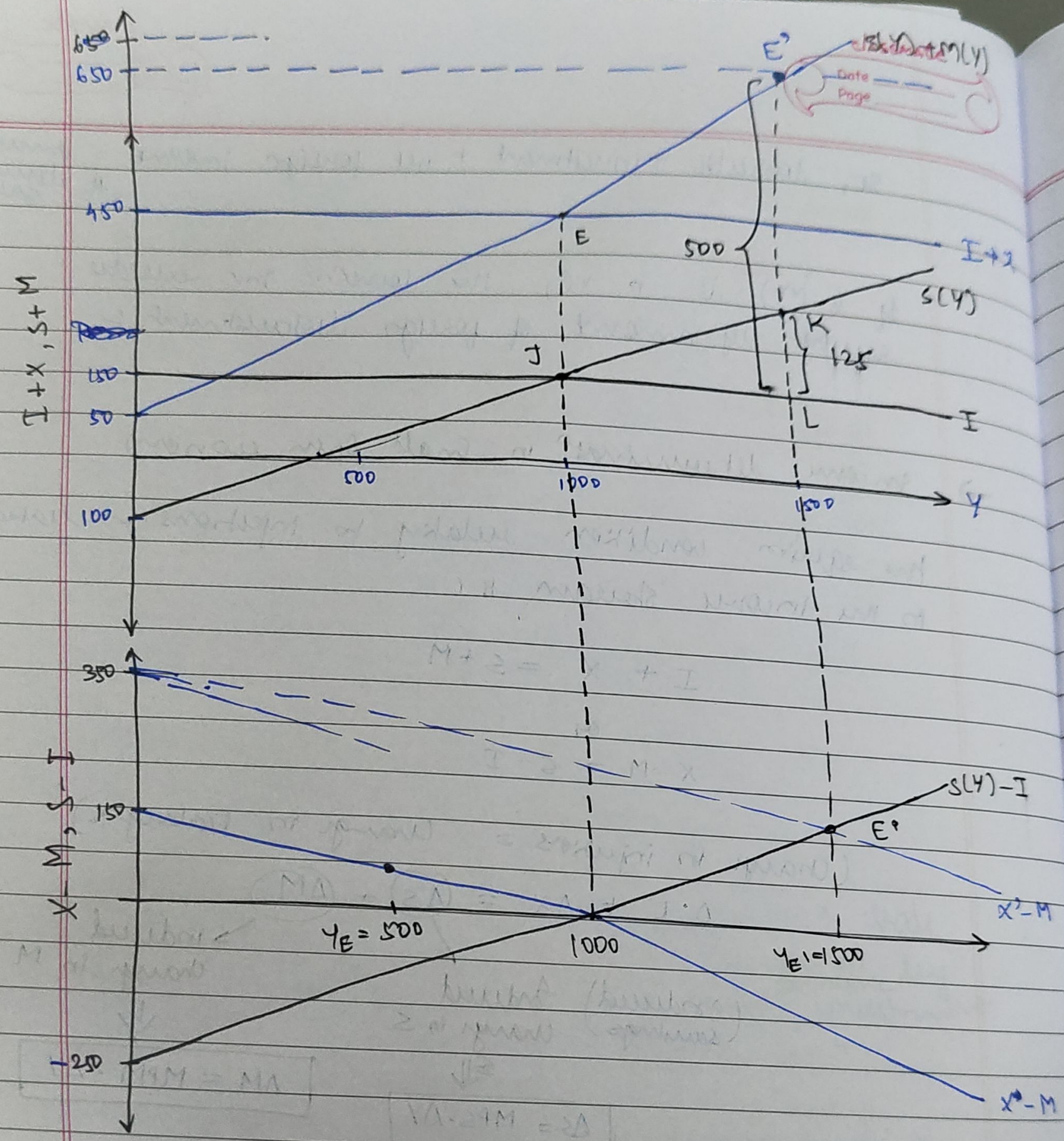
$$X - M = S - I$$

(Change in injections = Change in leakages)

$$\Delta I + \Delta X = \Delta S + \Delta M$$

ΔS → (induced savings) Induced change in S ⇓ $\boxed{\Delta S = MPS \cdot \Delta Y}$

ΔM → induced change in M ⇓ $\boxed{\Delta M = MPM \cdot \Delta Y}$



TOP

Exports

from

S(Y) +

~~S(Y)~~

C(Y) = 100 +

↳ from

M(Y) = 150

S(Y) + M(

At Y_E =

At Y_E

X-

S-

If m

→ Δ injecti

$\left(\frac{1}{MPS + MPM}\right.$

Top Panel

Exports (exogenous) = 300

Investment = 150

$I + X = 450$

$S(Y) + M(Y)$ = summing lines 2 fn.

~~S(Y) = 100~~ At $Y = 0$, $S = -100$

$M = 150$

$C(Y) = 100 + 0.75Y$

↳ from prev. graph.

$M(Y) = 150 + 0.15Y$

$S(Y) + M(Y) = 50 + 0.4Y$

At $Y_E = 1000$,

$S + M = 450$ (Pt. E)

Eqm level of Y

$I + X = S + M$ (450 level of Y (1000))

(injections = leakages).

At Y_e, = 1000,

$S = I$, $\boxed{X = M \text{ (Trade Balance)}}$

$X - M$ fn → it is decreasing (~~as X → const.~~ M → ↑ing ⇒ X-M ↓)

$S - I$ fn → it is increasing (savings ↑ w level of Y, Investment = const. ⇒ S-I ↑ing)

If there is any change on injections / leakages —

→ Δ injections : ΔI & ΔX.

→ Change in Y.

→ ΔS & ΔM

$$\Delta I + \Delta X = \Delta S + \Delta M$$

$$= MPS \cdot (\Delta Y) + MPM(\Delta Y)$$

$$\Delta Y = \left\{ \frac{1}{(MPS + MPM)} \right\} (\Delta I + \Delta X)$$

$\left(\frac{1}{MPS + MPM}\right)$ → Foreign Trade Multiplier $= \frac{1}{0.25 + 0.15} = 2.5$

Always TRUE :- Foreign trade Multiplier < Closed Economy multiplier in pure open economy

If X ↑sed by 200,

New X = 500

~~ΔY =~~

⇒ Impact/Change in Trade Balance?

$\Delta Y = 2.5(\Delta I + \Delta X)$

$\Delta Y = 500$

$Y_{e'} = 1000 + 500 = 1500$

⇒ Find ΔS & ΔM, & ~~fin~~ put it in $\Delta I + \Delta X = \Delta S + \Delta M$

$\Delta S = MPS \cdot \Delta Y = 0.25 \times 500 = 125$

$\Delta M = MPM \cdot \Delta Y = 0.15 \times 500 = 75$

$\Delta I + \Delta X = 0 + 200 = \Delta S + \Delta M = 125 + 75$

because there is "no" change in I from equi^m but^ there is ΔS = 125 in S from initial eq^m.

← surplus in Balance of Trade.

if E' were below ~~the~~ 'Y' income axis, it would represent deficit in income axis.