

# GROWTH AND DEVELOPMENT

AN ECONOMIC PERSPECTIVE  
**CLASS NOTES**

**BY :**

**PRATEEK TRIPATHI**

# GROWTH AND DEVELOPMENT

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$$(y \cdot \dots) (K L) = A_k d t_j - ell$$

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(A) Technology

For Capital

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$$Y = f(K, L)$$

(with units added)  $tY = f(tK, tL)$

[For  $t = \frac{1}{L}$ ]

$$\left(\frac{Y}{L}\right) = f\left(\left(\frac{K}{L}\right)\right)$$

Output per unit  
Labour

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$$\frac{Y}{L} = y \quad \frac{K}{L} = R$$

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$$y = AD$$

$$Y = C + I$$

$$\left(\frac{Y}{L}\right) = \left(\frac{C}{L}\right) + \frac{I}{L}$$

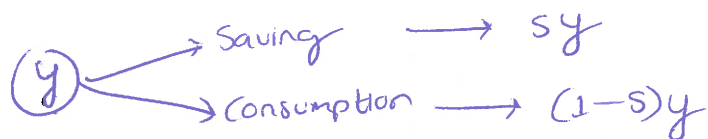
Output per unit  
Labour

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$$y = c + i$$

We know part of Income goes for savings & left over is consumed

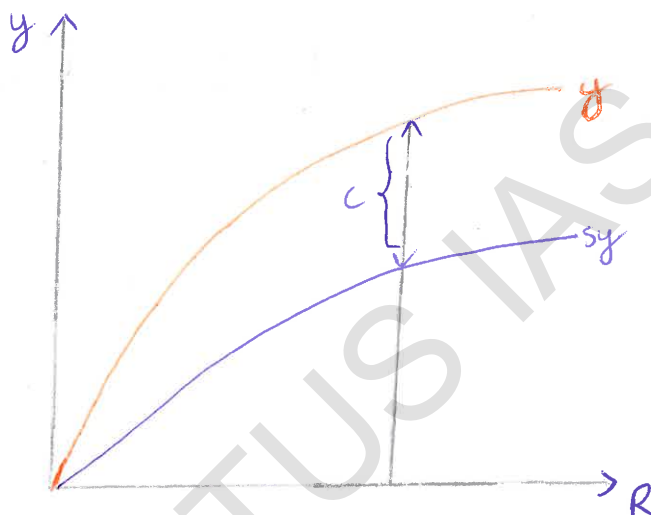


$$\therefore y = (1-s)y + i$$

$$y = y - sy + i$$

$$\therefore \boxed{i = sy} \quad \text{--- Investment = Savings}$$

Hence  $y = (1-s)y + sy$



→ Steady state Level of Capital

→ Change in Capital stock ( $\Delta R$ ) = Investment (leads to  $\uparrow$  in  $R$ ) — Depreciation (leads to  $\downarrow$  in  $R$ )

$$\Delta R = sy - \delta K \quad \text{--- Rate of Depreciation}$$

At steady state i.e.  $\Delta R = 0$

$$\therefore 0 = sy - \delta K$$

$$sy = \delta K$$

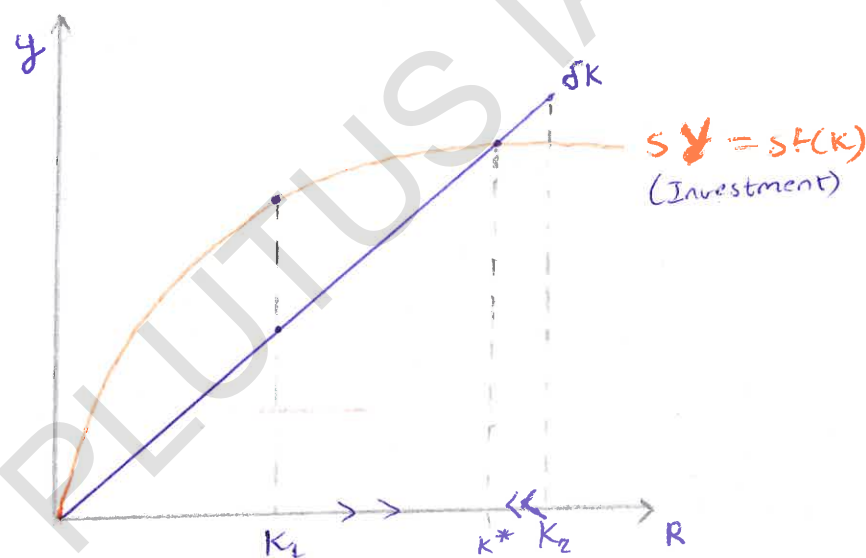
(As  $y$  is function of  $K$ )

$$\therefore s f(K) = \delta K$$

(\* — steady state)

$$\boxed{\frac{s}{\delta} = \frac{K^*}{f(K^*)}}$$

- At Any given time, capital stock is very important to determine output of the economy
- Capital stock changes over time & this determines growth
- Therefore, growth is the result of accumulating capital over time.
- Two forces influencing capital stock are Investment & Depreciation.
- In Investment, capital stock increases i.e. increase in plants & machines
- Depreciation is wear & tear of old capital.
- In steady state, change in capital stock is zero, So Investment = Depreciation
- Steady state is important as it shows long run equilibrium in economy
- Regardless of the level of capital, economy always ends in constant stock of capital. [Economy always converges to a constant capital stock because Investment eventually equals depreciation]



At  $K_1$ , Capital is less than  $K^*$  steady state level, but  $SY > \delta K$ , so stock of capital will keep increasing until it reaches  $K^*$

At  $K_2$ , Capital is more than  $K^*$  steady state level, but  $\delta K > SY$  (Amount of Depreciation > Investment), so stock of Capital will decrease until it reaches  $K^*$ .

(After  $K^*$ , Due to law of Diminishing marginal <sup>productivity</sup> returns, additional  $K$  leads to  $\uparrow$  in Depreciation).

→ At steady state, there is no growth in output & output per capita.

### Assumption

① Population & technology are constant.

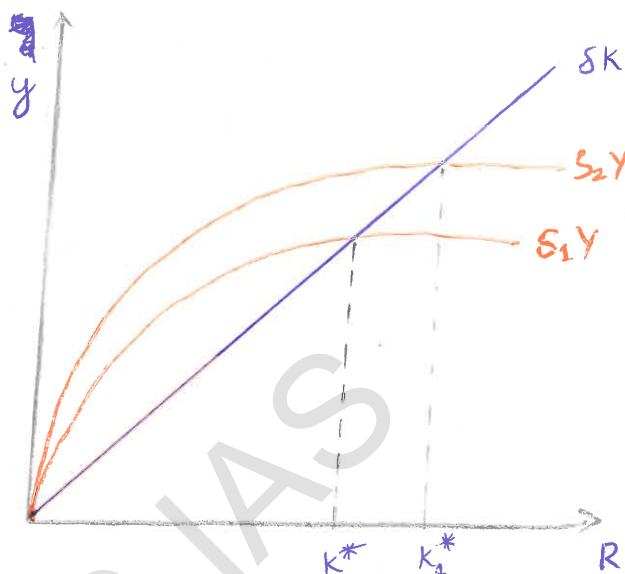
### How Savings rate effect the steady state

→ When the savings rate are increased ( $s_2 > s_1$ ) we get second curve  $s_2 y$  (it shifts upwards).

→ And Hence, capital stock is shifting to the right i.e. Capital stock is increasing & investment is becoming more than depreciation.

→ But this increase in investment & in growth is temporary & not permanent.

→ Hence, Increase in savings causes temporary growth



### Level Effect

→ Due to an increase in savings<sup>rate</sup>, only the level of capital increases but not continuously.

→ Growth refers to continuous  
① which does not take place here. (Accumulation in stock of capital not taking place)

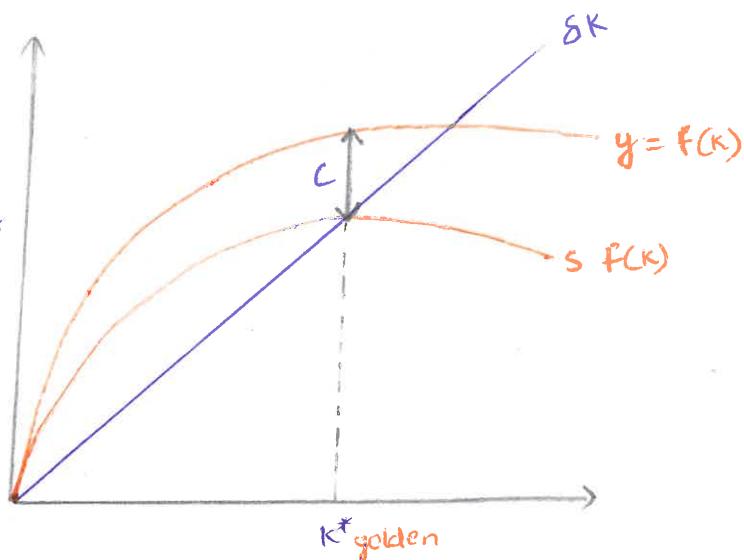


## "Golden Rule" steady state ★

→ This is such a steady state where consumption per worker is maximized

→  $C$  is the maximum level of consumption per labour achieved for the given  $y = f(k)$  (earning) &  $s \cdot f(k)$  (Particular savings rate)

→ Objective of golden rule is economic wellbeing i.e. improvement in living standard.



$$y = C + i$$

(for steady state)  $C^* = y^* - i^*$

$$\therefore C^* = y^* - \delta k^* \quad \boxed{\delta y^* = f(k^*)}$$

(For maximization)  $\frac{dC^*}{dk} = \frac{df(k^*)}{dk} - \frac{d\delta k^*}{dk}$

$$\left[ \frac{df(k^*)}{dk} = \text{Marginal Productivity of Cap.} \right]$$

$$\therefore 0 = MPK - \delta$$

$$\therefore \boxed{\delta = MPK}$$

Rate of Depreciation = MPK

→ Thereby, for Golden rule, the steady state is that point where marginal product of capital is equal to rate of Depreciation.

$$\textcircled{1} K \uparrow \rightarrow Y \uparrow \text{ (O/P)}$$

$$\textcircled{2} K \uparrow \rightarrow \delta \uparrow$$

→ This 2 factors determine change in consumption/worker.

→ Point to note is that economy does not reach golden rule on it's own, it happens at a particular savings rate

## Transition Path

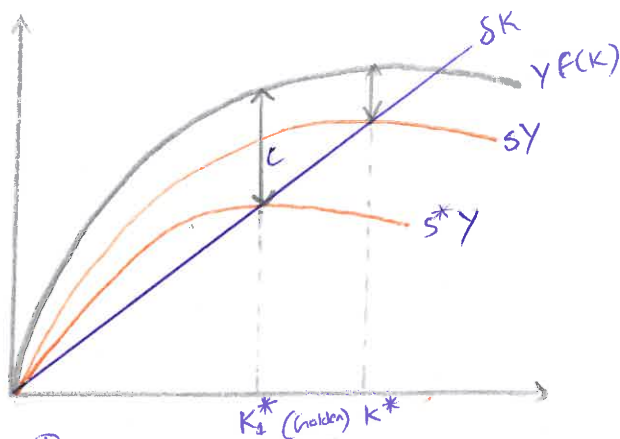
### Cases

#### ① Starting with too much capital

→ Here economy begins from that steady state which has too much capital in comparison to golden rule steady state.

→ In this case, govt. will try to move backwards from this steady state.

→ And govt. can succeed in doing so by reducing the savings rate, so the function of savings will shift downwards



→ When savings ↓ then consumption ↑.

→ Decrease in savings means decrease in investment.

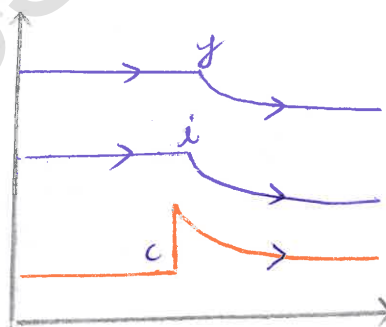
→ Also we know that in steady state,  $i = \delta K$

Now  $i$  decreases, so  $i$  will become less than depreciation. Hence economy will no longer be in  $\delta K$ . Since depreciation is more so output will also decrease.

[ $i$  drops immediately below  $\delta K$  but capital stock being high keeps  $\delta K$  at the level. AS  $i < \delta K$ , Cap. stock starts ↓ & so Depreciation also ↓]

→ Since output ↓, Income will also ↓

→ And Consumption / Labour will also decrease



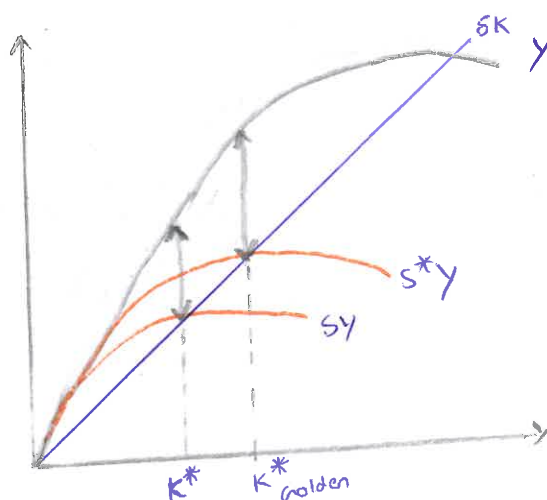
#### ② Starting with too little capital

→ Here, steady state is less than golden rule steady state

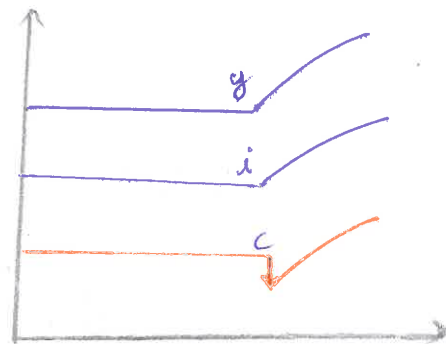
→ In this case, govt. will try to ↑ (move forward) the steady by ↑ing the savings rate

→ As a result, investment would increase & consumption would decrease.

→ Now  $i$  will become more than depreciation as a result, capital stock will ↑. So output & consumption will start ↑ing & will reach to new capital stock & hence new steady state.



→ Hence consumption/worker will be more than the previous case.



### ① Effect of population on growth

→  $y = f(k, L) = Ak^{\alpha}L^{1-\alpha}$  & till now only capital was changing but now, we will change all three one by one

#### Effect of population growth

→  $k = \frac{K}{L}$  if  $L \uparrow$  (as population  $\uparrow$ )  $k$  will decrease

→ If there is population growth then capital per worker declines  
For e.g., If some capital was invested in 2018 then in 2020, capital per worker will decline due to increase in population.

#### Reasons for decline

→ Also  $k$  can decline if  $K$  decreases. ①

→  $K$  decreases when depreciation increase, which means that due to constant amount of depreciation acting on capital  $K$ , due to which small  $k$  declines

→ Population growth rate is increasing ( $n$ ) ②

#### Reasons for increase in capital

→ Investment increases leading to increase in capital. (sY)

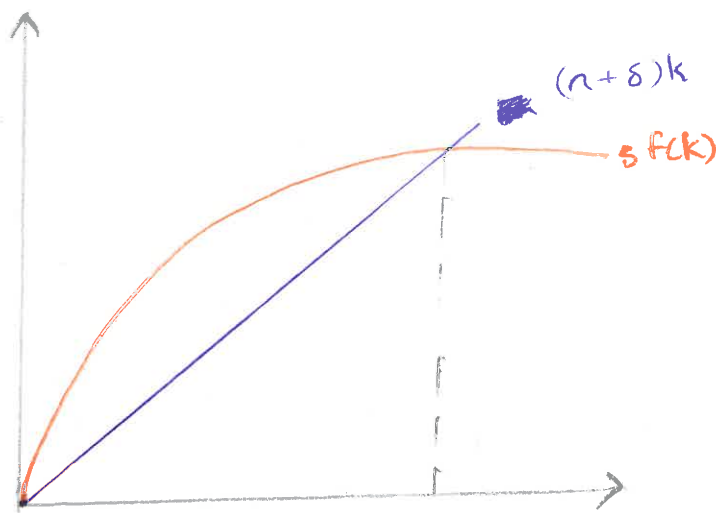
Change in capital = Investment - Break even investment

$$\Delta k = sf(k) - (n + \delta)k \text{ (small } k)$$

At steady state  $\Delta k = 0$

$$sf(k^*) = (n + \delta)k^*$$

$$\therefore \frac{s}{n + \delta} = \frac{k^*}{f(k^*)}$$



→ Since capital stock (at steady state) is same, Capital for the yrs  $k_{2019} = k_{2020} = \dots$

If capital stock remains same, this means output/worker will also remain same.

→ But it will only happen if rate of increase in population then rate of output increase should also be equal to it.  $y = \frac{Y \uparrow}{L \uparrow}$

→ As Labourforce will increase, capital/Labour will decrease  $\left[ \frac{K}{L} = \frac{k}{L} \right]$

→ Therefore,  $k$  (capital) should also be increased, hence amount of investment necessary to keep Capital/Labour constant is called Break-even investment.

$K/L$  is written as  $k$  or  $R$

① If  $s f(k) > (n+s)k \rightarrow \uparrow \text{ in } \Delta k$

② If  $s f(k) < (n+s)k \rightarrow \downarrow \text{ in } \Delta k$

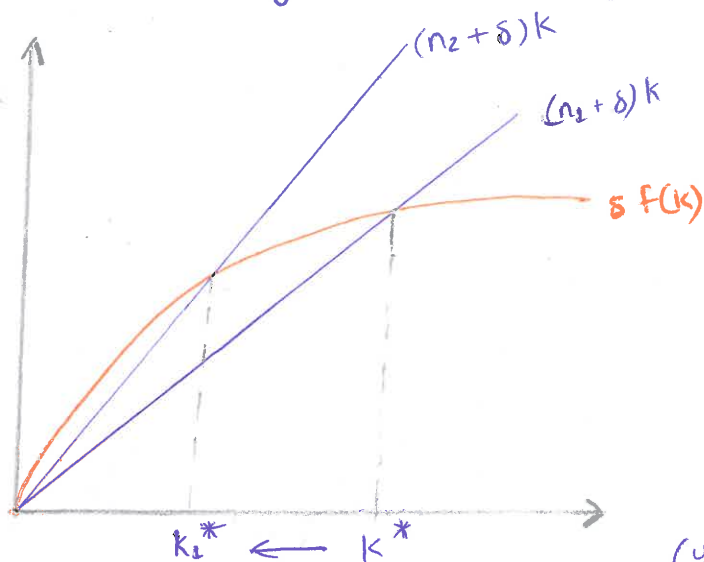
③ In steady state  $s f(k) = (n+s)k$

→ Growth in population brings us closer to the sustained GDP growth i.e. it does not tell about standard of living but talks about growth

As growth of population is corresponded with an equivalent growth in (Investment)<sub>output</sub> thus, if population grows at rate of  $n$  then GDP will also have a sustained growth of  $n$ .

But  $y = \frac{Y \uparrow}{L \uparrow}$  remains same i.e. it does not tell about Standard of Living.

→ Now, if in a country population growth rate is high



→ So steady state shifts to left (reduced), so output per worker will also decline. Hence Solow model tells that countries with high population growth rate have low GDP/worker. i.e. growth rate of GDP/worker reduces.

→ It also affects golden rule level

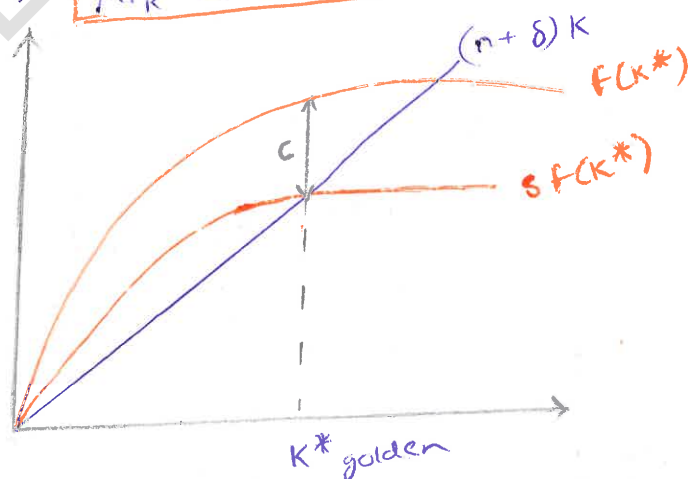
$$y = c + i$$

$$c^* = y - i$$

$$c^* = f(k^*) - (n + \delta)k$$

(for maxima, differentiation)  $0 = MP_k - (n + \delta)$

$$MP_k = n + \delta$$



→ At  $k^*$ , consumption  $c$  is maximum but it is to be noted that with the case of  $\delta k$  (not considering population)  $k^*$ golden had a higher value of consumption.

Thus, Consumption  $\downarrow$ , Welfare  $\downarrow$  & hence with population growth Development  $\downarrow$ .

## ② Effect of Technological Process

→ Given as  $Y = F(K, LXE)$  Efficiency of Labour  
(Due to Technology)

$LXE$  — No. of efficient / effective Labour

→ Hence the above expression tells us that total Output is dependent on capital & no. of efficient workers.

→ Hence due to technological advancement, efficiency of workers is increasing.

→ This is called Labour Augmenting technological progress.

→ So for  $Y = F(K, LXE)$

At steady state (Dividing both side by  $LXE$ )

$$\therefore \frac{Y}{LXE} = F\left(\frac{K}{LXE}, 1\right)$$

$$\therefore \hat{y} = f(\hat{k})$$

Output per effective Labour      Capital per effective Labour

→ Here, Also in steady state, Investment = Break-even Investment & here also 3 components are there:

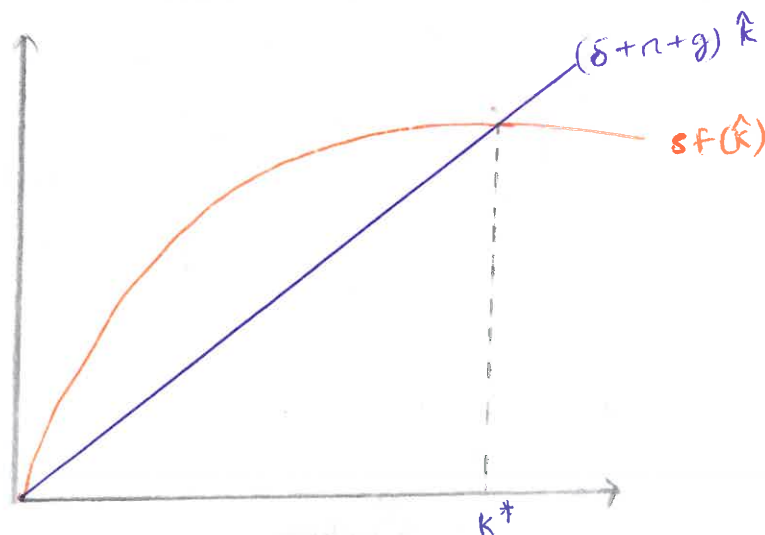
$$\textcircled{1} \delta \hat{k} \quad \textcircled{2} n \hat{k} \quad \textcircled{3} g \hat{k}$$

At steady state  $\Delta \hat{k} = 0$  & Invest. = Break-even Invest.

$$\therefore sf(\hat{k}) = (\delta + n + g) \hat{k}$$

$$sf(\hat{k}) = (\delta + n + g) \hat{k}$$

$$\frac{s}{(\delta + n + g)} = \frac{\hat{k}}{f(\hat{k})}$$



Technology is progressing at the rate  $g$  (small  $g$ )  
Total stock of capital is progressing by  $n+g$  rate.

Capital/worker will increase at the rate  $g$ .

GDP will increase at the rate of  $n+g$

GDP/capital will increase at the rate of  $g$ .

Hence According to Solow Model, technological process explains sustained growth & permanent rising living standard

### Golden Rule

At golden rule steady state, Consumption is maximum.

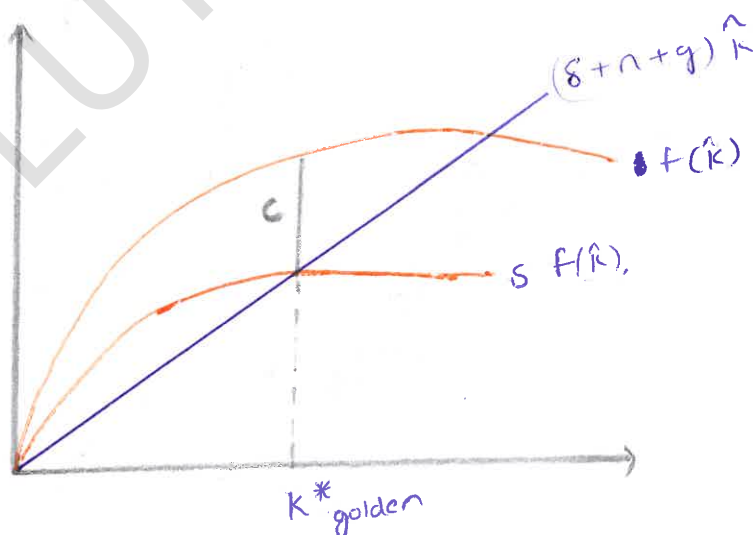
$$\Delta \hat{k} = sf(\hat{k}) - (\delta + n + g)\hat{k}$$

(For Maxima, differentiation)

$$0 = \frac{sd f(\hat{k})}{d\hat{k}} - (\delta + n + g) \frac{d\hat{k}}{d\hat{k}}$$

$$= MP_K - \delta + n + g$$

$$MP_K = \delta + n + g$$



★ ★

Solow model says that due to technological advancement in golden rule steady state, GDP/capita grows exogenously i.e. some external factors are leading to growth & we do not know what factors.

Hence Solow model is known as **Exogenous growth model** & this is the drawback of this model i.e. technology grows, how growth is lead by technology & other factors not explained by Solow.

## Solow Residual Model

Q. What is Solow Residual? What are its implications?

⇒

$$Y = f(K, L) = A K^{\alpha} L^{1-\alpha}$$

(By growth Accounting)  $\frac{\Delta Y}{Y} = \frac{\Delta A}{A} + \alpha \frac{\Delta K}{K} + (1-\alpha) \frac{\Delta L}{L}$

[Taking log]  
& differen.

Above expression shows that growth in output depends on growth in all 3 factors

Solow residual = Progress in technological progress process

↓

$$\frac{\Delta A}{A} = \frac{\Delta Y}{Y} - \alpha \frac{\Delta K}{K} - (1-\alpha) \frac{\Delta L}{L}$$

Since we cannot calculate or see the growth in technological aspect we subtract growth in Capital & Labour from output to get technological growth.

### Solow Residual

↳ This gives total factor production growth, this means that as improved or advanced technology is used then efficiency of factors also improves.

$$\frac{\Delta A}{A} \times 100 = g$$

### Implications of Solow Residual

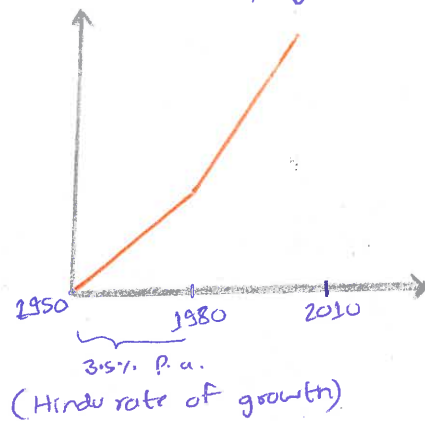
- ① Sustained growth & persistent improvement in standard of living.
- ② Technological progress
- ③ Increases GDP/capita even if economy is in steady state.
- ④ Permanently rising living standards & sustained growth corresponds to Solow residual.

## Growth & Level effect

### Growth effect

- Rate of growth changes i.e. GDP per capita changes

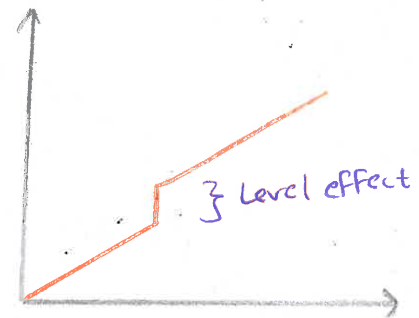
ex: - Indian economy growth rate



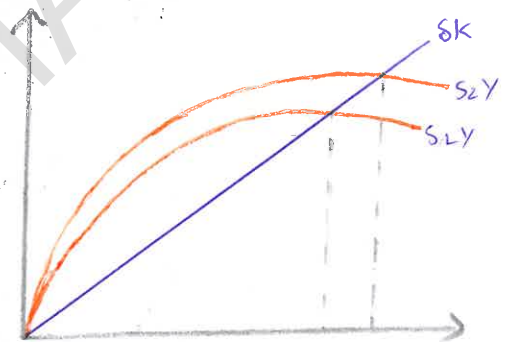
- Technological process changes the trajectory of growth
- Thereby increasing GDP/capita permanently even at steady state
- Population growth has double effect i.e. It increases as well as reduces capital as
  - (i) Due to increase in population, income ( $Y$ ) increases — Capital  $\uparrow$
  - (ii) Due to increase in population, steady state shifts to the left so  $k$  decreases — Capital  $\downarrow$
- This happens because Labour acts both as consumer as well as input
- when Labour acts as input, production will  $\uparrow$ ,  $Y$  will  $\uparrow$
- when Labour acts as consumer of final goods,  $Y$  would  $\downarrow$

### Level effect

- Rate of growth is unchanged, due to this parallel shift take place upwards or downwards.



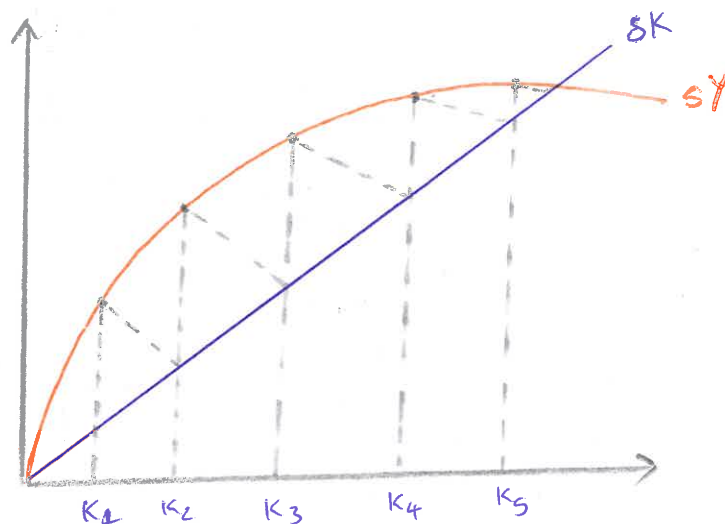
- Let's say till 2019, saving rate was  $s_1 Y$  & after 2019 it became  $s_2 Y$



### Level effect

- This effect is temporary that means the changes in economy are temporary,
- There is no growth in GDP/capital, only the level of GDP/capital has increased.

## Convergence



⇒ We observe that at  $K_1$ , capital stock is greater than depreciation, than at  $K_2$  also, capital stock is greater than depreciation & this continuous for  $K_3, K_4$  &  $K_5$ .

But we see that growth in capital stock is decreasing. This happens because of Diminishing returns on capital stock & this is called Convergence of Capital stock.

### Rich countries

→ In rich countries, capital stock ( $k$ ) is more therefore productivity is lower & hence growth path is less in comparison to poor countries. (High diminishing returns rate)

### Poor countries

→ In poor countries, capital stock is less (small  $k$  decreases) & therefore productivity is more & hence growth path is higher in comparison to rich countries.

⇒ Convergence can be of 2 types:

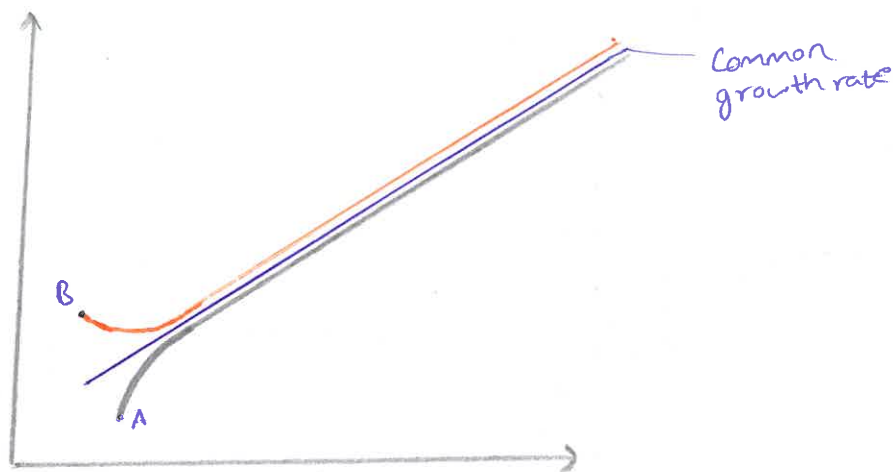
- ① Conditional
- ② Unconditional

### Unconditional Convergence

→ Under this type of convergence relative income difference between different countries eliminates & growth path is same for all countries.

→ This means whatever is the saving rate, growth path of all countries converges to common rate of growth. (Combination of diff growth rates of a country)

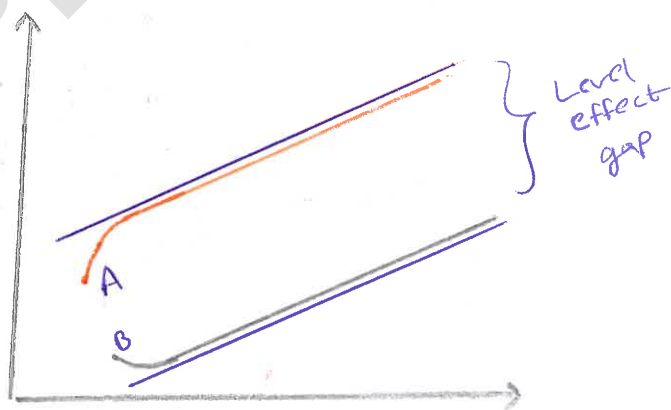
This common rate is determined by technological progress.



- Country A is having low capital & hence its productivity & growth is high thereby reaching the common rate fast (i.e. converging fast).
- Country B is having high capital & hence its productivity & growth is slow & hence reaching the common rate slowly.
- This theory was rejected on the basis of selection bias because only the data of 16 rich countries was used to reach this conclusion & hence rejected. Thereby leading to the emergence of conditional convergence.

### Conditional Convergence

- This says that 2 countries (or more countries) will have different steady states.
- Countries have different steady states because their saving rates are different.



## AK Model

⇒ This is Endogenous growth model.

⇒ Here technology is created, it is not given whereas in Solow model technology was given.

⇒ Here  $Y = AK$  i.e. Marginal returns of capital is not diminishing but is constant.

⇒ Both models talk about Capital accumulation which is  $\Delta K$

$$\Delta K = \text{Invest} - \text{Depreciation.}$$

⇒ Here, Capital is of 2 types:

(i) Physical capital

(ii) Human Capital

↓  
Diminishing Returns

↓  
Increasing Returns

← Compensates →

Constant Returns to capital

$$\begin{aligned}\Delta K &= sY - \delta K \\ &= s(AK) - \delta K \\ &= K(sA - \delta)\end{aligned}$$

$$\therefore \frac{\Delta K}{K} = sA - \delta$$

Capital Accumulation rate

⇒ Capital Accumulation basically represents growth rate i.e. how much growth has occurred.

$$\text{So } \frac{\Delta K}{K} = \frac{\Delta Y}{Y} \quad (\text{Rates equal})$$

$$\therefore \frac{\Delta Y}{Y} = sA - \delta$$

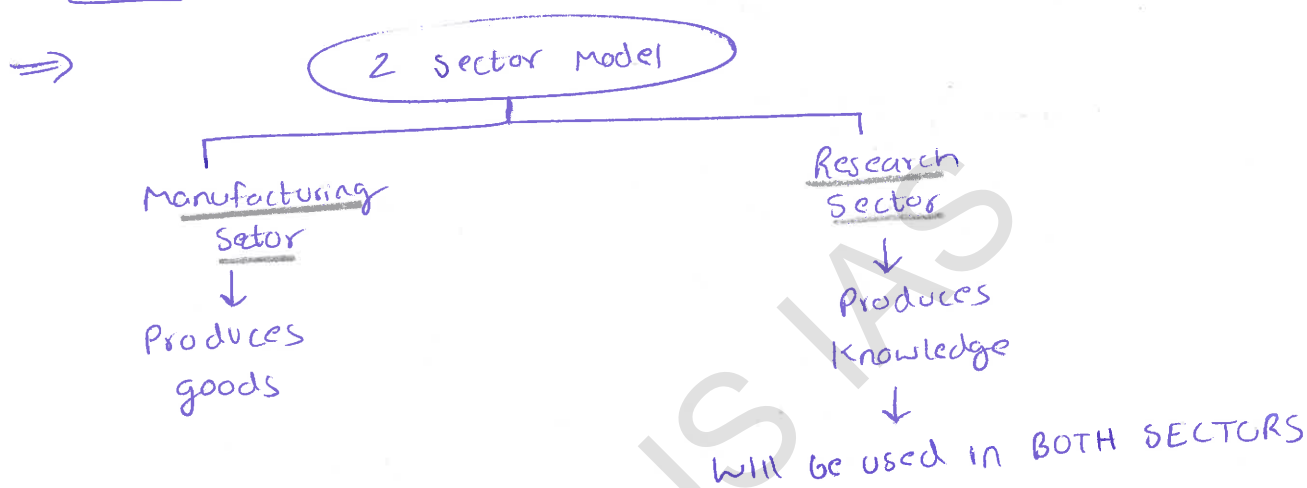
⇒ If  $sA > \delta$ , then savings is going to represent permanent growth (in Solow model, savings was representing temporary growth — level effect)

⇒ A is a constant representing amount of output produced by each unit of capital. Hence the above equation basically represents that growth of output is depended on Savings, A & depreciation thereby

If  $\sigma$  is greater than  $\delta$  ( $\sigma > \delta$ ) then there is continuous growth of Output.

⇒ In AK model,  $(\sigma)$  &  $(I)$  lead to continuous growth → Possible only when there is increment in human capital, i.e. physical capital depreciates but in terms of knowledge, there is increase in returns on capital.

Let us observe Persistent growth which will be studied under 2 sector Model:



⇒ Given as  $Y = F(K, \overbrace{(1-u)L}^{\text{Manu. Sector}})$

Here  $\frac{\Delta E}{E} = f(u)$

$E \rightarrow$  Efficiency (as knowledge leads to efficiency)

$u \rightarrow$  Extent of knowledge

$uL \rightarrow$  Labour who are producing knowledge

$K \rightarrow$  Knowledge

$(1-u)L \rightarrow$  Labour who are producing goods

## Romer Model

⇒ Process of technology is endogenous since ideas are created by profit maximizers.

⇒ This model also explain how countries exhibit sustained growth

$$Y = K^{\alpha} (A L_y)^{1-\alpha}$$

$K$  — capital

$L_y$  — Labour involved in production  
( $Y$  output)

⇒ Here the inputs are capital & Labour involved in production

$$L = L_y + L_A$$

$L_A$  — Labour invlved in  
creation of ideas  
(research)

⇒ This model gives constant return to scale for a given technological state process.

$$\Delta K = sY - \delta K$$

⇒ In solow model increase in productivity was Exogenous, here increase in productivity is Endogenized.

$$\Delta A = \bar{\delta} L_A$$

Rate at which researchers are discovering new ideas & this can be constant.

Also  $\Delta A$  is the increasing function of stock of ideas

⇒ It is always tough to discover first idea but subsequently toughness level of idea discovery keeps on increasing.

$$\bar{\delta} = \delta A^{\phi}$$

$\phi \rightarrow$  Productivity

When  $\phi > 0 \rightarrow$  stock of ~~constant~~ ideas  $\uparrow$

$\rightarrow$  Productivity  $\uparrow$

When  $\phi < 0 \rightarrow$  stock of ~~decreasing~~ ideas  $\uparrow$

$\rightarrow$  Productivity  $\downarrow$

Fishing out

Compared to AK model

- There researchers created tech.
- Here researchers ( $L_A$ ) create tech., financed by firms. Thus by Firms

⇒ Actually Fishing out is occurring because it keeps on becoming tough to discover new ideas which can increase productivity. Also, the factor of duplicacy comes into play.

$$\text{So } \Delta A = \delta L_A$$

$$\Delta A = \delta A^\phi L_A^\lambda$$

Duplication  
in efforts

### Growth in Romer Model (Balanced growth path)

$$\frac{L_A}{L} = \delta_R$$

$\delta_R \rightarrow$  Share of population (%) going  
for research

$\Rightarrow$  In Solow model, technological process was increasing GDP/capital but was not providing growth.

$\Rightarrow$  But here, to see whether technological progress determines growth, we need to find  $\frac{\Delta A}{A} = \frac{\delta A^\phi L_A^\lambda}{A}$

$$\therefore \frac{\Delta A}{A} = \frac{\delta L_A^\lambda}{A^{1-\phi}}$$

Along balanced growth path,  $\frac{\Delta A}{A}$  is constant

Here, as  $\Delta$  in  $\lambda$  is reflected in same proportion in  $\Delta$  in  $(1-\phi)$  & hence Numerator & denominator  $A$  by some factor  $\Delta$  thus

$\frac{\Delta A}{A}$  remains constant.

$$\therefore \frac{\Delta A}{A} = \frac{\delta L_A^\lambda}{A^{1-\phi}}$$

(Differentiation)  $0 = 1 \left( \frac{\Delta L_A}{L_A} \right) - (1-\phi) \left( \frac{\Delta A}{A} \right)$

Growth  
in ideas ( $g_A$ )

$$0 = \lambda n - (1-\phi) g_A$$

$$\left[ \frac{\Delta L_A}{L_A} = n \right]$$

$$\therefore g_A = \frac{\lambda n}{1-\phi}$$

$$\Rightarrow \text{Now } g_A = g_Y = g_K$$

$g_Y$  is growth rate of output

$g_K$  is growth rate of Capital

} Directed effected by growth rate  
of ideas

(Note) -  $g_K$  is given exogenously.

$\Rightarrow g_A \propto n$ , growth rate of population i.e. more population will lead to more people involved in research & hence more  $g_A$ . & hence **Sustained Growth**.

Qn.1 Differentiate between Growth effect & Level effect (150)

⇒ Growth effect & Level effect refers to the changes in Aggregate Output due to change in capital stock, which is Continuous & temporary respectively.

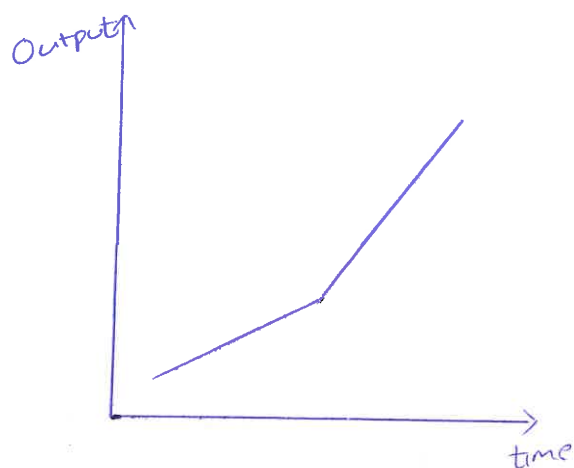
### Growth effect

- Elaborated on in AK model where Growth ~~was~~ determined by technological change which is endogenous in nature.
- It refers to attainment of a constant rate of growth of sustained character.

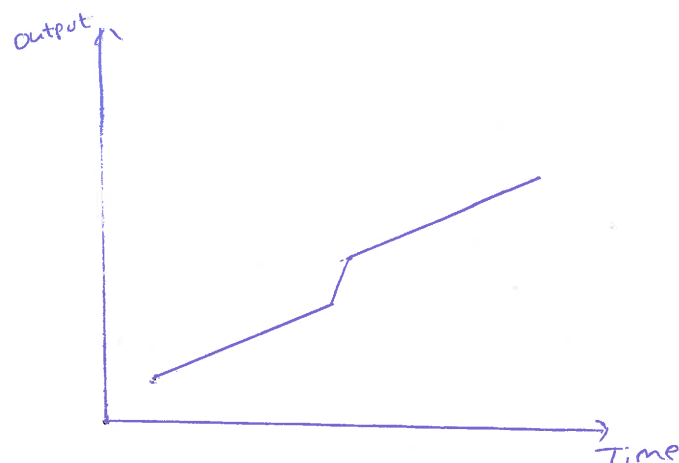
### Level effect

- Elaborated on in Solow Model where Growth was determined by change in capital stock due to change in Investment.
- It refers to a temporary rise in aggregate output due to level change in investment.

| Growth effect                                                                                                                                                                                                                                                                                                                        | Level effect                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Based on Endogenous growth model</li><li>• Sustained Output increase</li><li>• Technology is determined by endogenous factors i.e. by contribution of Labour in research.</li><li>• An increase in overall rate of efficiency &amp; thus increase in GDP/Capital has been observed</li></ul> | <ul style="list-style-type: none"><li>• Based on Exogenous growth model.</li><li>• Temporary Output increase.</li><li>• Technology is determined by exogenous factors &amp; solow does not give reasons for it.</li><li>• Rate of efficiency &amp; change in it is not determined as reasons for temporary effect does not lead to growth.</li></ul> |



- Here rate of increase in output is growing thus growth observed.



- Here rate of increase in output remains same & growth is not observed.

Growth effect determined the Increase in output due to factors like population ( $n$ ) & technology ( $A$ ). However, a level effect is a temporary rise in output due to change in savings rate & investment subsequently.

Qn.2 What is Convergence. Explain its types (200 words)

⇒ Convergence refers to the phenomenon in which economy always tries to maintain a constant stock of capital irrespective of beginning with a higher or lower capital level.

The Concept of Convergence is given in Solow model where Capital stock always attains the constant steady state.

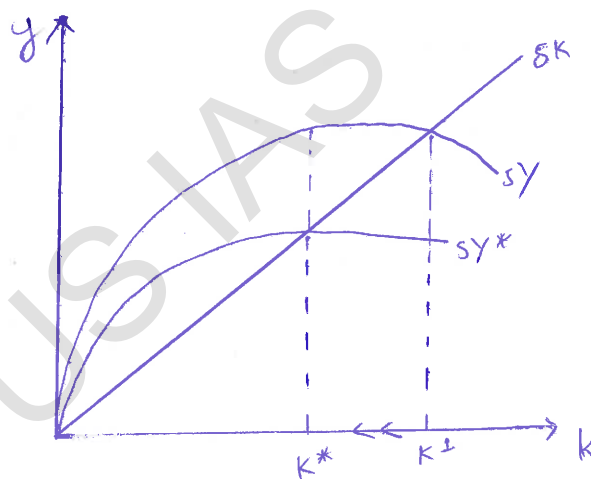
### ① Beginning with larger capital

→ As Economy begins with a larger capital stock.

Here  $Y = f(K)$

& Investment  $SY$  is given as

$$SY > \delta K$$



→ Here since depreciation is less, there would be an increasing capital stock ( $\Delta K$ )

→ But it is observed that with high capital stock, gradually depreciation also follows as overtime this capital stock undergoes wear & tear.

→ Thus  $SY$  will gradually decrease & become ~~in~~ equal to  $\delta K$  & so change in capital stock will be constant.

$$\text{i.e. } \underline{\underline{\Delta K = 0}}$$

At the steady state point  $K^*$

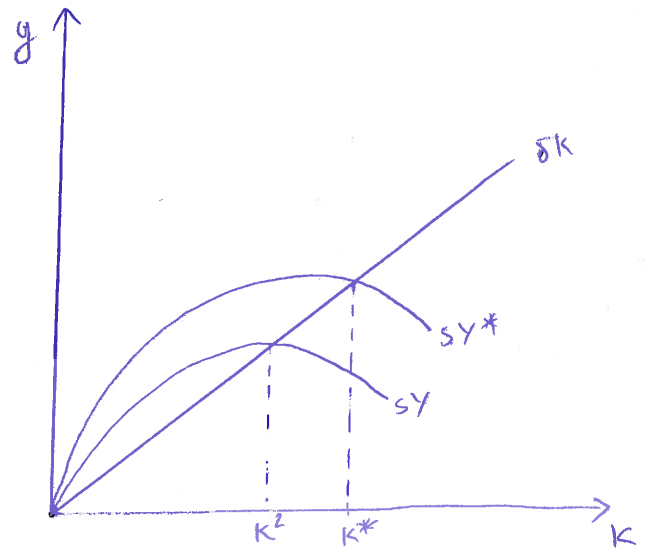
## ② Beginning with smaller capital

→ As economy begins with lower volume of Capital stock.

$$\text{Here } Y = f(K)$$

Investment  $sY$  is given as

$$sY < \delta K$$



→ Here since Investment is less than depreciation, there would be a decreasing capital stock.

→ But it is observed that with lower capital stock, gradually depreciations also tends to decline & the volume undergoing wear & tear is lesser.

→ Thus,  $sY$  will gradually increase & become equal to  $\delta K$  & so change in capital stock will be constant.

$$\text{i.e. } \Delta K = 0$$

This phenomenon of converging repeatedly towards the steady state i.e. constant capital stock level is known as

Convergence.

Q. with respect to Romer model of growth. Explain how capital gives constant returns.

=> Romer model of growth is based on growth in technology which is created endogenously by profit maximizers who finance employees engaged in Research.  
(Labour)

Growth in this model is given as :

$$Y = f(K, L_y)$$

$$Y = AK^{\alpha} L_y^{1-\alpha}$$

Here  $A$  — technology

$L_y$  — Labour engaged in research

$\alpha$  — productivity.

Here the Labour  $L$  is given as  $L = L_A + L_y$

$L_A$  — Labour in production of goods.

Here Technology growth leads to increase in efficiency & determines the growth of ideas.

$$\Delta A = \bar{\delta} \cdot A^{\phi}$$

$\phi \rightarrow$  Rate of creation of ideas

Thus  $\Delta A$  represents the growth in stock of ideas.

But ideas need not always lead to increased efficiency since creation of newer technology is achieved with increased toughness & also there is duplicacy of efforts.

$$\Delta A = \bar{\delta} \cdot L_A^{\lambda}$$

$\lambda \rightarrow$  Rate of duplicacy of ideas.

$$\text{Hence } \Delta A = \bar{\delta} \cdot A^{\phi} \cdot L_A^{\lambda}$$

For determining the Rate of change of stock of ideas  
dividing both sides by  $A$ .

$$\therefore \frac{\Delta A}{A} = \frac{\delta \cdot A^\phi \cdot L A^\lambda}{A}$$

$$\frac{\Delta A}{A} = \frac{\delta \cdot L A^\lambda}{A^{1-\phi}}$$

Now this  $\frac{\Delta A}{A}$  gives the returns on Capital but it is  
obtained as constant since change in  $\lambda$  is equally  
reflected by change in ' $1-\phi$ ' & thus the overall  
expression remain constant.

Thus, Capital gives constant returns in Romer Model.

For deducing change in stock of ideas

(Partial Differentiation)

$$0 = \lambda \left( \frac{LA}{A} \right) - (1-\phi) \frac{A}{A}$$

## New Growth Theory

Q. Why this theory was propounded?

### Main concerns

- ① Solow model took into consideration those countries whose per capital income was same but this does not happen in real world.
- ② In long run per capital growth can be determined through technological process but, this only explains part of theory & does not tell us everything.
- ③ Capital - Labour technological process also explains part of endogenous theory

### Human Capital & economic growth

⇒ Labour was the single factor of production and technological progress was augmented in it.

⇒ Rich countries have large stock of Capital

→ Physical Capital

→ Human Capital  
(skilled labour for production)

& Hence can operate sophisticated machines & can also create new ideas which will help in new methods of production.

⇒ Developing countries have Labours but unskilled.

→ There is a point to consider in general is that households invest in education which also improves future Labour supply & increases market level of Labours. Hence, here we take 2 inputs of production:

① Physical capital

② Human capital

→ Production function

$$y = k^{\alpha} h^{1-\alpha}$$

∴ For the next year,

$$k(t+1) = k(t) + sy(t)$$

$$\therefore \underline{k(t+1) - k(t) = sy(t)}$$

savings on output of the present yr t  
for physical capital

⑤ — savings in physical capital

Also for Human capital,  $k(t+1) = h(t) + a_y y(t)$

$$\underline{k(t+1) - h(t) = a_y y(t)}$$

⑥ — savings in human capital

$$\rightarrow \frac{K(t+1) - K(t)}{K(t)} = \frac{sY(t)}{K(t)}$$

$$\left[ r = \frac{h}{K} \right]$$

$$\therefore \frac{K(t+1) - K(t)}{K(t)} = sr^{1-\alpha}$$

$$\left[ r^{1-\alpha} = \frac{Y(t)}{K(t)} \right]$$

$$\text{Growth in Physical capital} = sr^{1-\alpha}$$

→ For Human Capital

$$\therefore \frac{h(t+1) - h(t)}{h(t)} = \frac{qY(t)}{h(t)}$$

$$\frac{h(t+1) - h(t)}{h(t)} = \frac{q}{r\alpha}$$

$$\text{Growth in Human capital} = \frac{q}{r\alpha}$$

$$\left( \frac{q}{r\alpha} = qr^{-\alpha} \right)$$

→ In Long Run :

$$sr^{1-\alpha} = qr^{-\alpha}$$

$$\therefore r = \frac{q}{s}$$

$r \propto q$ , greater  $r$  lead to greater  $q$

So  $r$  can be used to calculate growth rate in long run  
& in long run, there will be same growth in  $q$  &  $s$

Hence to calculate growth in output in long run, this will give constant returns to scale, because in long run, there is same growth in  $K$  &  $h$

$$\therefore Y = K^\alpha h^{1-\alpha}$$

$$\frac{Y(t+1) - Y(t)}{Y(t)} = sr^{(1-\alpha)} = s\left(\frac{q}{s}\right)^{1-\alpha}$$

$$\frac{Y(t+1) - Y(t)}{Y(t)} = s^\alpha q^{1-\alpha}$$

$$\text{Growth in output} = s^\alpha q^{1-\alpha}$$

This equation shows that growth in economy is governed by 2 kinds of savings, savings in physical & human capital

### Lewis Model

⇒ Structural change theory of development that is how underdevelopment economy transforms into developed economy.

⇒ Which means transformation of economy from traditional sector to modern sector. (Agriculture) (Industries)

#### Traditional (Agri.) sector

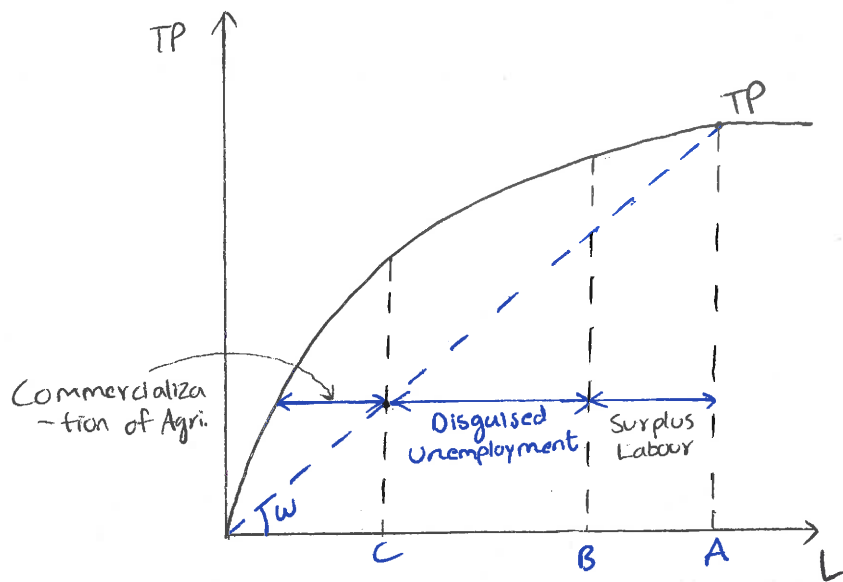
- It is assumed that in traditional sector labour supply is unlimited i.e. at low wage, large supply of labours is there.
- When capital accumulation starts then surplus labours are transferred from this sector to modern sector. Since here the assumption is that labour can acquire skills & work in Modern sector.
- Here reproducible capital is not used which means that in a farm, if there is requirement of 3 labours & 7 labours are working, so wages is average product of labour.  
(no surplus created)  
 $W = AP_L$
- Old techniques used for production (Labour intensive techniques & simple instruments)
- Family labour employed & output is distributed amongst family.  
i.e.  $W = AP_L$

#### Modern (Industrial) sector

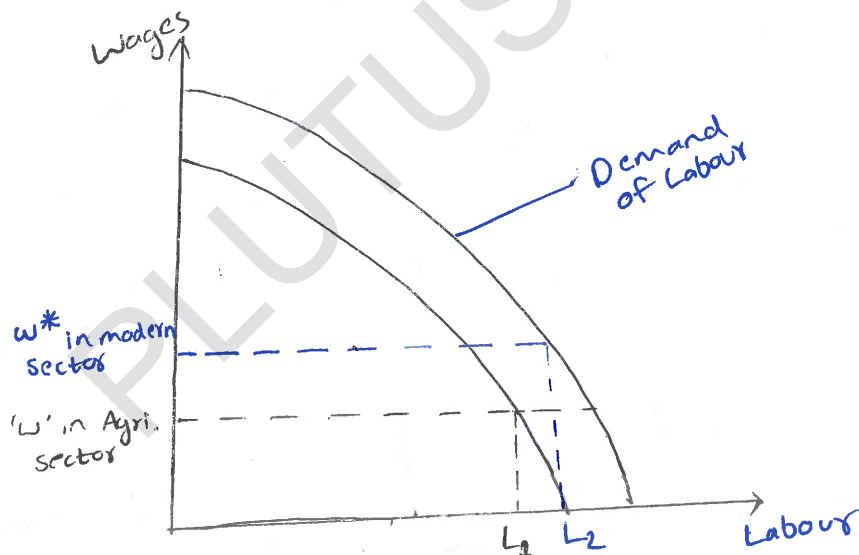
- Here, wages are marginal product of labour. ( $W = MP_L$ )
- New technology is used. (Capital intensive techniques of production)

#### Reproducible capital

- Capital created by surplus which can be reused for production
- Here wages =  $MP_L$



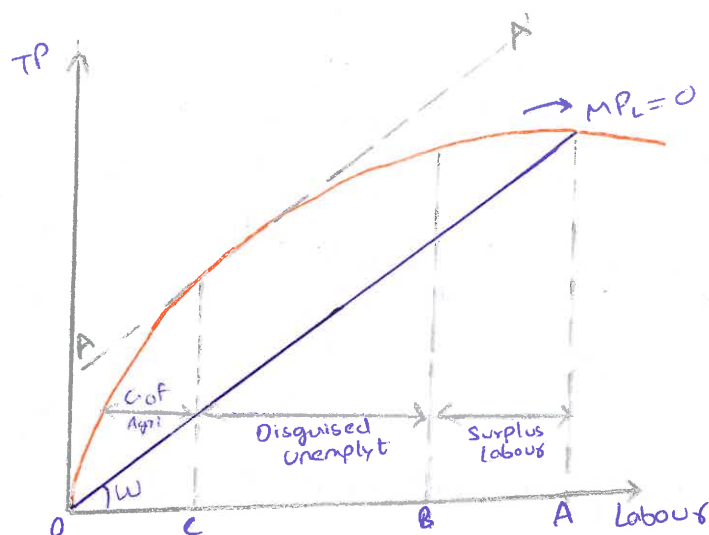
- Hence Under Lewis model, the process is of migration of Surplus Labour to industry.
- Traditional sector is basically the supplier of Labours.
- The capital accumulation in modern sector becomes engine of development.
- MPL is higher in modern sector as a result, capitalist surplus is there & this surplus is invested in new capital.



- Since the Labours are reinvested, hence the demand curve shifts outwards & we get  $L_2$  amount of Labour for same wages.
- $w^*$  wages in the modern sector is more than wages in Agricultural sector.  
Here (Modern sec.) Demand of Labour =  $MP_L$
- In Modern sector, skilled Labour is required but Lewis model argues that there is temporary bottleneck which can be by training.
- Thereby pace of economic growth is determined by pace of capital accumulation & pace of capital accumulation is determined by the profit of capitalist.

→ Capital can be created by bank credit

→ According to Lewis, growth exhausts as labour are transferred from Agriculture sector to modern sectors



→ Point A represents total agricultural labour, Angle  $\omega$  represents the wages, as  $\angle \omega = \tan \theta$   $\therefore \tan \theta = \frac{TP}{L}$

$$= AP_L = W$$

→ If for a time being, we assume it to be a modern sector, then the line will shift upwards (wages are more in Modern sector) -  $AA'$

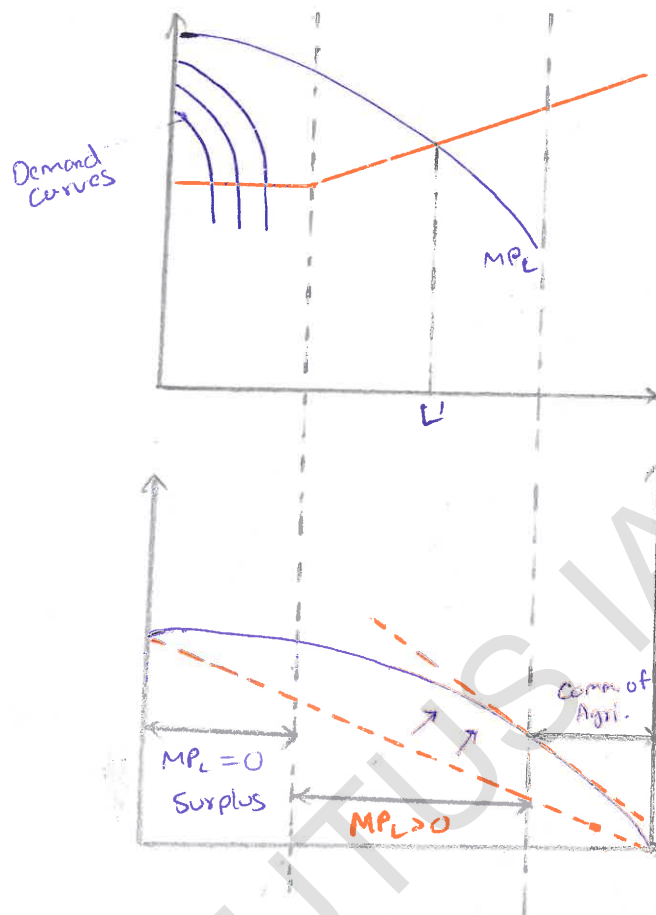
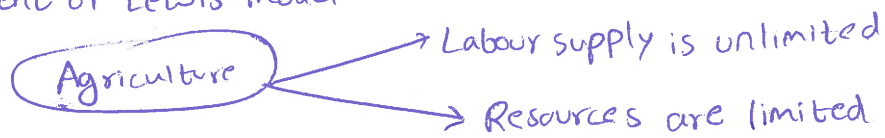
→ Surplus & Disguised Unemployment Labour will move from agricultural sector to modern sector. & this will happen till  $W = MP_L$   
(Because below it, wages will make cost higher)

→ Now only OC amount of Labour is left in Agricultural sector which is very less. Hence machines will be used in Agriculture & phase OC will be commercialization of Agri.

[beyond point B, no new hiring as  $MP_L = 0$ ]

## Ranis - Fe Model

⇒ Improvement of Lewis model



**Phase I** —  $MPL = 0$

- In this phase, there is unlimited supply of labour from agricultural sector to modern sector without affecting productivity of agricultural sector as these labours were extra.
- In modern sector, these labours were reinvested, hence demand curve keeps on shifting towards the right, labour supply curve is horizontal as  $MPL = 0$

**Phase II** — Here  $MPL > 0$  (in agricultural sector)

- If we assume, the agricultural sector to be modern sector, then tangent represents wages & the curve shifts upwards.
- But  $MPL$  of agriculture is not greater than that of modern sector. So labours still migrate to industrial sector & since  $MPL \neq 0$ , hence supply curve of labour in modern sector, under this phase is upward sloping.

→ Point where demand curve of Labour & supply curve meet, gives the no. of Labour (who migrated from Agril. sector to modern sector & got employed there)

Phase III → This is Commercialization of Agriculture

→ Not much difference between Agricultural sector & Modern sector here

### Implications

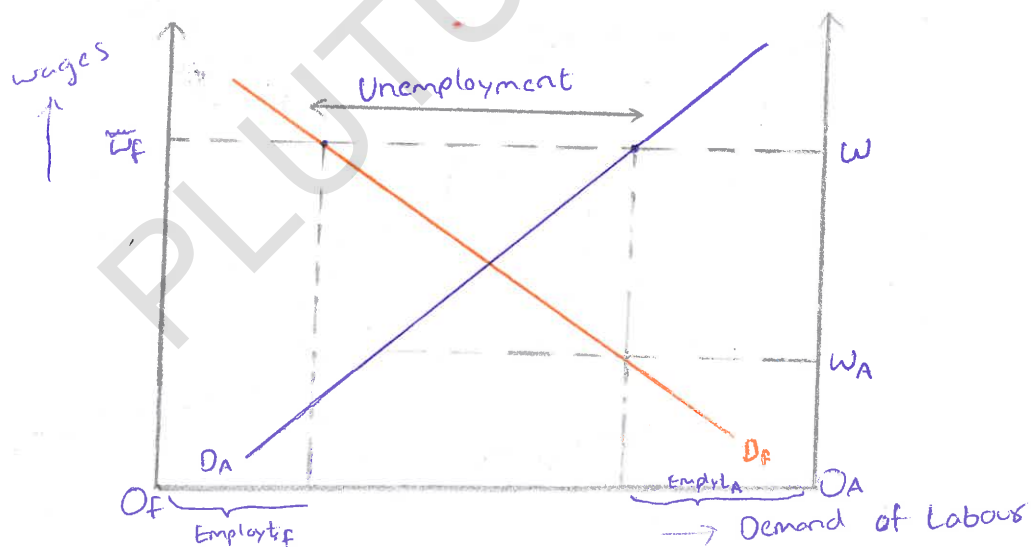
- Government should provide MSP to farmers, ~~so that~~
- Government should ensure that food is purchased from the farmers & transferred to the modern sector.

# Harris Todaro Model

⇒ This is a classical theory of rural urban migration

| Rural                                                                                                  | Urban                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| → Wage flexibility                                                                                     | → Rigidity of wages                                                                                                                                                                                                                                                                                                                                                           |
| → $D_L > S_L$ — wages are high                                                                         | → wages are high & high wages result in unemployment.                                                                                                                                                                                                                                                                                                                         |
| → $D_L < S_L$ — wages are low                                                                          |                                                                                                                                                                                                                                                                                                                                                                               |
| → <u>Rural sector</u>                                                                                  | → <u>Urban sector</u>                                                                                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• No Unionization</li> <li>• Thus wages are flexible</li> </ul> | <ul style="list-style-type: none"> <li>• It is Unionized i.e. Unions are formed.</li> <li>• These Unions do collective bargaining from companies therefore wages are fixed.</li> <li>• Formal sector is controlled by govt. policies &amp; hence minimum wages are compulsory. Therefore resulting in higher wages.</li> <li>• Hence firms hire efficient workers,</li> </ul> |

⇒ Due to these fluctuations (wages seasonally) migrations occur from Rural to Urban sector



⇒ Left to right → Formal Sector ; Right to Left → Agri./rural Sector

(D<sub>F</sub>) — Demand of Labour in formal sector

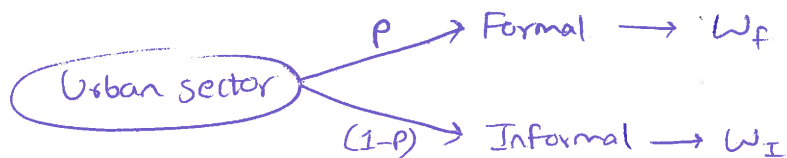
(D<sub>A</sub>) — Demand of Labour in Agricultural sector

⇒ Let's say at high wage  $W_F$  in Formal sector, demand of Labours will be Low, so left over Labours get employed in agricultural sector at reduced wages  $W_A$  since all Labours cannot be employed in formal sector at high wages

⇒ If we increase the wages in Agriculture sector, making it equal to formal sector, then gap between two is unemployment.

⇒ Basic idea is that Labours migrate from rural to urban because wages are high in urban. Because all workers are not absorbed in urban formal sector as shown above. BUT, there is informal sector too in urban area. Now we are going to consider the probabilities of workers getting absorbed in both formal & informal sector.

So,



So if ①  $W_A = PW_F + (1-P)W_I$

Then Labours would be indifferent about emplyt in Urban  
OR Rural sector (may or maynt migrate)

②  $W_A < PW_F + (1-P)W_I$

Then Labours would migrate Rural to Urban sector

③  $W_A > PW_F + (1-P)W_I$

Then Labours would not migrate

⇒ Harris Todaro - Govt policy & Migration policy

Govt. policy

Formal sector

→ Wages increase <sup>(high)</sup> in comparison to agricultural sector. but all people do not get absorbed in it.

→ If leftover labours from formal sector join agriculture then wages in agricultural sector will become too low.

→ Hence people join informal sectors but govt. want more & more people to join formal sector & not informal sector.

→ Thereby, govt. has taken certain incentives so that more & more Labours are absorbed in the formal sector.

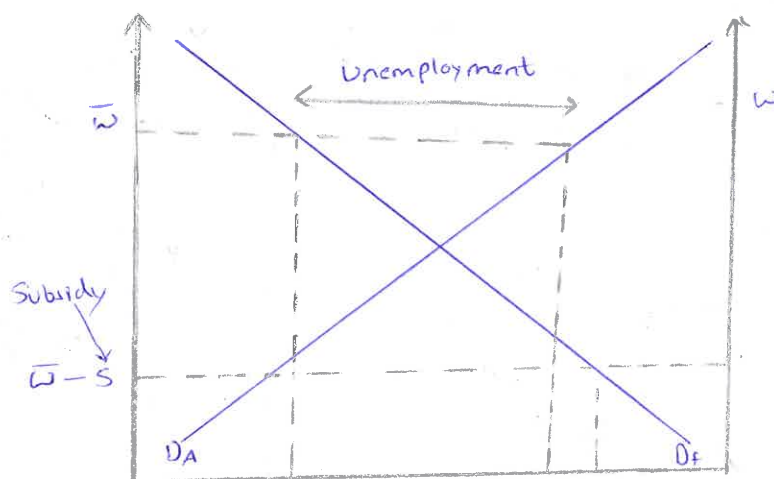
→ Due to these incentives, migration of labour increases, thereby making it further tough of being absorbed in formal sector, this is known as paradox of urban job creation.

## Migration policy

→ Efficient allocation of migration policy

(i) Physical restrictions

(ii) offer employer subsidy (in urban sector)



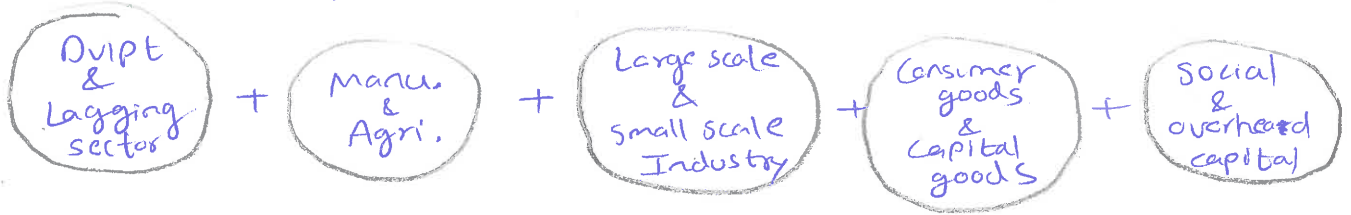
- High wages are there in formal sector thereby few Labours are absorbed, rest of the labour go to agri.
- If wages in the agriculture to the level of formal sector, then the difference in unemployment. Therefore, govt. offers subsidy to employers & hence money moving out of their pocket decreases & they hire more & more.
- And this will also help in stopping migration as Labours get same wages in Agri. & formal sector. (wages in formal not reduced)

[Prevents Migration]

## Balanced growth-strategy

— Rosentien- Roden

⇒ This model basically talks about balance between developed & Lagging sector ; Manufacturing & Agri. ; Large scale & small scale Industry ; Consumer goods & capital goods ; social & overhead capital .



⇒ Hence , it basically says that there should be simultaneous & harmonic dvlt. so that all sectors grow together.

⇒ To achieve balanced growth , we have to keep up with supply side & demand side .

⇒ In supply side , we have to keep up with :

① Interrelated sectors should grow together.

\* - This can be done if →

1. Intermediate good industry

2. Raw material

3. Transportation

4. Service

5. Power generation

all these are efficient & proper

⇒ In demand side , ~~It~~ basically talk about employment opportunity & increase in income , so that demand of goods & services increases.

⇒ Hence demand side relates with:

① supplementary industries

② Consumer good industries (Agri. & Manu. industries both)

⇒ Rosentine & Roden talked about Social Marginal product (SMP) of investment & it is different from Private Marginal product (PMP)  
(dvlt of whole society) (dvlt of 1 individual)

⇒ They said that if all the industries plan together than  $SMP > PMP$  & risk of not being able to sell the product decreases.

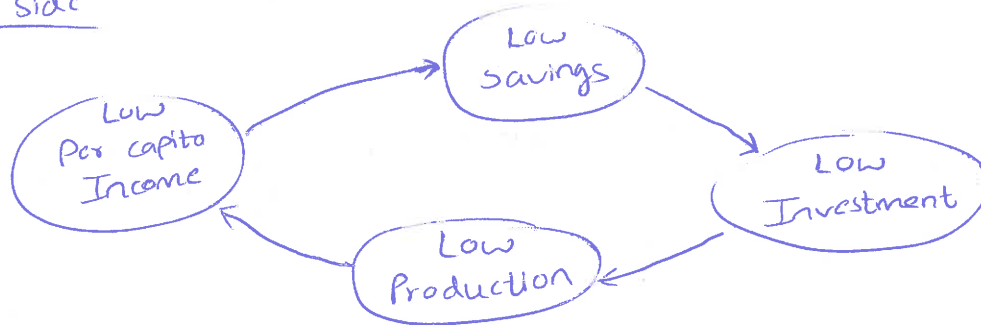
⇒ These industries plan together a complimentary method to achieve above objectives leading to large scale planned industrialization.

## BC strategy

— Ragnar Nurkse

⇒ In Underdeveloped economy, economic duplt keeps on declining due to the vicious circle of poverty.

Supply side



Demand side



⇒ To break vicious circle, individual investments will not work.

⇒ Investment in various sectors is required simultaneously to break this circle.

⇒ This can be done by monetary expansion, i.e.

(i) By reducing price OR increasing the money income.

$$\text{Real MS} = \frac{M}{P} \quad \text{if } P \downarrow \text{ or } M \uparrow, \text{ Real Money supply } \uparrow$$

But in underdeveloped countries, market is not so large that production could be increased heavily to reduce price.

(could be done) Hence the only way more synchronized application of capital by this method, Industries will develop in wide range. Thereby Price will reduce. [Efficient allocation of capital at large scale]

⇒ To achieve this, we need physical capital (Productive equipments) & human capital so that employment increases.

⇒ As we know, for a balanced growth path, there should be:

(i) Balance between different sectors.

(ii) All sectors should grow simultaneously

(iii) There should be balance between Agriculture & Industries.

### Limitations of Bn strategy

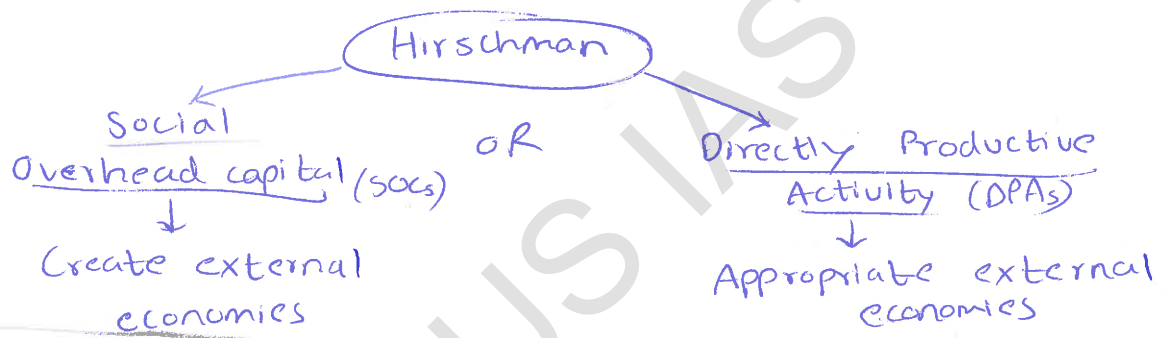
- ① Huge investment should be there in different sectors simultaneously but developing countries do not have enough resources to do this.
- ② Simultaneous establishment of industries to achieve this income should increase but if income increases, cost of industry also increases.
- ③ Developing countries are characterized by dualism (Agri. & industries) & thereby it becomes very tough to grow simultaneously in both sectors.
- ④ shortage of resources.

PLUTUS IAS

## Unbalanced Growth strategy

— Hirschman

- ⇒ According to this theory, investment should be made in selective sectors rather than simultaneous investment.
- ⇒ Since resources are limited, therefore, investment should be done in few sectors for rapid development.
- ⇒ Hence, investment should be done in strategically selected industries. This will lead to new investment opportunity, which will lead to economic development.
- ⇒ Hirschman said that development is the chain of disequilibrium.
- ⇒ Development is achieved by unbalancing the economy, this will happen if investment is in social overhead capital or directly productive activities (DPAs).



### Social overhead capital

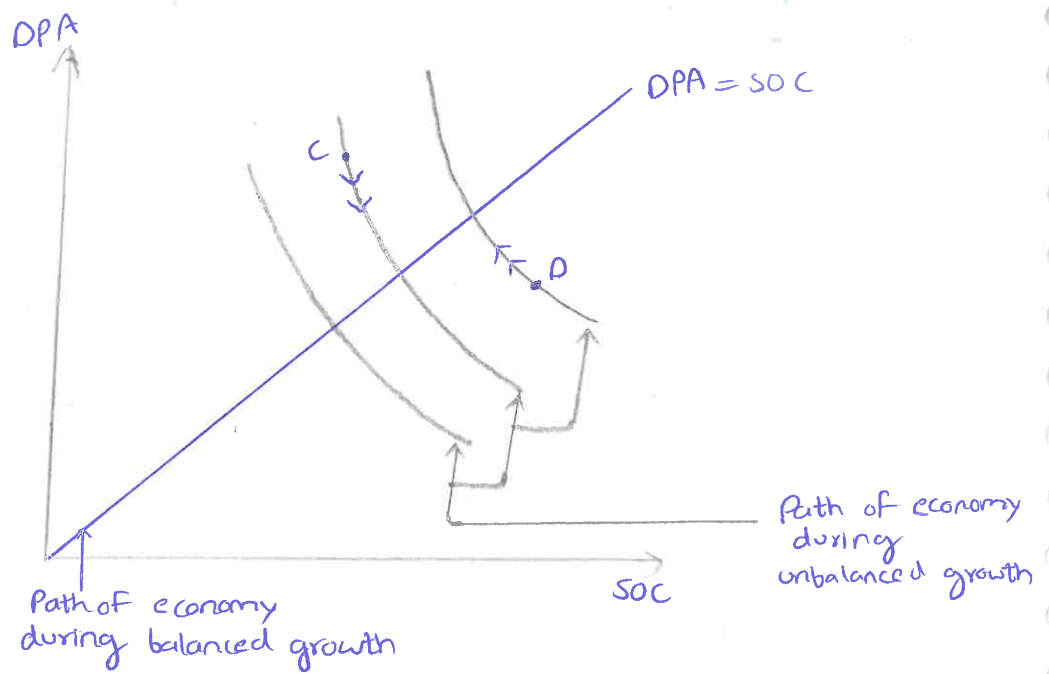
- ⇒ Social Overhead comprises <sup>those</sup> ~~both~~ basic services, without which primary, secondary & tertiary cannot work.
- ⇒ Investment in public utility like power, transportation, irrigation health is social overhead.
- ⇒ Investment in these reduces the price of social overhead inputs or social overhead capital. (input cost ↓)

Leading to ECONOMIC DEVELOPMENT

- ⇒ Hence, social overhead capital is essential for economic development

### Directly productive Activity

- ⇒ OPA is done due to profit expectation & political pressure.
- ⇒ So profit expectations generate sequence of SOCs which leads to OPA
- ⇒ Political pressure lead to OPA.
- ⇒ Path of development can be through excess SOCs or shortage of SOC



### Assumptions by Hirschman

- ① SOC's & DPAs can never expand simultaneously.
- ② The sequence of expansion should be adopted which maximizes outcomes of induced decision making.

③

### Criticism of unbalanced growth theory

- ① No attention paid towards composition, direction & timing of unbalanced growth.
- ② Unbalanced growth generates inflationary pressures which leads to shortage of consumer goods.
- ③ Basic facilities were ignored by this model like income.

Despite these points, unbalanced growth theory is very popular in Underdeveloped countries.

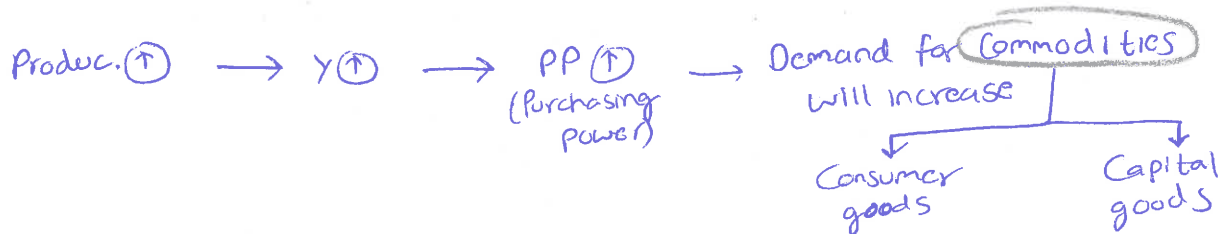
## Harrod - Domar model

⇒ Economic growth is output of capital accumulation, leading to ↑ in Aggregate output.



⇒ Economic growth is a result of abstaining from current consumption which leads to savings.

⇒ Savings will lead to increased production



⇒ Households purchase consumer goods & firms purchase capital goods.

⇒ Savings if are positive means all income is not spend on consumption. So firms will be left with money to purchase capital goods.

⇒ Capital goods increase the stock of capital or adds to the stock of capital, as a result economic growth will occur.

⇒ In Harrod - Domar model, growth of economy depends upon

① Savings rate ( $s$ ) =  $\frac{S(t)}{Y(t)}$  (savings in time period  $t$ )  
(Income in  $t$ )

• Savings rate is a fraction of income which is saved.

② Capital - Output ratio ( $\theta$ )

• It represents, how much capital is needed to produce 1 unit of output

$$\theta = \frac{K(t)}{Y(t)}$$

• Hence, if economic growth is positive then economy accumulates capital.

as if  $K(t) \uparrow \rightarrow \text{Invest.} \uparrow$  & thus  $I > S$   
(Investment > Depreciation)

• If Investment becomes greater than Depreciation, economic growth occurs.

So  $K(t+1) = K(t) - \delta K(t) + I(t)$

∴  $K(t+1) = (1-\delta) K(t) + I(t)$

Capital in next yr.

∴  $\theta Y(t+1) = (1-\delta) \theta Y(t) + s Y(t)$

$[K(t) = \theta Y(t)]$

$[S(t) = s Y(t)]$

$[I(t) = S(t)]$

$$\therefore \theta Y(t+1) = \theta Y(t) - \delta \theta Y(t) + s Y(t)$$

$$\theta [Y(t+1) - Y(t)] = s Y(t) - \delta \theta Y(t)$$

$$\theta [Y(t+1) - Y(t)] = Y(t) [s - \delta \theta]$$

$$\therefore \frac{Y(t+1) - Y(t)}{Y(t)} = \frac{s - \delta \theta}{\theta}$$

Growth rate ( $g$ )

$$\therefore g^* = \frac{s}{\theta} - \delta$$

So Growth rate  $g^* \propto s$

i.e. if savings rate high  $\rightarrow$  GDP growth rate also high,

Also  $g^* \propto \frac{1}{\theta}$

i.e. if Capital-output ratio  $\uparrow \rightarrow$  GDP  $\downarrow$   
[Low productivity]

$\Rightarrow$  Therefore, to frame development policies in underdeveloped countries, this model is used,

Mainly in framing taxation policies, since if we increase savings rate then growth rate of GDP increases.

Effect of population growth

$$g^* = \underbrace{\left[ \frac{s}{\theta} - \delta \right]}_{\text{GDP growth rate}} - n$$

Population growth rate

Growth rate of GDP is determined by:

- ① Savings rate
- ② Capital-Output ratio
- ③ Population - Growth rate

These factors are not only exogenously given but they are determined endogenously as well. This means the growth in economy these factors change.

$$\text{So } g^* = f(s, \theta, n)$$

$$\text{also } s = f(g^*)$$

$$n = f(g^*)$$

$$\theta = f(g^*)$$

Hence,  $s \uparrow$  means Continuous growth.

[Contrary to Solow's level effect model]

Note - Harrod-Domar correct for short term but Solow correct for long term/run

As in long run with  $s \uparrow \rightarrow K \uparrow \rightarrow \theta \uparrow$   
& thus lower productivity (dim. returns of  $K \rightarrow Y \downarrow$ )

## Endogeneity of savings & population

- Savings rate & population are not given exogenously but endogenously given
- During economic growth, these factors change :

(Per capita income)  $y \downarrow \rightarrow$  Then, Income will be spend to sustain consumption (necessity) & thus savings  $\downarrow$   $C \uparrow$

Therefore, savings decrease (savings rate is less or there is less savings in economy)

when  $y \uparrow \rightarrow$  Then, savings will increase & thus consumption  $\downarrow$   $C \downarrow$

- so, as savings rate changes, economic growth rate changes
- similarly with change in population growth rate, per capita income changes & hence economic growth rate changes.

# Demographic Transition

⇒ There are 3 phases of it

1<sup>st</sup> Phase

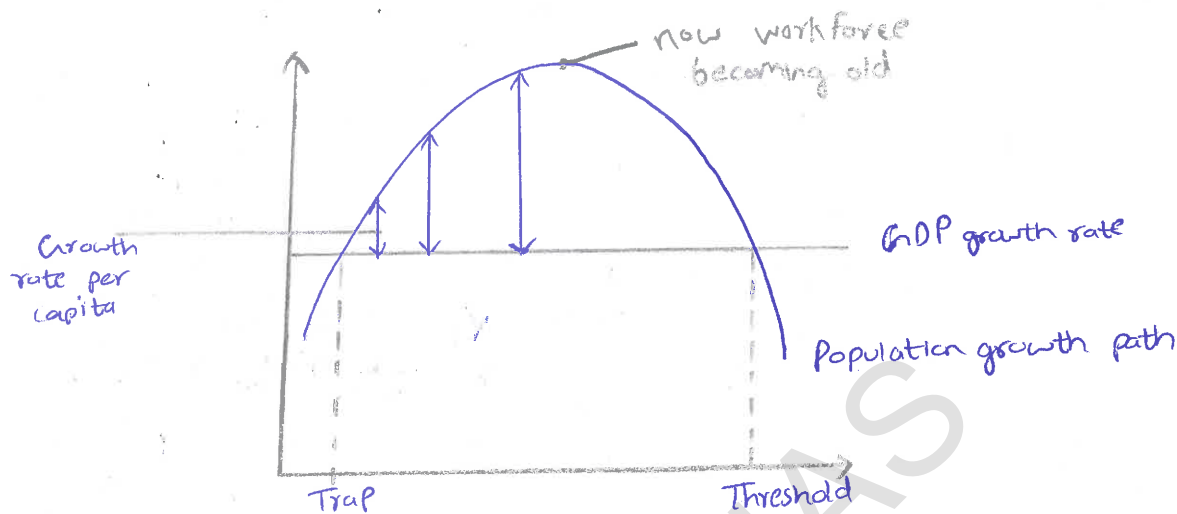
BR(↑) & OR(↑)  
= Pop<sup>n</sup>(↓)

⇒ 2<sup>nd</sup> Phase

BR(↓) & OR(↓)  
= Pop<sup>n</sup>(↑)

⇒ 3<sup>rd</sup> Phase

Both stable  
= Pop<sup>n</sup> growth  
Stable



⇒ If per capita income is low, then economy is caught in a trap

⇒ In absence of economic policy, economy is in threshold, so for sustained development, economy should cross threshold.

## Domar Model

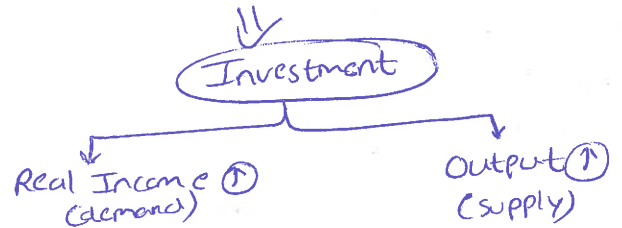
⇒ Both harrod & domar were interested in finding out role of investment for smooth working of economy.

⇒ Domar said investment plays dual role in economy:

- ① Provides Income for factors of production in the economy.
- ② Increases production capacity i.e. It increases capital stock  $K$ .

⇒ Hence, investment has 2 effect:

- ① Supply effect
- ② Demand effect



⇒ But here the necessary thing is that Real income & output should grow at the same rate so that productive capacity of capital stock grows.

⇒ Required rate of ~~of income rate~~ growth is called full capacity growth or warranted growth rate

### Assumptions

- ① There is an initial full employment level of income.
- ② No gap in adjustment between investment & creation of productive capacity.
- ③ Economy is closed & there is no govt. interference.
- ④ Marginal propensity to save is constant.
- ⑤  $\theta = \frac{K}{Y}$  — capital coefficient
- ⑥ There is fixed proportion of capital & labour in production process.

⇒ At what rate investment should be increased, so that increase in income is equal to increase in productive capacity ?

Productive capacity — supply side ; Investment — I

⇒ Annual productive capacity of newly created capital is equal to  $s$  (small  $s$ )

so  $s = \frac{\Delta Y}{\Delta K}$  i.e. Increase in Income due to Increase in capital stock.

∴  $\Delta Y = s \Delta K$  ( $\Delta K$  is investment)

∴  $\Delta Y = s I$

⇒ New Investment is done on the basis of old capital i.e. as output of old capital is decreasing.

so  $\Delta Y = \sigma I$

$[\sigma = s]$

as newly created cap. has to be  $= \sigma$  to sustain Real income = output.

$\sigma \rightarrow$  Net potential of social average productivity of Investment.

Demand side — Keynesian Multiplier

→ So here,  $Y = AD = C + I$

$$\Delta Y = \frac{1}{c} \cdot \Delta I$$

$[c \rightarrow$  Marginal propensity to save]

↳ as in Keynesian Multiplier

$$c = \frac{\Delta I}{\Delta Y}$$

$$\therefore \frac{1}{c} \times \Delta I = \sigma I$$

$$\therefore \frac{\Delta I}{I} = \sigma c$$

$$\therefore \boxed{\text{Growth rate of Investment}} = \sigma c$$

↳ Answer to the Q

Case

If  $\frac{\Delta I}{I} > \sigma c$

Economy is in Boom

If  $\frac{\Delta I}{I} < \sigma c$

Economy is in recession

## Harrod Model

- ⇒ He tried to explain through this model how steady growth occurs in an economy.
- ⇒ If steady growth is interrupted by any sector or disequilibrium occurs in the economy then cumulative forces tend to perpetuate (never ending) & there is divergence in the economy.

⇒ So disequilibrium occurs due to:

Secular  
Inflation

(Inflation in all sectors)

Deflation

⇒ Certain rate terms:

Actual Growth Rate ( $n$ ) →  $n = \frac{S}{C}$

$S$  — saving rate

$C$  — capital-output ratio

- so it is  $n = \frac{S}{C} = \frac{I}{\Delta Y}$
- as  $S = I$  & capital-output ratio change corresponds to change in Income.

Warranted rate of growth ( $n_w$ )

- This is also called as self sustaining growth rate or full capacity rate of growth.
- Full capacity growth rate of income of economy, here producers will be satisfied with what they are doing, i.e. it is called entrepreneur equilibrium or producers equilibrium.
- This growth rate is a line which when achieved satisfies profit making objective of the firms.
- Hence this growth rate is primarily related to behaviour of business.
- At warranted growth rate, demand is so high that if businesses produce very high quantities of product, still they will be able to sell it.
- Hence, here demand & supply of goods will remain in equilibrium  
i.e.  $D = S$  for given propensity to save.

$$n_w = \frac{S}{C_r}$$

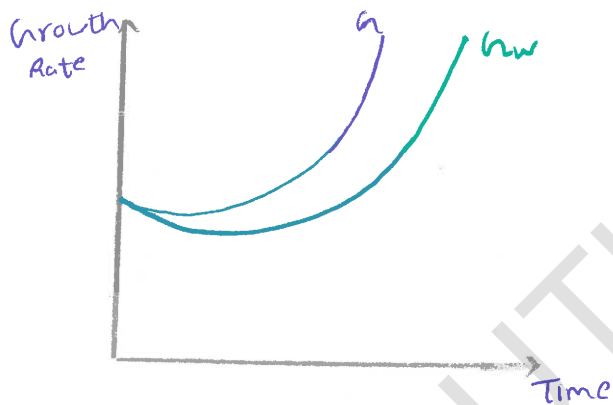
$C_r$  — Required capital

- If economy grows at this rate then capital stock will be fully utilised & investors will be ready to invest entire savings.

⇒ It is thus found that if  $g \neq g_w$  will result in disequilibrium

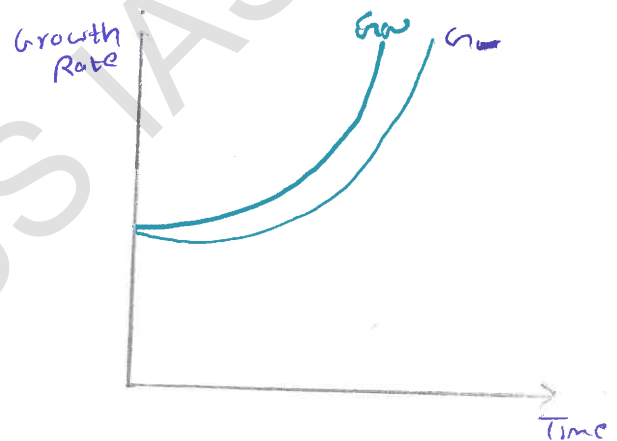
if  $g > g_w$

- Insufficient goods & equipments (Produce) (Capital)
- This will lead to secular inflation as there is deficiency of capital i.e.  $C < C_r$   
Actual capital



if  $g < g_w$

- Excess goods (Produce) & equipments (Capital)
- This will lead to secular deflation as there is excess of cap. i.e.  $C > C_r$



- ⇒ Harrod stated that if actual growth rate deviates from warranted growth rate then it will continue to deviate.
- ⇒ According to him, there is a centrifugal force which acts & system keeps on deviating away & away from equilibrium. Since system does not have self-correcting nature.

⇒ So for long run stability, it is necessary to maintain  $g = g_w$ . Hence Harrod introduced 3<sup>rd</sup> concept of Natural growth rate ( $g_n$ )

- It is such a growth rate where population increase & technological improvement both are allowed.

$$\text{So } Y = AK^\alpha L^{1-\alpha}$$

(A) — Tech. Improv.      (L) — Popn.

Note — Inelastic response of goods to prices as capital is low (thus no substitutes) & hence no self-correction

- So natural growth rate depends on technology & population as output is dependent on these factors.

⇒ For long term growth

$$G = G_w = G_n$$

↳ knife-edge growth

Slight deviation from above mentioned condition leads to disequilibrium → Leading to

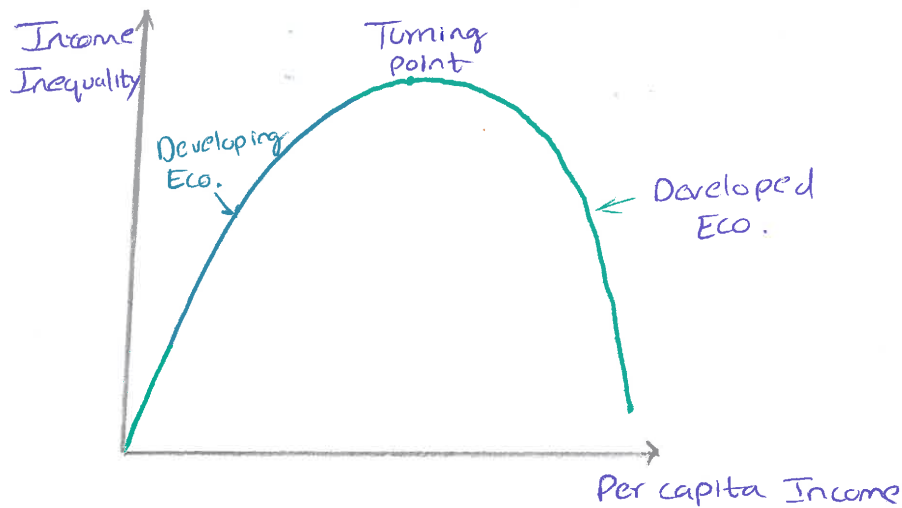
secular Inflation

secular stagnation  
or deflation

} Harrod  
Instability  
Problem

⇒ In a nutshell, It is observed that Savings is good for Inflationary gap & It is bad for deflationary gap.

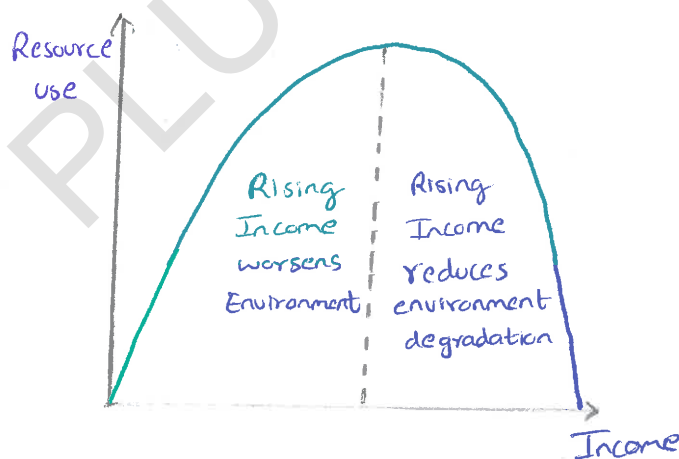
## Inverted U Hypothesis



⇒ As an economy develops, market forces first increase & then decrease Economic Inequality.

⇒ Kuznet's Inverted U says, income inequality should follow an inverse U shape along the development process, first rising with industrialization & then decline as more & more workers join the high productivity sectors of the economy (quaternary / service sectors).

## Environmental Kuznet Curve



## Land Revenue System in British India

⇒ India's Land Revenue systems were the backbone of colonial administration & shaped agrarian relations for generations.

### Historical Context

→ Before colonial rule, land in India was managed under a complex, locally varied arrangement. Mughal system recognized multiple layers of rights namely; The state, the intermediaries (Zamindars) & the actual cultivators.

→ When the Britishers arrived, they needed a stable, predictable revenue mechanism to finance their administration.

This need led to the formation of 3 major land settlement systems:

#### ① Zamindari System (Permanent settlement)

- Introduced in 1793 by Lord Cornwallis in Bengal, Bihar & Orissa through Permanent Settlement Act.
- It was largely the brainchild Philip Francis & was implemented by Cornwallis.
- Core Idea
  - The British recognized Zamindars (who were historically tax collectors under the Mughals) as the absolute owners of the land.
  - The revenue they had to pay to British government was fixed permanently, i.e. it would never increase or decrease regardless of how much the productivity of land increases or decreases.
- How it worked
  - The Zamindar was the proprietor of the land.
  - Peasants became tenants under the Zamindar, they had no ownership rights.
  - Zamindar paid fixed revenue to the British.
  - If the Zamindars failed to pay on the fixed date, his land could be auctioned off (this was the infamous Sunset Law).

## • Consequences

- For Zamindars, those who could pay prospered enormously as agricultural productivity grew, the revenue they owned stayed fixed while the rent they could collect from peasants could rise freely.
- For Peasants, absolutely insecure as they had no legal protection, rents were raised arbitrarily & evictions were common. They were reduced to the status of landless labourers.
- For Agriculture, Zamindars had little incentive to invest in land improvement, since they didn't cultivate themselves. Agricultural stagnation followed.
- For Britishers, Revenue was stable & predictable but they surrendered the benefit of any future increase in land productivity.

## • Geographical spread

- Bengal, Bihar, Orissa, parts of Madras & U.P. (eastern district) covered roughly 19% of British India.

## ② Mahalwari System

- Introduced in 1822, primarily associated with Holt Mackenzie & later modified by R. Mertins in 1833.
- Applied mainly in Northwestern province (modern UP), Punjab, Central India & parts of Rajasthan.
- Core idea
  - There would be 'Mahal' means an estate or village.
  - Unlike Zamindari system, the village community (Mahal) as a whole was treated as unit of revenue settlement.
  - The entire village was held jointly responsible for paying revenue.

### • How it worked

- The revenue was settled with the village community collectively not with the single landlord.
- Village headmen (Lambardar, Patel) represented the community & collected revenue.
- Individual cultivators had rights over their land i.e. cultivators are owners of land but the joint responsibility meant that if one family defaulted then others had to cover it.
- Revenue was not permanent, it was periodically revised (usually every 20-30 years) based on reassessment of land productivity.

### • Key features

- Recognized the joint ownership tradition of Indian village communities
- The village itself was a legal entity in relation to the state.
- More flexible than Zamindari system.
- Revenue could be revised upward as productivity changed.
- Cultivators had more security than under zamindari, since there was no single powerful intermediary directly above them.

### ③ Ryotwari system

- Introduced in Madras in 1820 by Sir Thomas Munro (governor of Madras) & independently in Bombay.
- The Intellectual foundation was laid by Alexander Reed & Munro in the late 18<sup>th</sup> century.

### • Core idea

- The word 'Ryot' means 'Individual Peasant Cultivator'.
- The Direct settlement was made between the British government & the individual peasant, eliminating all intermediaries.
- The state recognized 'Ryot' as the owner cultivator.

### • How it worked

- Each Ryot held the direct contact with the government.
- Revenue was assessed plot by plot based on the quality & type of soil.
- The Ryot paid revenue directly to the govt: No Zamindars, Lambardar required.
- Revenue was not permanent, typically revised every 20-30 years.
- The Ryot could sell, mortgage or lease his ~~to~~ land.

— If Ryot could not pay, he could surrender his land to the government.

### • Key Features

- This system was most direct of the 3 systems.
- Govt. dealt one on one with millions of individual cultivators.
- Required extensive cadastral surveys (Field by field measurements & assessments) that is enormously expensive & complex.
- The Revenue demand was often very high: 45-55% of the Gross Revenue in some areas

### • Consequences

#### Positive

- Peasants had Legal ownership, no exploitative zamindars above them.

#### Negative

- The revenue demand was often so high that peasants were perpetually in debt.
- Moneylenders (sahukars) filled the vacuum left by zamindars, peasants mortgaged their lands & often lost it to the creditors.
- The system did remove a layer of exploitation but the high revenue demand transferred the exploitation from zamindars to the state itself.
- Lands gradually concentrated in the hands of moneylenders defeating the purpose.

### • Geographical spread

- Madras presidency, Bombay presidency, Assam, etc.
- About 51% of British India was under Ryotwari, the most widespread of the 3 systems.

### ② → • Consequences of Mahalwari

#### Positive

- Preserved the social fabric of the village community, peasants had relative security of tenure.

#### Negative

- Joint Liability was often oppressive i.e. a poor family's default burdened their neighbours, this also led to internal village conflict.
- Revenue Revision meant that britishers could enhance their income as agriculture improved.
- The system was administratively complex & required detailed village level surveys.

## Commercialisation of Agriculture in British India

- ⇒ Commercialization of agriculture refers to the shift from subsistence farming (where peasants grew food for their own consumption) to market-oriented farming (where crops were grown primarily for sale in domestic & international market).
- ⇒ Under british rule, this was not a voluntary or organic transition but a forced structural change driven by colonial, economic interest.
- ⇒ Why did the british promote it?
- The driving motivations were entirely imperial.
  - Raw material supply for british industries especially cotton for Lancashire textile mills, Jute for Dundee factories & indigo for dyes.
  - Export revenue to finance the 'home charges': India's payment to Britain for administrative cost, pension & interest on Railway debt.
  - Market creation
    - A commercially active Indian peasantry would also consume british manufactured goods.
  - Land Revenue maximization
    - Cash Crops meant that peasants needed money which made them better revenue payers.

### ⇒ Key Instruments of Commercialization

#### (1) Land Revenue System

- The british introduced new Land settlement system that fundamentally disrupted agriculture
- (i) Zamindari System
  - (ii) Mahalwari System
  - (iii) Ryotwari System

#### (2) Integrations into world market

- Construction of railways (1850 onwards) connected interior agricultural regions to port cities like Bombay, Calcutta & Madras
- This enabled mass export of raw agricultural commodities i.e. cotton, jute, wheat, opium, indigo, tea & coffee.

→ Indian peasants became price-takers in volatile global commodity market, they had no control.

### ③ The opium trade

→ A particularly exploitative example: Britain forced large tracts of bihar & bengal into opium cultivation which was then exported to china. Peasants had little say & bore all the risk of price fluctuations.

### ④ Indigo plantation system

→ Britishers planters compelled begali peasants to grow indigo through advance contracts at exploitative prices.

→ This led to the famous revolt of 1859, one of the earliest agrarian rebellions of colonial India.

## ⇒ Economic Impacts

### ① Decline of Food Crop production

→ As Land shifted to cash crops, the area under food grain cultivation shrank significantly. This reduced availability of food per capita, making the population increasingly vulnerable to hunger. When cash crop prices fell globally, peasants were left with neither food to eat nor money to buy.

### ② Recurring & Devastating Famines

→ This is perhaps the most catastrophic consequence. The Commercialization-famine link is direct.

### ③ Destruction of the peasant economy & rise of indebtedness

→ Peasants were now exposed to global price volatility. A fall in cotton or jute prices abroad meant ruin at home.

→ To pay land revenue in cash, peasants borrowed from moneylenders (Mahajans) at various interest rates.

→ Chronic indebtedness led to alienation of land — Peasants losing their land to moneylenders i.e. concentrating land in fewer hands.

→ The deccan riots of 1876 in Maharashtra were directly triggered by peasant fury against moneylenders under these conditions.

#### ④ Disruption of the village self-sufficiency system

- Pre-colonial Indian villages were largely self-sufficient with the Tajmani System providing for exchange of goods & services within
- ~~Pre-colonial~~ Communities.
- Commercialization shattered this by:
  - (i) Orienting production outwards (towards export markets) rather than inwards.
  - (ii) Making local food security subordinate to global market demands.
  - (iii) Breaking the traditional relationship between agriculture & cottage industries.

#### ⑤ Drain of Agricultural Surplus

- The profits of Commercialized agriculture did not remain in India through the export mechanism & land revenue collection, agricultural surplus was transferred to:
  - (i) British Trading firms
  - (ii) British owned plantations (Tea, coffee, Indigo)
  - (iii) British Govt via Land revenue (Home Charges)
- Indian peasants captured almost NONE of the value addition.

#### ~~⑥~~ Regional Specialization & Vulnerability

- Certain regions became dangerously monocrop dependent.
  - ~~→~~ (i) Bengal became heavily dependent on jute
  - (ii) Parts of Deccan on cotton
  - (iii) Assam's economy was tied entirely to tea production.

- This regional monocropping created structural economic fragility — when global prices for one commodity collapse, entire regional economies were devastated.

#### ~~⑦~~ Impact on Artisans

- As agriculture was commercialized, & imports flooded in, the traditional link between village artisans & farmers weakened.
- Weavers, potters, craftsmen who had depended on agricultural communities found their livelihood destroyed —  
Contributing to the broader decentralization of India.

## De-industrialization of India under British rule

⇒ De-industrialization refers to the decline of India's traditional manufacturing sector, particularly textile, handicraft & cottage industries, as a consequence of British colonial policies.

⇒ It is one of the most debated & significant aspect of India's economic history under the Raj.

⇒ Pre-colonial Industrial Strength

- Before British colonization, India was a major manufacturing economy
- Indian textile: Muslin from Dhaka, silk from Bengal & Varanasi, etc. were globally renowned & exported across Europe, W. Asia & SE Asia.
- India accounted for 24-25% of world's manufacturing output in 1750.
- Artisanal industries like metalwork, ~~pottery~~ pottery, ship building & Indigo dying were thriving.
- Indian weavers, spinners & craftsmen formed a large & self-sustaining economic class

⇒ Meaning of De-industrialization

→ Deindustrialization in the colonial context means, displacement & destruction of indigenous industries (Not their replacement by modern factory production but their outright elimination), leaving workers without alternative employment — the result was a reversal of structural transformation i.e. people moved back from industry to agriculture thereby deepening agrarian poverty.

⇒ Causes of Deindustrialization

→ One-way free trade & tariff policy

- Britain enforced asymmetric trade i.e. Indian goods faced heavy import duties in Britain (sometimes 70-80% on Indian textiles) while British manufactured goods entered India at very low or zero tariffs
- After 1813 (end of East India Company's trade monopoly), India was forcibly opened to British manufacturers
- When Indian manufacturers managed to compete, Britain imposed counter-vailing duties to protect its mills.
- This made Indian goods uncompetitive at home & abroad.

### → Industrial Revolution in Britain

- The mechanization of textile production drastically reduced cost of british cloth.
- Manchester & Lancashire mills could produce cloth for much cheaper rates than Indian handloom weavers.
- Indian markets were flooded with cheap machine-made british textiles destroying the livelihood of millions of weavers

### → Drain of wealth

- Dadabhai Naoroji's drain theory argues that colonial policies extracted surplus from India as 'Home charges', profits & salaries; Leaving no capital for reinvestment in Indian industry.
- The chronic capital drain prevented industrial capital formation in India.

### → Colonial Revenue & Credit policies

- High land revenue demands forced peasants & artisans into debt having no surplus for investment in tools or trade
- Credit institutions favoured british trading houses, Indian artisans had no access to institutional credit.

### → Destruction of Royal Patronage

- Indian princely courts & nawabs were the primary patrons of luxury crafts (fine muslin, jewellery, brocade armlets)
- After annexation of princely states (Doctrine of Lapse) & suppression of 1857 revolt, these courts collapsed, eliminating the demand for high-end artisanal goods

### → Export of Raw material

- India was reduced to a supplier of raw materials (raw cotton, jute, indigo, opium) and an importer of finished goods.
- Raw cotton grown in India was shipped to Lancashire, processed into cloth and sold back to India, destroying the value addition chain that had sustained indian weavers

## ⇒ Consequences

| Dimensions              | Impact                                                                                                                                                                                                                                                                                            |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① Employment            | → Millions of weavers, spinners, artisans <u>lost livelihoods</u>                                                                                                                                                                                                                                 |
| ② Agrarian pressure     | → Displaced workers, pushed back into agriculture, which led to <u>land fragmentation</u> and <u>rural poverty</u>                                                                                                                                                                                |
| ③ Urbanization reversal | → Cities like Dhaka, Surat, Murshidabad <u>depopulated</u> and declined                                                                                                                                                                                                                           |
| ④ Export structure      | → India's export basket shifted from <u>manufactured</u> to <u>raw materials</u> .                                                                                                                                                                                                                |
| ⑤ Income levels         | → <u>Per capita income stagnated</u> or declined through much of 19 <sup>th</sup> century.<br>(note) — Dhaka's population fell from 1,50,000 to around 30,000 to 40,000 in the early 19 <sup>th</sup> century as its famous muslin industry collapsed.<br>(A stark symbol of deindustrialization) |

## ⇒ Evidences and scholarly debate

- Dadabhai Naoroji and R.C. Dutta were early nationalistic economist who documented deindustrialization symmetrically.
- Amiya Bagchi's study of Gangetic Bihar showed a dramatic fall in the proportion of the workforce in industry between 1809 to 1813 and 1901.
- Some historians like Morris D. Morris contested the extent of deindustrialization arguing that aggregate data is insufficient.
- The main stream view supported by Bagchi, Dutta and later Utsah Patnayak holds that deindustrialization was real, severe and structurally damaging.

## ⇒ Limited and late industrialization

- Modern factory based industry emerged very late and narrowly in India; Bombay cotton mills (1850s-60s), Tata iron and steel (1907)
- Even this was often resisted by British policies (For e.g. Imposing excise duty on Indian cotton mills in 1894 to protect Lancashire)

→ By 1947, India remained a predominantly agrarian economy with minimal industrial base. (A direct legacy of colonial deindustrialization).

PLUTUS IAS

## Laissez Faire

### ⇒ Origin and Meaning

- The term laissez faire comes from french, let meaning 'Let do or leave alone'.
- It is attributed to the french physiocrats.  
[Scholars limited to france who believed that Real production in economy is attributable only to Agri. sector] Rest (manu. services) are its modification.
- This theory later became the philosophical backbone of classical economics.

### ⇒ Natural Order

- The physiocrats believed that an underlying natural Economic order exist which if left undisturbed produces optimal outcomes.
- Government intervention disrupts this natural harmony.
- This idea was deeply influenced by enlightenment thinking (Reason and nature as self-correcting forces).
- Self-interest as a social mechanism
  - Adam Smith was formalized this in the 'Wealth of Nations' (1776). His central argument was that individuals pursuing their own self-interest are led as if by an 'Invisible hand' to promote economic well-being of a society as a whole. For ex: the baker does not bake bread for your benefit but for his own profit yet society gets bread.

### ⇒ What Laissez Faire meant in Colonial context?

- ① No state Regulation of trade, industry or prices.
- ② Free movement of goods & capital.
- ③ Minimal government expenditure on economic development.
- ④ Reliance on market forces for resource allocation

In colonial India, these features translated into:

- ① Free trade imposed on India, while Britain itself practised mercantilism and later selective protectionism
- ② Deliberate non-nurturing of Indian industries.

- ③ Revenue Extraction as the primary function of the Colonial state.
- ④ The Colonial govt. acting as a facilitator of British Commercial interest not an Indian developmental state.

### ⇒ Major Implications

→ This is the most devastating consequence. India which was globally manufacturer especially in textiles, was systematically de-industrialized (~~Dett~~ Dhaka Muslin, Bengal silk, Surat Cotton)

#### ① Deindustrialization

##### Mechanism

- British machine made goods flooded Indian markets without protective tariffs on imports.
- Indian handloom weavers and artisans could not compete on price with factory produced British clothes.
- The Colonial state under Laissez faire, refused to impose protective duties to shield Indian industry.
- When India did impose tariffs (ex: The Cotton duties Act, 1894), Britain ensured counter-vailing excise duties were levied on Indian mills neutralizing protection.

##### Result

- Millions of artisans, weavers and craftsmen lost livelihood
- India was converted from a manufacturer and exporter of finished goods into an exporter of raw material and importer of finished goods.

#### ② Destruction of Indigenous Industries (No state support)

- ~~###~~ Under Laissez faire the colonial govt. 0 industrial policy support to Indian Entrepreneurs.
- (i) No Credit Institutions for Indian businessmen  
(ii) No Technical education or vocational training  
(iii) No public investment in industry.  
(iv) No Infrastructure directed at Indian Industrial development

##### Contrast

- Japan's Meiji Govt. actively industrialized through state guidance

## Impact

### ③ Distortion of Agricultural sector

- The policies had severe implications for agriculture
  - Commercialization of Agri. promoted not to improve food security but to ~~redo~~ produce raw materials for british industry & trade.
  - Peasants were pushed into Cash Crop cultivation making ~~peasants~~ them vulnerable to market price fluctuation.
- Land Revenue system (Zamindari, Ryotwari, etc) extracted maximum surplus leaving peasants in debt with moneylenders.
- Famines (1770 bengal famine, 1876-78, 1899, 1900) were worsened by the state's Laissez-faire refusal to intervene in food markets
  - Grains ~~were~~ exported even during famines.

### ④ Drain of wealth

- Laissez faire provides the ideological cover for drain of wealth.
- India's export surplus was not returned as investment or payment, it was transferred to Britain as "Home charges" (cost of british administration, pensions, etc)
- Under the philosophy of free trade and non-intervention, no barriers were placed. Naoroji estimated annual drain of £ 12-15 mn / yr.  
This meant India was financing british industrialization while being denied the same.

### ⑤ Absence of protective tariff. policy

- This is the heart of Laissez-faire damage

| Aspects                                                                                                                                                                                                 | Implications                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• No Import duty on british goods.</li><li>• No Export duties on raw materials.</li><li>• No Infant industry protection</li><li>• Free capital movement</li></ul> | <ul style="list-style-type: none"><li>— Indian products undersold &amp; <u>wiped out</u></li><li>— <u>cheap raw material</u> flowed to Britain.</li><li>— <u>No indian manufacturing</u> could develop.</li><li>— <u>Profits repatriated</u> to Britain not reinvested.</li></ul> |
| <ul style="list-style-type: none"><li>• The Manchester Lobby in Britain actively pressurized parl. to keep Indian mkt open</li></ul>                                                                    | <ul style="list-style-type: none"><li>— ILC had <u>no real power</u> to <u>do or counter it</u></li></ul>                                                                                                                                                                         |

## ⑥ Stagnation of Infrastructure for Indian development

→ while railways were built (33000+ miles) By 1900, Laissez faire shaped their character.

- (i) Railways were guaranteed 5% returns by Indian govt., (Paid by Indian taxpayers) making them risk free for british investors.
- (ii) Routes serve port evacuation of raw material, not industrial linkages between cities.
- (iii) Railway material (engines, rails, rolling stock) was almost entirely imported from Britain.

## ⑦ Suppression of Human Capital development

→ Laissez faire meant minimal state spending on Indian welfare.

- (i) Macaulay's Education policy was designed to produce clerks for colonial administration not engineers or industrialists.
- (ii) Technical and scientific education was actively discouraged.
- (iii) Public health, sanitation and social infrastructure received negligible investment.
- (iv) India's literacy rate at independence (1947) was barely 16%. (a direct result of colonial neglect)

## ⇒ Long-term Legacy at Independence (1947)

→ The cumulative effect of Laissez-faire colonial policy, left India with

- ① A deindustrialized agrarian economy with nearly 70-75% dependence on agriculture.
- ② Virtually no heavy industry (except some textile mills and early steel — Tata steel 1907 built at Jamshedpur) despite colonial policy.
- ③ A severely underdeveloped financial system oriented towards trade finance not industrial credit.
- ④ Chronic balance of payment dependence and food insecurity.
- ⑤ A population that was amongst the poorest in the world despite sitting atop enormous natural and human resource.

Q. Explain Laissez-faire policy of Britishers and its implications on Indian Economy ? (250 W)

PLUTUS IAS

## Jute Industry

⇒ Jute Industry has historically been one of the most important agro-based industries in India. It plays a significant role in employment, export and regional development especially in eastern India.

⇒ Immediate Post-independence phase (1947-60)

### Partition impact

→ At independence, Jute Industry suffered a major structural crisis due to the partition of India.

→ Raw jute producing areas went to East Pak. (i.e. B'desh).

→ Jute mills remained in India, mainly in West Bengal.

→ As a result:

(i) Acute shortage of raw jute.

(ii) Disruption in production and exports.

### Government Response

→ Expansion of Jute cultivation in West Bengal, Bihar, Assam & Odisha.

→ Emphasis on self sufficiency in raw jute.

⇒ Growth and stabilization phase (1960-80)

→ India achieved self reliance in raw jute production.

→ Jute industry became a major Export Earner.

→ Strong demand for traditional products:

(i) Gunny bags

(ii) Ropes

(iii) Hessian Cloth

### Jute production

• Ind. produce 51% of global raw jute.

• WB (80%) > Bihar > Assam

(98%)

### Institutional support

(i) Creation of organizations like

— Jute Corporation of India, 1971 to stabilize prices

(ii) Government protection through

— Subsidies

— Assured procurement

This period is often called as the 'Golden phase' of Jute industry.

## ⇒ Decline phase (1980-90)

### Major problems emerged

#### (i) Synthetic substitutes

- Rise of plastic and polypropylene reduced demand for Jute

#### (ii) Industrial sickness

- Many mills became financially unviable
- Outdated technology and low productivity

#### (iii) Labour Issues

- Frequent strikes and lockouts and inefficiency.

#### (iv) Export competition

- Strong competition from Bangladesh with cheaper labour and better quality, results: ~~decline in~~
  - Decline in Exports
  - Closure of many Jute mills
  - Loss of employments

## ⇒ Reforms and Diversification phase (1990-2010)

### Post Liberalization changes

→ Economic reforms exposed the Industry to global competition

### Government Intervention

→ Introduction of Jute packaging act 1987, mandated use of Jute bags for food grains and sugar packaging.

→ Diversification efforts

- Promotion of Jute handicrafts.
- Neo textiles
- Decorative and life-style products

shift from traditional to diversified products.

## ⇒ Modern Phase (2010 - present)

⇒ Rising importance again:

- (i) Global push against plastic has revived interest in Jute
- (ii) Seen as a sustainable and Eco-friendly alternative.

### Govt. Initiatives

Focus on

- (i) Modernization of Mills

- (ii) Promotion of Jute diversified products (JDPs)
- (iii) Support to farmers

### New opportunities

- (i) Use in packaging, fashion industry, agriculture (neo-textiles)

### ⇒ Persistent Issues

#### ① Technological backwardness

- Many mills still operate with obsolete machinery.

#### ② Raw material instability

- dependence on monsoon affects production

#### ③ Labour and Cost Issues

- High Labour cost, Low efficiency

#### ④ Competition from Bangladesh

- Bangladesh remains strong global competitor.

#### ⑤ Limited Diversification

- Overdependence on packaging products.

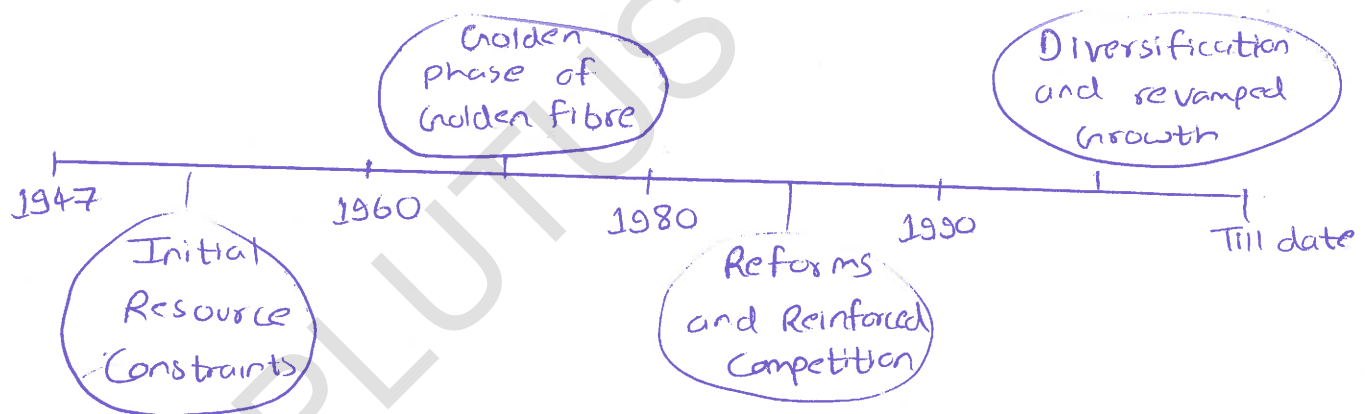
Qn. Explain the trends in Jute Industry in Indian Economy since Independence. Also highlight areas of improvement in this area. (200 words)

⇒ Jute Industry is a major Agricultural product of Global trade in which India contributes around 51% of production with West Bengal being the top producer in India. (80%).

Jute Industry, since Independence underwent a cycle of upturn, downturn and again upturn till today.

### Trends in Jute Industry in Indian Economy since Independence

The trajectory of Jute Industry in India can be divided into following 4 phases.



#### Phase - I

→ Issues arising

- Raw material constraints
- Lack of suitable fields
- Partition and cut off supply chains

[Jute Mill Industries remained in India and Jute fields left in Bangladesh]

## ↳ Measures taken

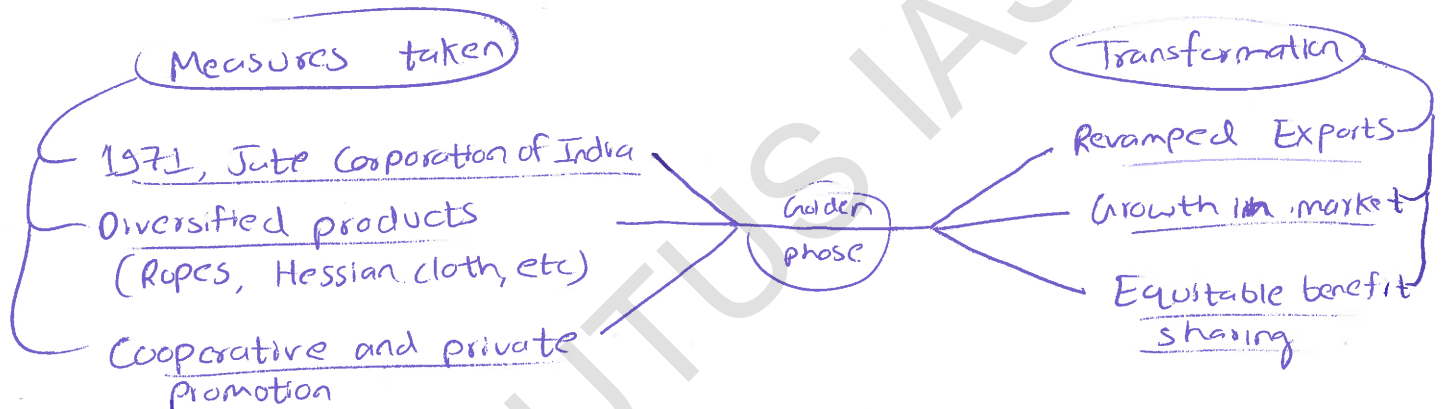
- Identification and selective Jute cropping in suitable farms of Bihar, Assam and Odisha.
- Article 273 (provided earlier and now made use) provided for compensation on export duties to Jute producing states of West Bengal, Bihar, Assam and Odisha.

## ↳ Result

- Resurge in production of jute fair enough to suffice domestic needs.

### Phase II

→ Held as 'Golden phase' of Jute Industry



### Phase III

→ India operationalized the opening of the domestic economy phased competitions with global market.

#### Issues

- Bangladesh a natural competitor
- Old inefficient production tools
- Low mechanization
- New products substitution

#### Results

- Degradation to some extent and lagging of political and economic focus to Jute Industry.

## Phase IV

→ Known as the Modern phase of Jute Industry, it comprised new challenges and subsequent innovative adoptions of new methods.

### Issues

- Bangladesh emerged as a major jute exporter.
- Labour laws restrictions and high cost.
- Large scale substitution by 'Plastics' like Polypropylene in products like ropes, bags, etc.

### Measures taken

- Make in India Campaigns
- ~~Go~~ Golden Fiber scheme
- West Bengal's OPOP (One District One Product)

### Result

- India became largest global producer

## Areas of Improvement

### ① End-Use diversification

- Aesthetic and Ecological value of Jute Industry.
- Use as neoclothing (Green production process)

### ② Institutional Support

- Government subsidies on jute production and its 'Guaranteed procurement'

### ③ Resonance with Heritage

- Jute linked to traditional East India artifacts, resonating with 'Identity card' of the region.

Jute Industry earmarked the progress of Indian economic ideas from 'India for Indians' to 'Vasudhaiva Kutumbakam' serving as the global supplier along with Cultural identification.

## Cotton industry

### Context

- Cotton has been inseparable from India's Economic Identity for centuries. During the colonial period, India's Handspun cotton was deliberately suppressed to feed British mills.
  - Post-Independence cotton textiles became the first large-scale organized industry India rebuilt.
  - The cotton textile industry today remains the second largest employer in India after agriculture itself.
  - India is known as the world's largest producer of cotton with over 13.06 million hectares cultivation out of 33.10 million hectares globally.
- Cotton is called 'white gold' because it is one of India's principal export product, with India's cotton production accounting for 25% of global output.

### Economic Relevance

#### ① Agricultural significance

- Cotton is kharif cash crop grown primarily in the black soil region of the deccan plateau.
- The Central zones comprising of Gujarat, Maharashtra and Madhya Pradesh are the biggest producers while the southern zone comprising of Telangana, Andhra Pradesh and Karnataka and TN is the 2<sup>nd</sup> largest.
- Provides Income to estimated 6 crore farmers & 10s of millions of workers in allied activities like ginning, spinning, pressing, weaving and garment manufacturing.

#### ② Textile Industry Linkage

- Over 60% of India's textile exports are cotton based and the textile industry is a significant contributor to India's GDP and export earnings.
- About 80% of the textile sector's capacity is driven by MSMEs making cotton availability directly linked to the survival of small enterprises.

### ③ Employment Generation

- The cotton industry from farming to textile creates employment across agriculture, manufacturing and trade; making it one of the most employment-intensive value chains in the Indian economy.
- It is particularly significant for women's employment in spinning wheels.

### ④ Export Earnings

- Exports of yarn and textiles products to international market are forecast to remain strong

### Cotton Industry since Independence

⇒ When India became Independent in 1947, it inherited a deeply distorted cotton textile economy. British colonial policy had systematically destroyed India's Indigenous handloom & textile production to feed its own mills.

⇒ Yet paradoxically, India also inherited a modest base of modern cotton mills, concentrated largely in Bombay (the city) and Ahmedabad which had grown during late 19<sup>th</sup> and 20<sup>th</sup> century.

⇒ Key features of the inherited structure

- ① A large but technologically backward Handloom sector.
- ② A small fragile mill sector (mostly spinning, limited weaving)
- ③ Near Zero ginning and pressing infrastructure.
- ④ No domestic seed research.
- ⑤ Cotton farmers entirely dependent on rainfed cultivation with traditional varieties.

India was a Net exporter of raw materials and importer of finished textiles.

Phase I : The Nehruvian era and state led foundations. (1947-65)

→ Industrial policy Resolution (1948 & 1956)

- Textiles were placed in Schedule B category under IPR 1956, open to both public and private sector but with state holding the right to progressively take over.
- Cotton textile mills remained largely in private hands but the state regulated them heavily through:

(i) Licensing under the Industries Development and Regulation Act, 1956.

(ii) Textile commissioner's office for production quota and price control.

(iii) Hank-Yarn obligations (a policy requiring mills to produce a certain proportion of coarse yarn for handlooms)

coiled-looped  
bundle of material

### → The Dual-structure

- From the very-beginning independent India's cotton industry had an uneasy dual structure i.e. Organized mill sector vs Unorganized handloom/powerloom sector.
- Nehru's government deliberately protected the handloom sector on both employment and Grandhian ideological grounds.
- Handlooms were reserved for certain categories of cloth.
- The Khadi and Village Industries Commission (KVIC) was established in 1956 to promote handspun, handwoven cotton cloth.
- Differential Excise duties were imposed favouring handlooms over mills.

### → Agricultural site / cotton Farming.

- Cotton cultivation in this period was entirely dominated by desi varieties i.e. short staple low yield, rainfed.
- The state's focus was on food security. So cotton received limited investment. The first five year plan gave priority to irrigation but cotton farmers in Maharashtra, Gujarat and parts of south remained dependent on monsoon with yields as low as 100-150 kg/hectare.

### → The Central Institute for Cotton Research (CICR)

- Intellectual roots of CICR go back to 1930s but it was established in Nagpur in 1976.

## Phase - II : Expansion and crisis in the mill sector (1965-85)

### → Growth of the mill sector

- Through the 1960s and into the 1970s, the organized cotton mill sector in Bombay and Ahmedabad expanded. India became a significant exporter of cotton yarn and grey-fabric to developing countries.
- The cotton textile export promotion council established in 1954 played a key role in organizing exports. wool

• However structural problems were accumulating:

#### (i) Technological obsolescences

- Most mills were using pre-war vintage machinery.
- Under the licensing regime, modernization required government approval which was slow and bureaucratically cumbersome.

#### (ii) The Hank-Yarn obligation

- Mills were forced to produce low-value coarse hank yarn for handlooms at controlled prices squeezing profitability.

#### (iii) Price control

- The govt. fixed prices for certain categories of cloth which kept consumer prices low but destroyed mill margins.

#### (iv) Labour rigidity

- The Industrial Disputes Act made retrenchment virtually impossible, creating over-staffing & resulting in loss making mills.

mill - Industry producing something on large scale.

### → Rise of the powerloom

- Powerlooms being in the unorganized, small sector it escaped most controls & excise duties.
- They undercut mills on price and gradually captured the market.

### → National Textile Corporation (NTC)

- As mills became loss making, govt. responded with nationalization.
- The NTC was established in 1968 to takeover sick cotton textile mills. Over the 1970s and early 1980s, NTC absorbed 190 mills across the country, rather than reviving them, NTC mills became massive fiscal drains. i.e. overstaffed, technologically frozen and perpetual losses. This became one of the most expensive public sector failure in Indian Industrial history.

## → The Great Bombay Textile Strike (1982-83)

- This is perhaps the single-most consequential event in post-independence cotton mill history, led by Trade Union leader Datta Samant about 2.5 Lakh mill workers in Bombay's famous Virangaon went on a prolonged strike demanding wage revision, and Union recognition.
- The strike lasted nearly 18 months and ended in catastrophic defeat for the workers.
  - (i) Mill owners refused to concede and many used the opportunity to accelerate the shift to the powerlooms in Bhiwandi and Surat.
  - (ii) The state did not intervene effectively
  - (iii) Over the following decade, mill after mill in Bombay shutdown.
  - (iv) The Iconic mill land in central Mumbai was gradually sold off for real estate, a controversy that persists to this day.
  - (v) Bombay seized to be India's cotton mill capital.
- The strike accelerated the definitive decline of the organized mill sector and the corresponding rise of the decentralized powerloom sector.

## Phase - III : Preliberalization stagnation and Agricultural shift (1985-91)

→ Cotton agriculture in this period began to show the first sign of shift.

→ The Green Revolution had transformed wheat and rice but cotton remained largely unreformed. However:

- (i) Hybrid cotton varieties developed by Indian scientist (H4) by T. Patel AND (Waralakshmi) by B.H. Katarki)

begin to be adopted in parts of Gujarat and Karnataka modestly improving yields.

- (ii) Synthetic Fibre (Polyester, Nylon)

— Began competing with cotton in the domestic market forcing cotton industry to respond to quality pressure.

- (iii) The textile policy of 1985 attempted to deregulate the sector partially i.e. it removed some quantity controls and allowed mills to produce a wider range of fabrics but the fundamental structural problem remains the same.

→ On the farming side, farmer indebtedness began emerging in cotton growing regions of Maharashtra and Vidarbha. A foreshadowing of agrarian crisis, that would deepen in 1990s and 2000s.

#### Phase - IV : Liberalization and structural transformation (1991-2002)

→ 1991 reforms had profound implications for the cotton industry, though their full impact unfolded over a decade.

##### → Delicensing & market opening.

(i) The cotton-textile industry was largely delicensed i.e. new capacity could be setup without govt approval.

(ii) Import restrictions on cotton were erased allowing mills to access global markets for raw fibres.

(iii) Export controls on cotton were progressively relaxed.

##### → The Textile policy of 1991 and technology-upgradation Fund (TUF)

• Recognizing the massive technological backwardness of Indian mills, the govt. launched the technology upgradation fund scheme in 1993, providing subsidized credit for machinery modernization.

This was the first serious attempt to recapitalize the spinning and weaving sectors after decades of technological stagnation.

##### → Powerloom dominance

• By the mid-1990s, the decentralized powerloom sector (centered in Surat, Bhiwandi, Erode and Koiyambator and Malegaon) had definitely overtaken organized mills in fabric production.

• These units were small, flexible, exempted from labour laws and far more productive per rupee of capital invested.

##### → Agricultural crisis deepens

• Despite economic liberalization, cotton farmers especially in Vidarbha, Maharashtra were in deepening distress.

(i) Input cost rose sharply post liberalization (Ⓢ Govt spending - subsidy)

(ii) Cotton prices were volatile & often crashed after harvest.

- (iii) Institutional Credit was inadequate, Farmers borrowed from moneylenders at very high rate.
- (iv) The combination of crop failure and debt led to the beginning of farmer's suicide in cotton growing regions.  
(The phenomenon that intensified through late 1990s & 2000s & drew national & International attention)

#### Phase V : The Bt cotton Revolution / Golden phase of cotton (2002-2014)

→ This is the most dramatic chapter in post-independence cotton history.

#### → Introduction of Bt cotton 2002

- The Genetic Engineering ~~Approval~~ Committee approved commercial cultivators of Bt cotton developed by Monsanto Mahyco in 2002.
- This was the first and the only GM ~~crop~~ to date, approved for commercial ~~ex~~ cultivation in India.

#### Impacts

→ The results were transformational:

- (i) Bt cotton adoption reached 95% of India's cotton area by 2013-14.
  - (ii) Production rose from 140 Lakh bails in 2002-03 to peak of 398 Lakh bails in 2013-14 (nearly 3x) in a decade.
  - (iii) India transformed from a net cotton importer to the world's largest cotton exporter briefly around 2011-12.
  - (iv) Farmer's income in cotton growing state rose significantly.
  - (v) Pesticide use initially declined. (though it later rebounded due to secondary pests)
- This period represents the only instance in post-independence India of a single technological intervention causing a near complete transformation of a major crop productivity landscape.

## → Textile Sector Corresponding growth

- Parallel to Bt cotton, India's spinning sector expanded massively.
- India became world's second largest spinner after China.
- Cotton Yarn exports surged.
- Garment and made-up export grew strongly particularly in EU & US.

## Phase VI: Decline, Crisis and policy Response (2014 to present)

→ Post 2014, the story reverses

- (i) Pink bollworm resistance to Bt cotton emerged destroying technology's effectiveness.
- (ii) New GM technologies have been blocked by regulatory inaction.
- (iii) Production has crashed to 2008-09 levels.
- (iv) India has become net cotton importer (Reversing 2 decades of progress)

→ The mission for cotton productivity (2025-26 budget) represents the latest state response, focussing on a 5 year programme to restore productivity and promote extra long staple varieties.

| <u>Cotton produc. (2025-26)</u>        | <u>Cotton Exports (2025-26)</u>    |
|----------------------------------------|------------------------------------|
| (1 <sup>st</sup> ) — China : 29%.      | (1 <sup>st</sup> ) — Brazil : 32%. |
| (2 <sup>nd</sup> ) — India : 19-20%.   | (2 <sup>nd</sup> ) — US : 28-30%.  |
| (3 <sup>rd</sup> ) — Brazil : 16%.     | (3 <sup>rd</sup> ) — Aus : 11%.    |
| <u>Clothes Produc. (2025)</u>          | <u>Clothes Export (2025)</u>       |
| (1 <sup>st</sup> ) — China : 35%.      | (1 <sup>st</sup> ) — China : 31%.  |
| (2 <sup>nd</sup> ) — Ind : 18%.        | (2 <sup>nd</sup> ) — B'desh : 8%.  |
| (3 <sup>rd</sup> ) — Bangladesh : 10%. | (3 <sup>rd</sup> ) — Vietnam : 7%. |

Qn. In reference to Indian Economy. Explain the inception and several phases of Cotton Industry. (200 words)

⇒ India is a major cotton producer (2<sup>nd</sup> in the world today) since last three centuries and the Associated manufacturing Industry is the largest employer after Agriculture.

### Inception of cotton Industry

- In post-Independence era, India carried a moth-eaten Manufacturing and lowly mechanized agricultural Colonial legacy of cotton.
- The first cotton mill in India though established in 1853, Bombay (By Cowasji Nanabhai) remained ~~at~~ limited to a meagre scale (count less than 10)

### Phases of Cotton Industry

Phase I  
1947-65

Concentrated in Bombay and Ahmedabad  
(traditional hubs)

#### Key Features

- Low / No Capital equipments Use.
- Subsistence based Intensive farming.
- Disguised employment and low wages.
- Lacking state initiatives of Reforms

Isolation of Cotton Industries & fields  
from Green Revolution

Phase II  
1965-80

#### Key Features

- No High Yielding varieties developed
- Considered as secondary need (cloth comes after food)
- No Institutional Credit Mechanism
- Policy gaps for specific attention

### Phase III

1980-91

1980 cotton policy and state's acceptance of Responsibility

#### Key features

- High subsidy on seeds and other Input requirements
- Production-based obligations of Mills  
(Hank-Yarn, etc)
- Powerlooms grew at cost of Mills.  
[Low per unit cost and Low regulatory oversight]
- Rising population and domestic demand unfulfilled

Cross Subsidization mechanism

LPG reforms and Accessibility of Global raw materials to Cotton-textile producers.

### Phase IV

1991-2002

#### Key features

- Decreased Export and Import restrictions resulting in growing apparel export and cheap input Imports.
- Decentralization of Cotton production:  
New centres at Surat, Exode, Malegaon among others  
(Guj.) (Tamil Nadu) (Maha.)
- Labour-friendly policies + Diminished Regulatory Oversight  
= Bureaucratic Red-Tapism.
- Low per unit of Land Yield

Bt Cotton developed by Monsanto as a High yielding and only approved GM crop of India.

### Phase V

2002-2014

#### Key features

- Production grew from 140 Lakh bails in 2002-03 to around 398 Lakh bails in 2014
- India briefly became largest Cotton exporter in 2011-12.
- Golden-boom phase of cotton Industry.

## Phase VI

2014 - present

Decadal growth decline and new issues

### Key features

- Business, Service-oriented governance, making policy for Ease of doing business and neglected Agricultural sector.
- Series of Crisis events
  - Pink Bollworm resistance developed against Bt cotton (efficacy neutralized)
  - 2019 COVID crisis and declined production.
  - Private capital investment crunch & plunging.

However, despite recent shortcomings in the cotton industry, India remains the second largest producer and working on policies of 'Sahkar se Samriddhi' (Prosperity by Cooperation) building upon the cooperative sector.

# Railways

## ⇒ Part I : Colonial Inception - Railway as Imperial Infrastructure

- A British plan for railway development in India was first initiated in 1832. But the core pressure for building railways came from London in 1840. (1832-1947)
- In 1844, private entrepreneurs were permitted to launch a railway system by Lord Hardinge, the governor-general of India.
- The Railway age dawned on 16<sup>th</sup> April 1853, when the first train ran from Bombay's boribandar to Thane (21 miles) and marked by 21 <sup>gun</sup> salute.
- The mileage of India's Rail network grew from 838 miles in 1860 to 15,842 miles in 1880, mostly radiating inland from the 3 major port cities of Bombay, Madras, Calcutta.

### The Real Motive

- The construction was not about Indian development. The goals of the railway plan were to lower transport cost and give English merchant easier access to raw cotton while simultaneously opening the Indian market to British manufactured products such as cotton textiles.
- Railway also linked industries: steel, locomotives, railway tracks, signalling equipment. That had been growing massively since 1830 in England and needed new markets for expansion - India was the perfect destination.

### The Guarantee System - a structural fraud

- Under the old guarantee system, private companies were promised a return of 5% on their capital regardless of whether they ran at a loss or secured inadequate profit.
- This eliminated any incentive to maintain economy or to employ cheaper Indian Labour instead of highly paid Europeans. The govt. bore all risks, private British capital pocketed guaranteed profits.

### The manufacturing Linkage Deficit

- Here lies most critical colonial indictment. Most Iron & steel imports for railway construction came from Britain. So backward linkages had limited effect on Indian Industry.
- The manufacturing sector was small as well, so forward linkages were also weaker. In other words, the largest Infrastructural investment in colonial India generated almost no domestic manufacturing multiplier. — It was an enclave economy, while India feeding British industry.
- The British implemented a discriminatory tariff policy that favored British manufactured goods and discouraged Indian Industries. India remained heavily reliant on Imports of capital goods from Britain, hindering the development of a domestic capital goods industry.

The profits generated by railways were largely repatriated to Britain draining wealth from India.

### The One Positive Exception — TISCO, 1907

- The demand for Iron and steel from railways did lead to one significant industrial outcome.
- The establishment of Tata Iron & Steel Co., 1907 directly spurred by railway demand. This demonstrates a positive but limited industrial impact. TISCO in Jamshedpur remains the enduring legacy of the railway-steel linkage that colonial policy denied India on systematic scale.

### Transport character — Extraction not Integration

- Prior to railways, transportation was costly, undependable & difficult. Few roads existed, many in disrepair. In many regions commodities in bulk could be moved only by pack of bullocks. Costs / tonne mile was very high.
- Railways did integrate markets but in a fundamentally skewed direction. Instead of feeding the population of inland provinces, the rail-road served to carry grains away from the region where it was

needed the most, so that it could be stored near the port cities for export. The network design was a geographic expression of extraction logic

→ By 1947, India inherited a railway network of approximately 53,996 km (the 4<sup>th</sup> largest in the world) but entirely structured around colonial commerce with no domestic manufacturing ecosystem to sustain or innovate it.

## Part 2: Post Independence

### Reconstruction and nation building (1947-1969)

#### The scale of the challenge

→ India in 1947 inherited railway split across 42 different systems.

(i) Princely state railways

(ii) Company Railways

(iii) State railways

and these were still further divided —

→ The management was fragmented and the infrastructure was war-worn.

→ The first task was consolidation and nationalization. By 1952, all the major railways were unified under the Indian Railway organization, divided into 6 zones. This was among the most significant administrative achievement of early Independence.

#### Manufacturing began at home

→ Breaking colonial dependency

• The Nehruvian state understood that the railways without domestic manufacturing were permanently dependent on foreign capital goods, a strategic vulnerability.

→ The response was a series of landmark manufacturing establishment.

(i) Chittaranjan Locomotive works, 1950 (CLW)

• CLW commissioned in 1950 was the first locomotive manufacturing unit in India, located in West Bengal, CLW initially produced steam locomotives, in collab. with foreign tech.

But was designed to progressively indigenize.

#### (ii) Integral Coach Factory, 1955-56 (ICF)

- The first Rail Coach manufacturing unit, the ICF was established in Madras in 1956.
- ICF coaches (developed based on Swiss prototype) became the standard backbone of Indian passenger trains for over 6 decades until the LHB (Link-Hofmann-Busch) design replaced them in 2000s.

#### (iii) Banaras Locomotive Work-1961 (BLW)

- Banaras Locomotive work commissioned in 1961 became the 2nd locomotive manufacturing unit operated by Indian railways.
- BLW specialized in diesel locomotives reflecting the transition from steam.

#### (iv) Rail wheel Factory, Bengaluru - 1984

- Established to manufacture wheels & axles (a critical component previously imported).

#### The planning framework

- Under Five Year plans, Railways received massive capital allocation, 2nd only to Heavy industries (steel, machine tools).
- Railways were central to Mahalanobis model. They were the arterial system that would move capital goods between steel plants, machine tool factories & construction sites.

It is the leading sector.

- Gauge conversion began as a long-term project. The metre-gauge network, a colonial inheritance was recognized as a constraint on inter-regional trade & military logistics. The Uni-gauge policy (Formally announced in 1952) had its intellectual roots in this era.

1676 mm track (60%)  
+  
1000 mm wide track (40%)

1676 mm track (100%)

#### Transport role

- welding the national market, Freight & Passenger traffic carried by Indian railways has recorded impressive growth even since independence.

↳ While, Input indices in terms of root kilometers, Locomotives, passenger coaches & wagon capacity have only doubled during this period, The traffic output indices increased by 6 times (achieved through selective inputs of affordable technology, adoption of innovative operational strategies & Phased reduction of operating cost).

### Part 3: Expansion, stagnation and freight cross subsidy trap (1965-91)

#### Political economy of the passenger fares

- By the 1970s, a deeply disfunctional political Economy had taken hold. The Railway budget (presently separately from the general budget until 2017) became an annual political theatre—Railway ministers announced new trains to their home states, passenger fares were kept artificially low to appease voters, and the fiscal gap was filled by overcharging freight.
- In India, freight services cross subsidized passenger services. Freight charges were almost 3 times the passenger charges in 2018-19 in stark contrast with countries such as China and Japan where freight charges are lower than passenger charges.
- Between 2009 and 2019, freight <sup>rates</sup> ~~trades~~ increased by 91%. Whereas passenger rates increased by only 28%, ~~this cross~~
- This cross subsidy model crystallized in this era, had a devastating long run consequence. It made rail freight uncompetitive relative to road transport, pushing high value cargo progressively towards trucks and highways from the 1970s onwards.

#### The 1974 strike

- A nationwide railway strike in 1974, one of the largest industrial actions in the world history involving approximately 17 Lakh workers, was crushed by Indira Gandhi Govt. under Emergency like conditions.
- While it demonstrated the political power of the railway workforce, it also entrenched chronic over-staffing and a culture of adversarial industrial relations that persisted for decades.

## Manufacturing - Expansion but technological freeze

- New manufacturing units were added during this period like Rail Coach factory, Kapurthala (1986) and production volumes grew.
- But the technology base stagnated. Electric locomotives were introduced and by (1990s) steam locomotives phased out. To transition to electric traction was a significant operational achievement but locomotive and coach design remained essentially frozen.

## Part 4: Liberalization Era - Partial reforms and structural tensions

(1991-2024)

### The Competitive shock

- Economic Liberalization accelerated road infrastructure investment (the golden Quadrilateral, NHDP) which directly competed with railways for freight and passengers.
- The private trucking industry (fragmented, flexible and politically unregulated) took market share in high value freight precisely because rail freight rates were high.

### The dedicated Freight Corridor Concept, 2006

- By the mid-2000, the network congestion crisis had become acute. About 80% of high density network routes and 48% of highly utilized network routes saw above 100% capacity utilization implying significant network congestion. The solution conceived was OFCs i.e. physically separate tracks exclusively for freight trains.

### Containerization and logistics

- The introduction of container freight (began in 1966 between Bombay and Ahmedabad) matured into a significant logistics system.
- The Container Corporation of India (CONCOR) established in 1968 became a major player in inter-modal logistics, linking rail with ports.

↳ It remains one of Indian railways most commercially successful spin-offs.

### Manufacturing ICF to LHB transition

↳ From the late 1990s, ICF coaches were replaced by safer, newer LHB coaches designed by Linke-Hofmann Bush of Germany.

The LHB coach with Anti-climbing features, superior safety, higher speed capability and air suspension represented a significant technology upgrade, though the design was once again imported rather than indigenously developed.

### Part 5: The modern transformation (2014-present)

#### Manufacturing Renaissance

↳ Make-in India on rails

- This era marks a decisive shift towards indigenization of railway manufacturing. The fulfillment after 7 decades of what Chittaranjan Locomotive work began in 1950,

↳ Vande-bharat express 2018

- The first self-propelled train, Vande Bharat express was rolled out in October 2018. It is estimated to be 40% cheaper than foreign built comparable trains.

- Designed and manufactured entirely at the Integral Coach Factory, Chennai, Vande Bharat represents the first time India produced a semi-High speed train set indigenously.

- Indian railway is now moving to manufacture High-end aluminium self-propelled 160 kmph indigenous made-in-India coaches that require no locomotives and are 10% cheaper than comparable imports.

#### Locomotive manufacturing expansion

↳ BHEL, Patiala Locomotive work, Diesel Locomotive factory at Marhwa and Electric Locomotive factory at Madhepura also manufacture Locomotives in India.  
(Bihar)

- Railway Coaches are manufactured at factories in Kapurthala, Rai Bareilly, Sonipath and Lathur.
- Indian railways operate 3 Rail wheel manufacturing factories at Bangalore, Bela <sup>(Bihar, Sonbhadra)</sup> and Rai-bareilly.

### The OFC revolution in freight transport

- As of march 2025, around 2,741 km (96.4%) network had been commissioned and made operational.
- The impact is transformative, containers that took more than one and a half day to reach delhi from western day now arrives in less than 1/2 that time.
- Freight speeds typically doubled to 40-60 kmph on OFCs. In 2024-25, OFC handled approximately 90 billion tonnes km of freight. [World Bank blog]
- Traffic on OFC increased from 247 average trains /day in 2023-24 to 352 average trains /day in 2024-25.

### Electrification - The green transformation

- Electrification expanded from 5128 km before 2019 to over 44000 km by 2024. Indian railways is on track to achieve 100% electrification soon, significantly reducing carbon emission and decreasing dependence on fossil fuel.

### Structural struggles : The Unresolved crisis - Part 6

#### The Cross-subsidy trap persists

- Indian railways continue to overcharge freight customers to subsidize artificially low passenger fares. This makes Rail-freight uncompetitive trapping the railways in the bulk commodity trap (coal, iron ore) while losing the lucrative logistic market.
- Freight rates in India are much higher than the global benchmark, consequently the rail-share of freight has stagnated at 29% missing the national Rail Plan target of 45%.

## Financial strain

- Despite record budgetary support of ₹ 2.5 Lakh Crore in FY 26 and ₹ 2.78 Lakh Crore projected in FY 27.
- The operating ratio remains above 98% (money used for operational purposes) leaving little internal surplus for expansion.
- On average, Railways spend 69% of its revenue on salaries and pensions alone in last 10 years.

[Pension — 58,444 Crores in 2024-25 & expected to rise to 74,500 Crores in 2026-27]

| (Rail. mn.) Ashwini Vaishnaw |       |       |
|------------------------------|-------|-------|
| In 2026 from 2014 (trunk)    |       |       |
| 130 or >                     | 63.1% | 22.5% |
| 110-130                      | 23.3% | 58.2% |
| < 110                        | 60.4% | 19.3% |

## Speed and Infrastructure Deficit

- As of 2025, 60% of Indian railway tracks are still not fit for speed over & above 130 kmph which is a staggering infrastructural gap for an economy aspiring to be the world class Logistic.
- Full modernization is estimated to require 50 to 100 Lakh Crore over 25 years as per Niti Aayog.

## The Freight Modal-share problem

- India has a shortage of 150-200 modern freight terminals with consolidation, switching and storage capacity.
- Light Manufacturing goods (ex: garments, electronics, etc) continue to move by truck rather than rail, because last mile connectivity from rail-freight terminal to factories & warehouses remains underdeveloped.

## Part 7: Future trajectory

- Freight volume on rail are targetted to rise to 3.3 billion tonnes by 2030 from about 1.2 billion tonnes in 2019 supported by rising industrial demand and infrastructure upgrade.
- A new East-west Dedicated freight Corridor from Dankuni to Surat has been announced.

Qn. Describe the trends in Railways in Indian economy from 1991-2025. (200 words)

⇒ Recently Railway Minister Ashwini Vaishnaw, marked that Indian railway tracks have reached capacities of over & above 130 kmph on 22% of tracks and 110-130 kmph on 58% of tracks.

The year 1991 earmarked as the year of 'LPG reforms' paved way for ignition of light for railway expansion.

### Trends in Indian railways in Indian Economy from 1991-2025

#### Early opening up and Reforms (1991-2014)

##### ① Expanded Investment & competition (with Railway)

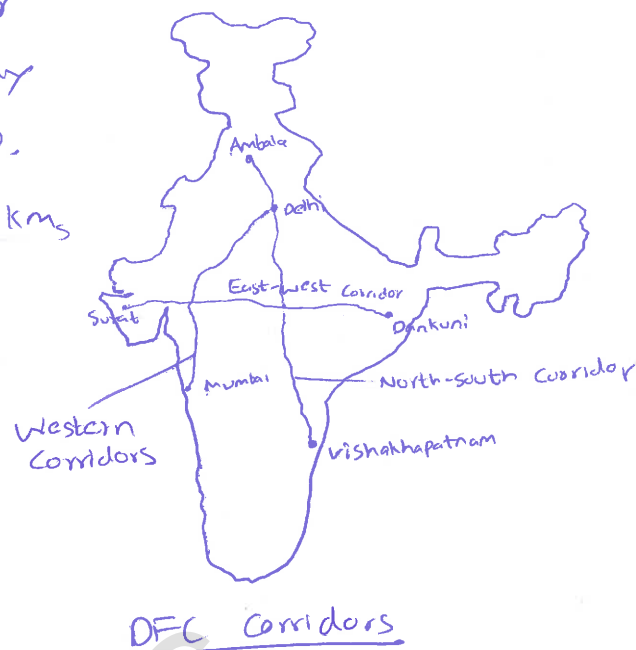
- Opened to foreign investment, Road transport developed rapidly with new Industrial Corridors planned and the golden Quadrilateral (Delhi - Mumbai - Chennai - Kolkata)
- Already high fare burdened Freight moving on railway suffered 'cut-throat competition'.

##### ② Structural Reforms

- CONCOR (Container Corporation of India) established in 1988 provided for Multi-modal logistics connectivity & speedy maneuverability.
- Also Locomotives manufacturing moved away from ICF Coaches of Chennai to the Link-Hofmann coaches providing anti-climbing features, safety enhancement and Air Propulsion system.

### ③ Idea of Dedicated Freight Corridors, 2006

- Separate Corridors planned for Freight movement, devoid of any passenger or other commutation.
- By March 2025, Around 2741 km of DFC corridor had been made operational



### Innovations and New India (2014-2025)

#### ① Specialized Semi-High speed trains

- In 2018, Vande Bharat was launched (initially between Mumbai and Anandabadi) as India's first Semi-High Speed train.
- It held significance with respect to 30-40% lower cost against comparable trains across the globe

#### ② Decentralized production bases

- Locomotive corporations such as Patiala Locomotive Corporation, Marwar Corporation among others emerged.
- Wheel making began at Rai Bareilly and Coach factory at Kapurthala gained significance.

### ③ Indigenous manufacturing Renaissance

- The Make in India programme emerged, building on India's capability of domestic rail equipments manufacturing.
- Production-linked Incentive schemes helped manufacturers.

### ④ Innovation and Ecosystem approach

- 'kavach' protection system installed working based on sensors on tracks & trains to avoid accidents.
- First Hydrogen (Green Hydrogen) powered train launched at Integrated Coach Factory, Chennai building about SDG goal 9 and 11 of Sustainable Infrastructure and cities

Indian Railways in this period emerged as identity of 'Young India' leveraging technological experience, building upon the idea of 'Sahkar se Samridhi' (Prosperity from Cooperation).

# Agriculture

## Land Reforms and Land Tenure System

### The agrarian crisis by Independence

⇒ By 1947, Indian Agriculture was marked by:

| Problems                       | Description                                                   |
|--------------------------------|---------------------------------------------------------------|
| <u>Absentee Landlordism</u>    | — Zamindars lived in cities, no reinvestment in land.         |
| <u>Sub-infeudation</u>         | — Multiple layers of intermediaries between state and tiller. |
| <u>Rack-renting</u>            | — Exorbitant rents, often 50-70% of produce                   |
| <u>Insecurity of tenure</u>    | — Tenants evicted at will to prevent occupancy rights         |
| <u>Fragmentation</u>           | — Small, uneconomic holdings, average < 1 acre                |
| <u>Indebtedness</u>            | — Peasants in perpetual debt to moneylenders                  |
| <u>Share cropping (battai)</u> | — No incentive for investment or improvement                  |

⇒ The first Five Year Plan from 1951-1956 identified land reforms as the most urgent task for Agricultural development.

### Post Independence Land reforms - The 4 pillars

⇒ Pillar 1 — Abolition of Intermediaries

→ objective: Eliminate the Zamindari, Jagirdari, inamdari & other Intermediary tenure systems. and establish a direct state-tiller relationship.

→ Legislation: Each state enacted its own law:

- UP Zamindari Abolition and Land Reforms Act, 1950
- Madhya Pradesh Abolition of Proprietary rights Act, 1950
- Bihar Land reforms Act, 1950
- Madras State (Abolition and Conversion into Ryotwari) Act, 1948

## → Key provisions

- ① Intermediaries were compensated (a contested political compromise)
- ② Compensation was often paid in govt. bonds over 20-40 years.
- ③ Homestead land (Personally cultivated land) was retained by former zamindars which became a major loophole

→ The 9<sup>th</sup> schedule of the Constitution (added by first Amendment, 1951) placed land reform laws beyond judicial review of fundamental rights.

## → Outcomes

- About 2 crore tenants were brought into direct relationship with the state.
- Some 30 Lakh intermediaries were abolished, however many zamindars resumed land as personal cultivation to retain it.

## ⇒ Pillar 2 — Tenancy reforms

→ Even after abolition of Zamindars, large landowners retained substantial land, worked by tenant cultivators.

→ Tenancy reforms aimed at 3 things:

### (i) Security of tenure

- Tenants could not be arbitrarily evicted.
- After a specific period of continuous cultivation, tenants acquired occupancy right or permanent heritable rights.

### (ii) Regulation of Rent

- Rents were capped typically at  $\frac{1}{4}$ <sup>th</sup> to  $\frac{1}{5}$ <sup>th</sup> of produce.
- In practice oral agreements & informal payments continued to circumvent these limits.

### (iii) Ownership rights to tenants (Tenancy → Ownership)

- Tenants were given rights to purchase ownership from land lords.
- In states like Kerala, West Bengal, Maharashtra, this was implemented more vigorously.

- In states like Bihar and U.P., implementation was weak as landlords used personal cultivation clause to evict tenants before they could acquire rights.

### → The concealment problems

- The concept of voluntary surrender allowed landlords to evict tenants and record them as having surrendered voluntarily.
- Benami Transaction (Land registered in relative's name) were used to evade tenancy protections.
- The planning commission noted in the 1960s that tenancy reforms remained the weakest link in the chain.

### ⇒ Pillar 3 — Land ceiling Laws

→ Breakup large land holdings, redistribute surplus land to the landless and near landless

#### Phase I : 1950 — early 1960s

- Each state enacted its own ceiling law with widely varying limits.
  - (i) Ceilings ranged from 27 acres (in some states) to 216 acres (in others for dry land)
  - (ii) Irrigated, double cropped land had lower limits, dry/barren land had higher limit.
- Major Loopholes exploited
  - (i) Partisan among family members
    - Land was divided on papers among sons, brothers, wife before legislation came into force.
  - (ii) Trust and societies
    - Lands were transferred to religious trust, cooperative societies, etc. which were initially exempt.
  - (iii) Time given between announcement and enforcement
    - Benami transfers occurred in large number.

#### (iv) Personal Cultivation Definition

— Broadly defined to retain large swathes.

#### Phase 2: Uniform National Guidelines 1972

- After the 1972 national guidelines, states revised ceiling laws with stricter and more uniform limits.
- Ceilings of 10-18 acres for irrigated land & 27-54 acres for dry land (Family unit of 5 individuals).
- 9<sup>th</sup> schedule was used extensively to prevent state laws from legal challenge.

#### Result

- Total surplus land declared 73 Lakh acres.
- Land actually distributed - 53 Lakh acres (as of late 1980s)
- Distribution to landless labourers (especially SCs & STs), small farmers.
- Much of the surplus land was waste land or disputed not genuinely cultivable.

#### Critique

⇒ Myrdal's and Dantwala's produced critique

- Ceiling failed because political will was absent
- Those who legislated the ceilings were themselves large landowners. The gap between declaration and distribution was enormous

#### ⇒ Pillar 4 - Consolidation of holding and prevention of fragmentation.

##### → Problem

- Due to inheritance laws, land was fragmented into tiny, scattered, uneconomic plots.
- A family might own 10 stripes of 0.2 acres each spread across the village

##### → Consolidation

- Holdings were pooled and redistributed, so that each farmer received an equivalent area in ~~ex~~ 1 or few contiguous plots.

- States like Punjab, Haryana and UP achieved significant consolidation.
- Chakbandi in Punjab was particularly successful enabling the green revolution.

### → Prevention of further fragmentation.

- Minimum holding laws stipulated that land below a certain size could not be further subdivided.

### Bhoodan and Gramdaan Movement (Voluntary redistribution)

→ Acharya Vinoba Bhave (a Gandhian) beginning in Pochampally, TG, 1951; launched the Bhoodan (Land gift) movement

⇒ Appealed to large landowners to voluntarily donate  $\frac{1}{6}^{\text{th}}$  of their land to the landless poor.

⇒ About 42 Lakh acres were donated by the mid-1960s.

⇒ Gramdaan : Entire village donated all land to the village community for collective management.

⇒ In practise, much donated land was of poor quality i.e. stoney, waterlogged or disputed.

⇒ The movement was a 'morale complement' to legal reforms but could not substitute for it.

### Land Record Modernization

⇒ A persistent problem has been inaccurate, fraudulent or outdated land records (Jamabandi, khatauni, patta).

⇒ Without proper title, farmers could not access institutional credit.

⇒ Disputes over land were the major source of rural litigation and violence.

⇒ The Digital India Land Record Modernization Programme (DILRMP) launched in 2008 and restructured thereafter aims to

- (i) Computerize all land records.
- (ii) Issue record of rights (ROR) as legal document.
- (iii) Integrate with registration department.

(IV) Provide farmers digital pattas

## Later development and new issues

### ① Operation BARGA (West Bengal 1978-79)

- A Landmark initiative under the left front government.
- Sharecroppers (Bargadars) were registered giving them legal protection against eviction and fixing their share at 75% of produce.
- About 15 Lakh Bargadars were registered.
- Studies by Oreze Sen & others showed significant productivity increase and reduction in poverty post barga.

### ② Kerala Land reforms

- Among the most comprehensive in India.
- The Kerala land reform act of 1963 (amended 1969) imposed strict ceilings, protected tenant rights and transferred ownership to actual cultivators.
- Kerala achieved near elimination of absentee landlordism, and substantial reduction in rural inequality.

### ③ Tribal land alienation

- A serious ongoing problem i.e. tribal land alienated & given to non-tribals through fraud debt & coercion.
- The SAMATHA Judgement 1997 by the Supreme Court restricted mining leases.
- PESA Act, 1996 ; Forest Rights Act, 2006 aimed to restore tribal rights over land and forest.

## Limitation — why Land reforms largely failed

- ① Political Economy
- ② Administrative failure
- ③ Legal Loopholes
- ④ Judicial delays
- ⑤ Fragmented Legislation

⑥ No redistribution without support (Credits, inputs, tech also to be given to poor)

## Green Revolution and Capital Formation in Agriculture

⇒ India faced severe food shortages in the 1950s and 60s relying heavily on food imports (notably PL-480 wheat from U.S.A). The situation was described as a "ship to mouth" existence.

The crisis necessitated a breakthrough in agricultural productivity.

### What was the Green Revolution?

⇒ The Green Revolution (mid-1960s onwards) was a strategy to achieve rapid increase in food grain production through the adoption of modern agricultural technology.

⇒ It was headed by M.S. Swaminathan in India, inspired by the work of Norman Borlaug globally.

### Core components

#### ⇒ HYV packages

→ The Revolution rested on the technology packages

(i) High yielding variety seeds

(ii) Dwarf, Disease resistant varieties of wheat and rice

#### ⇒ Chemical fertilizers

→ Especially Nitrogen-based

#### ⇒ Assured irrigation

→ Canal, tubewell and groundwater irrigation

#### ⇒ Pesticides and weedicides

#### ⇒ Farm mechanization

→ Tractors, Pumps, threshers

#### ⇒ Institutional Credit via

→ Cooperative Banks and RRBs

## Achievements



| Indicators            | Pre-Green Revolution | Post Green Revolution |
|-----------------------|----------------------|-----------------------|
| Wheat production      | 11 MT (60's)         | > 100 MT (2000's)     |
| Rice production       | stagnant             | significant rise      |
| Food self sufficiency | Dependent on Imports | Achieved by 1970s     |
| Buffer stock creation | Absent               | established under FCI |

⇒ India became self-sufficient in food grains by 1970s.

⇒ Punjab, Haryana and western U.P. became the "grain bowls" of India. Contributed to reduction in food inflation and improved calorie availability.

## Limitations and Criticism

⇒ ① Geographic and crop bias

② Confined largely to wheat initially, rice followed later (Second Green Revolution tried to address this)

③ Limited to irrigated regions; Punjab, Haryana and western U.P.  
• Dryland/Rainfed areas were excluded

④ Ignored coarse cereals, pulses, oilseeds. (Leading to nutritional imbalance)

⑤ Social and Economic disparities  
• Benefits largely accrued to large farmers who could afford HYV packages

⑥ Small and Marginal Farmers were left behind widening gaps, &

⑦ Led to Displacement of agricultural Labours due to mechanization.

⑧ Ecological Cost

- Overuse of ground water : critical depletion in Punjab/Haryana.
- Soil degradation due to excessive chemical fertilizer use.
- Monoculture farming reduced biodiversity

- water logging and salinity in canal irrigated areas

### ⑨ Regional Imbalance

- Eastern India (Bihar, odisha, eastern U.P.) largely missed out despite having fertile land

### Capital Formation in Agriculture

⇒ Capital formation refers to net addition to the capital stock of the economy i.e. investment in assets that enhance future productive capacity.

In Agriculture, it includes:

#### ① Physical Capital

- Irrigation infrastructure, farm machinery, storage, roads.

#### ② Biological Capital

- Livestock, plantations

#### ③ Human Capital

- Farmer education, extension services,

- It is measured as NCFA (Net Capital Formation in Agri.) as a percent of total GCF or of agricultural GDP.

| ⇒ Types      | Description                                                                              |
|--------------|------------------------------------------------------------------------------------------|
| Public NCFA  | Government investment like irrigation projects, rural roads (e.g. PMSY), power, research |
| Private NCFA | Farmer investments like Tubewells, tractors, pumpsets, etc.                              |

### Historical trend

#### Phase I: Pre liberalization (1950-80s)

- Public investment dominated large canal irrigation (Bhakra-Nangal, Hirakund)
- Five Year plans prioritized agriculture

## Phase - 2 : Post Liberalization (1990's onwards)

- Sharp decline in public investment in agriculture —  
Fiscal Consolidation led to cuts in planned expenditure
- Private investment rose but could not fully compensate.
- Overall GCFA as a % of GDP declined (a major concern flagged by Economist)

### Recent revival

- Schemes like PMKSY (PM Krishi Sinchayee Yojana), R.K.VY (Rashtriya Krishi Vikas Yojana) aimed to revive public investment
- PM KISAN, Kisan Credit Card (KCC) support private investment capacity.
- ~~Why eo~~

### Why capital Formation in Agri. matters ?

- ① Raises Agricultural productivity (Output/hectare, output/worker)
- ② Reduces Cost of production (lowers food inflation)
- ③ Enables diversification into horticulture, dairies, fisheries.
- ④ Reduces vulnerability to monsoon through irrigation capital.
- ⑤ Improves rural incomes and reduces Agrarian distress

### Key concerns

#### ① Substitution effect

- Agricultural subsidies (fertilizer, power, MSP) crowd out, productive investment i.e. subsidy vs. Investment tradeoff.

#### ② Tenancy problem

- Tenant farmers underinvest as they don't own land.

#### ③ Credit Constraints

- small farmers lack collateral for formal credit that leads to low private GCFA

#### ④ Declining public GCFA

→ Despite reforms, public investment in irrigation and R&D remains below desired level.

#### Interlinkage: Green Revolution and capital formation

⇒ The Green Revolution itself required and-generated capital formation.

##### ① Required

→ Irrigation Infrastructure, fertilizer plants, seed research station (Public capital)

##### ② Generated

→ Private investment boom in tubewells, tractors, pump sets in Punjab/Haryana.

⇒ However, the uneven spread of the green revolution meant that capital deepening in agriculture remained regionally concentrated and the ecological cost now demand fresh capital investment in sustainable farming technology sometimes called as 'Evergreen Revolution' (Swaminathan's vision)

# Industry in Indian Economy - Composition and growth Trends

## Overview

⇒ In India's National Income accounting, the Industry sector comprises:

- ① Manufacturing (Registered and Unregistered)
- ② Mining and Quarrying.
- ③ Electricity, gas and water supply
- ④ Construction

⇒ Industry's share in GVA has remained broadly 26% to 28% making it smaller than service (55%) but critical for employment and structural transformation.

## Composition of Industry

### ① Large-scale Industry

→ Capital Intensive, factory based  
ex: SAIL, TATA steel, Automobile, petrochem., cement, pharma, etc.  
regulated under Factory's Act of 1948

### ② Small-scale Industry / MSMEs

→ Defined by Investment in plants and machinery and turnover  
(revised under Atmanirbhar Bharat 2020)

→ Contributes 30% and 45% of Industrial sector and exports respectively; Employs 110 mn people.

→ Suffers from credit constraints, technology gaps, marketing challenges.

### ③ Cottage and Handicraft industry

→ Household based, traditional.

→ Khadi, handloom, pottery, brass work supported by KVIC.

### ④ Mining and Quarrying

→ Coal, Iron ore, bauxite, mica, manganese; regulated under MMR Act, 1957.

→ India is among top global producers of coal, iron ore, mica, etc.

## Growth Trends in Indian Industry

### Phase I: Pre-Independence Legacy

- India had underwent ~~decent~~ Deindustrialization under colonial regime
- Drain of wealth, destruction of handicrafts due to (Manchester textile)
- Only enclaves of Industry like Jute in Bengal, Cotton in Bombay, railways.

### Phase II: Nehru's Industrialization. (1950s - 60s)

- Mahalanobis Model (2nd Five Year plan 1956)
  - Heavy emphasis on large and capital good industries.
  - Public sector led steel plants at Dillai, Durgapur, Rourkela with (USSR, UK, Germany help)
- Industrial Policy Resolution, 1956
  - Extended public sector dominance across 17 schedule A industries
- Import substitution based Industrialization (ISI)
  - Produced domestically what was imported, result diversified industrial base but inefficiency due to protection.

### Phase III: License Raj era (1960s - 80s)

- MRTA Act, 1969
  - Prevented monopolies but also stifled large private investment
- FERA Act, 1973
  - Restricted foreign exchange and MNC's operations.
  - Industries required licenses to start, expand, change products. (Inspector Raj)
- Resulted in low productivity, technological stagnation, fiscal burden of PSU losses.

### Phase IV: Liberalization (1991 onwards)

- New Economic policy (NEP), 1991 (under PV Narasimha Rao and Manmohan Singh)
  - It abolished Industrial licensing (except 6 industries) and now reduced to two (Defense and Alcohol)

- opened most sectors to private and foreign investment
- Disinvestment of PSUs initiated.

→ MRTA Act got replaced by Competition Act in 2002

- Resulted in private sector boom, FDI inflows and technology upgradation.

### Phase V : year 2000 to present

→ Make In India 2014

- To boost manufacturing, raise Industry's GDP share to 25%

→ PLI scheme 2021

- Production Linked Incentives across 14 sectors i.e. mobile phones, pharma, textile, auto, food processing, etc.

→ National Manufacturing policy, 2011 — NIMZ, under it

- Target 100 mn. jobs in manufacturing & 25% GDP share in a decade.

→ Atmanirbhar Bharat

- Self reliance through domestic production across defense, electronics, semi-conductors.

### Key Industrial growth Indicators

#### ① Index of Industrial Production

→ Measures short term changes in industrial output

→ Base year : 2011-12 and now 2022-23

→ Manufacturing (77.6%), Mining (14.4%) and Electricity (8%) — Components

→ 8 Core sector constitute 40% of IIP weight

— Coal, Crude oil, Natural gas, Refinery products, fertilizers, steel, Cement, electricity.

### Role of public sector in Industries

#### ① Rationale for public sector (Nehru-Mahalanobis vision)

→ Market failure in Capital intensive sectors i.e. private sector unwilling to invest.

→ strategic and Defense considerations.

- Commanding heights of the economy to be state-controlled.
- Employment generation and regional balanced development

## ② Contribution of public sector

| Area                | Contribution                                      |
|---------------------|---------------------------------------------------|
| 1. Heavy Industries | steel, coal, oil (SAIL, CIL, ONGC)                |
| 2. Infrastructure   | Railways, ports, power (Indian Rail., NTPC, BHEL) |
| 3. Defense          | HAL, DRDO, Ordnance factories                     |
| 4. Fin. services    | SBI, LIC, Nationalized banks                      |
| 5. Regional depl.   | steel plants in backward Areas (Bhilai, Rourkela) |

## ③ Criticism of public sector

- Inefficiency
  - Lack of competition, cost overrun, low productivity.
- Soft Budget Constraints
  - Losses absorbed by government, no accountability.
- Overstaffing and Labour rigidity
- Political interference in management decisions
- Heavy Fiscal burden
  - Many PsUs became sick industries

## ④ Disinvestment and Reform

- Disinvestment started in 1991-92 (minority stakes sold)
- Disinvestment Commission, 1996 — It recommended strategic sale.
- Strategic Disinvestment
  - Selling majority stake + Management control (ex: Air India to TATA in 2022)
- CPSEs - ETFs (Exchange Traded Funds)
  - For retail disinvestment
- New PSE policy 2021
  - Defined strategic sector vs Non-strategic sector

- 4 Strategic sectors according to 2021 policy
  - Atomic Energy, space and Defense
  - Transport and Telecommunications
  - Power, Petro, coal & other minerals
  - Banking, Insur. & Fin. services

### Role of private sector in Industry (Pre-1991)

① Constrained by Licensing, MRTP, FERA

② Major Houses: TATA, BIRLA.  
Bajaj operated within License Raj

(Post-1991 expansion)

① Explosive growth in IT, Telecom, Automobiles, FMCG, Pharma, Aviation  
 → FDI brought technology and capital  
 → Stock market deepening provided capital access

### ② Strengths of Private sector

- Efficiency and Innovation driven by competition
- Faster decision making.
- Better Resource Allocation via price mechanism
- Technology adoption
  - India's IT revolution is entirely private sector-led.

### ③ Concerns with private sector dominance

- Profit Motive
  - Externalities and neglect of natural resources
- Crony capitalism
  - Nexus between business and political class
- Regional concentration
  - Investment clusters in developed states
- Labour exploitation
  - Informal employment dominates

## Challenges faced by Indian Industry today

- ① Low manufacturing share (17% of GDP vs. 25-30% in China, S. Korea)
- ② Informalization
  - 90% of Industrial workers are informal
- ③ Technological gap
  - Lag in industry in tech.
- ④ Infrastructure Deficit
  - 14% vs 8% (of GDP) globally  
(Deficit %)
- ⑤ Land and Labour rigidities
- ⑥ Environmental compliance cost is rising
- ⑦ Competition with China
  - Import dependence in Electronics, chemicals

## Small and Cottage Industries

↳ Cottage industry refers to traditional, household based production units where artisans and family members work with simple tools primarily by hand using locally available raw material.

ex: Handloom weaving, pottery, basket making, bidi rolling, coir products

## ↳ Small Scale Industry (SSI)

→ Refers to units with limited fixed capital investment, employing hired labour alongside family workers, using basic machinery.

→ The definition has evolved overtime based on investment threshold in plant & machinery.

→ The two are often grouped together as the Small-Industry sector in policy discourse. But cottage industry is pre-industrial and artisanal while SSI is semi industrial.

Qn. Differentiate between Pvt. sector and Public sector industries in terms of their impact in Indian Economy. (150 words)

⇒ With the Industrial Policy Resolution (IPR), 1956 also known as 'economic constitution of India', Indian economic activity & enterprises based on the ownership and sectoral division got bifurcated into public (government owned) and Private (non-govt.) sectors.

### Impact on Indian Economy

#### Public sector

- Companies having atleast 51% of government ownership, employing tax payer's money into enterprise.
- Formed basis for Heavy Industries and Infrastructural stature for embryonic stage Indian economy (1950s)  
e.g: - Mahalanobis Model in 2<sup>nd</sup> Five Year Plan
- Pioneer in development of strategic sectors like space (BAR, ISRO, NSIL, etc), Atomic Energy (BARC, KABIL, etc) and Defense (DRDO, INRSE)

#### Private sector

- Companies having atleast 51% of private ownership, employing Private individuals capital in Profit making.
- Bridged the gap between Consumer and Light-weight Industry demand and supply  
e.g: - Telecom services, Automobiles, etc.
- Instrumental in emphasizing on Economic value enterprises such as service sector boom after the 1991 LPG reforms.

- Upheld the principle of 'socialism' and 'public welfare' (envisaged in Article 38 of Indian constitution)

- Provides the government leverage to adjust with 'Economic upturns and downturns' by varying government ownership

e.g.:- Current policy making aligning global uncertainty, held to be 'Neo-liberal'

- Provided the much required Economic boom incentive providing 'Liberty of profession', (envisaged in Article 19 (g) of Indian Constitution)

- Provides the opportunity to the Informal sector established as major employment (90%) provider as well as the 'Statistical base effect' of global shock absorbance.

Public sector and Private sector though in 'competition', incorporate the idea of 'cooperation' for the economy, building on 'Synergies' of 'Economies of scale' based sectoral division and progress.

## Historical Background — Pre Independence Legacy

→ India's cottage and handicraft industries were systematically decimated under british rule.

### ① Deindustrialization

→ Cheap machine-made british goods undercut indigenous artisans.

### ② Laissez Faire

→ No state protection for traditional industries.

### ③ Drain of wealth

→ surplus was not reinvested.

→ By 1947, the cottage sector was severely weakened but still employed a large share of rural population; reviving it was both an economic necessity and gandhian political commitment

## Post Independence policy frameworks

### ① Gandhian vision vs Nehruvian model

→ A foundational tension shaped early policy:

| Dimensions | Gandhian View                        | Nehruvian view                        |
|------------|--------------------------------------|---------------------------------------|
| ① Emphasis | — Cottage / village industries       | — Heavy industrialization             |
| ② Unit     | — Household & Village                | — Large public sector factories       |
| ③ Goal     | — Decentralization, self-sufficiency | — Capital accumulation, modernization |
| ④ Symbol   | — Charkha (spinning wheel)           | — steel plants and dams.              |

→ The Resolution was a dual strategy i.e. Large scale industry for capital goods, small /cottage industries for consumer goods and employment.

### ② Industrial policy Resolution, 1948

→ Acknowledged the role of cottage and small industries in employment and rural welfare.

### ③ Industrial Policy Resolution, 1956

→ Formalized the 3 category structure

Sch. A : State , Sch. B : Mixed , Sch. C : Pvt (with license)

→ Small Industries placed in schedule C but protected via 'Reservation policy'

#### Reservation policy

→ From 1960s onwards, 100s of products were exclusively reserved for small scale production meaning large firms could not manufacture them. At it's peak, 800 items were reserved including:

- (i) Pickles and Papad
- (ii) wooden furniture
- (iii) Certain garments and
- (iv) Candles, leather goods, incense sticks.

→ This was intended to protect employment but eventually became a source of technological stagnation

#### Institutional support structure

| Institution                                          | Role                                                                          |
|------------------------------------------------------|-------------------------------------------------------------------------------|
| ① Khadi and Village Industry Commission (KVIL), 1956 | Promotion of Khadi, village and cottage industries, credit and market support |
| ② Small Industries Development Organization (SIDO)   | Technical assistance, training, testing                                       |
| ③ National Small Industries Corpor. (NSIC)           | Credit, raw material supply, marketing support                                |
| ④ Dist. Industries Centre (1977)                     | Single-window facilitation at district level                                  |
| ⑤ SIDBI (Small Industry Development of India), 1990  | Dedicated refinancing institution for small industries                        |

## Investment Definition : Evolution over time

| Period               | Investment ceiling (Plants and Machinery)                                                                                                           |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1950s - 60s          | — ₹ 5 Lakh (upto it is SSI)                                                                                                                         |
| 1985                 | — ₹ 35 Lakh.                                                                                                                                        |
| 1997                 | — ₹ 3 Crores                                                                                                                                        |
| Post 2006 (MSME Act) | — Micro $\leq$ ₹ 25 Lakh, Small (₹ 25 L - ₹ 5 Cr) & medium (₹ 5 Cr - ₹ 10 Cr)                                                                       |
| 2020 revision        | — Micro $\leq$ ₹ 1 Cr (Turnover $\leq$ ₹ 5 Cr) Small $\leq$ ₹ 10 Cr (Turnover $\leq$ ₹ 50 Cr) Medium $\leq$ ₹ 50 Cr (Turnover $\leq$ ₹ 250 Cr)      |
| 2025 budget revision | — Micro $\leq$ ₹ 2.5 Cr (Turnover $\leq$ ₹ 10 Cr) Small $\leq$ ₹ 25 Cr (Turnover $\leq$ ₹ 100 Cr) Medium $\leq$ ₹ 125 Cr (Turnover $\leq$ ₹ 500 Cr) |

→ MSME Act of 2006 was a landmark, it formally defined Micro, small and medium enterprises and extended coverage to the service sector as well.

## Key phase of growth & policy

### Phase I : (1947-65) Protected growth

- Reservation policy shielded SSIs from large firm competition
- Khadi and Village Industries revived as a part of community development
- Employment generation was prioritized over productivity.

### Phase II : (1966-90) Expansion with stagnation

- SSI sector grew in no. of units & employment.
- However, technological backwardness & credit constraints persisted.
- Cottage industries (Handloom, sericulture, etc) faced market competition from mill-made substitutes.

### Phase III : (1991 onwards) Liberalization shock and reform

- LPR reforms removed many protections, & small firms exposed to import competition
- Reservation List gradually decreased from 800+ items to 20 items by 2015 and effectively eliminated by 2021.

→ Policy shifted from protection to promotion i.e. technology upgradation, cluster development and credit access.

#### Phase IV : (2014 to present) MSME as growth engine

- Make in India, Atmanirbhar Bharat and startup India reframed small industry as a driver of manufacturing growth and exports
- Emergency Credit Line guarantee scheme (ECLGS), during COVID-19, provided ₹3+ Lakh Crores in guaranteed credit.
- UDYAM Registration portal 2020, replaced Udyog Aadhaar for MSME registration.

#### Economic significance of MSMEs

| Parameter                       | Approximate Contribution (Recent years) |
|---------------------------------|-----------------------------------------|
| ① share in GDP                  | 30 %                                    |
| ② share in Manufacturing output | 45 %                                    |
| ③ share in Exports              | 45-50 %                                 |
| ④ Employment                    | 11 Crore persons                        |
| ⑤ No. of Enterprises            | 6.3 Crore registered MSMEs              |

↳ The sector is the 2<sup>nd</sup> largest employer after agriculture in India.

#### Persistent problems

##### ↳ Credit Gap

- Collateral requirement exclude many micro units from formal banking

##### ↳ Technological Obsolescence

- specially acute in traditional cottage industries

##### ↳ Marketing weakness

- Lack of Branding, market linkages and e-commerce access

##### ↳ Infrastructural Deficit

- Power, logistics and connectivity remain inadequate.

##### ↳ Skilled Labour shortage

- Traditional artisanal skills eroding with each generation.

### ↳ Competition from China

- Cheap imports have severely affected sectors like toys, textiles & handicraft.

### ↳ Informal Nature

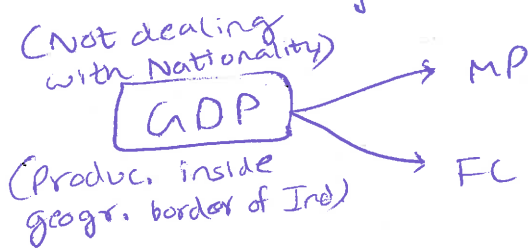
- A large share remains unregistered outside formal credit and legal protection.

### Government schemes (Recent)

| Schemes                                                            | Purpose                                                |
|--------------------------------------------------------------------|--------------------------------------------------------|
| ① <u>PMEGP</u> (PM Emplyt Generation programme)                    | - Credit-linked subsidy for new-micro enterprises      |
| ② <u>CLCSS</u> (Credit-Linked Capital Subsidy Scheme)              | - Technology upgradation subsidy                       |
| ③ <u>ZED Certification</u> (Quality and zero defect manufacturing) | - Quality Assurance & linked credit                    |
| ④ <u>cluster development Progr.</u>                                | - Infrastructure for Industrial clusters               |
| ⑤ <u>Trade Receivables Discounting systems (TREDS)</u>             | - Solving delayed problems                             |
| ⑥ <u>OOOP</u> (one dist. one product)                              | - Promotion of Local / cottage industry specialization |

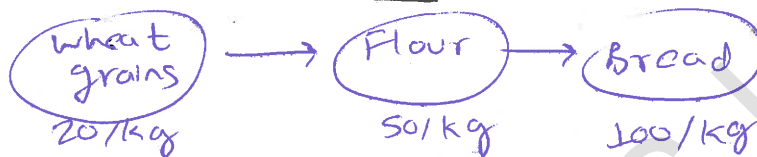
# National and Per-capita Income

National Income: It is the net money value of all final goods & services produced by the normal residents of a country in an accounting year measured at factor cost.



## Calculation Methods

### ① Value added method



$$\therefore \text{GDP} = \sum \text{GVA} = 100$$

$$\boxed{\text{GVA}_{\text{st}}} \quad 20 \quad + \quad 30 \quad + \quad 50 = 100$$

### ② Expenditure method

$$\text{GDP} = \sum C + \sum I + \sum G + \sum (X - M)$$

### ③ Income method

$$\text{GDP} = \sum \text{Rent} + \sum \text{Wages} + \sum \text{Interest} + \sum \pi \text{ (Profit)}$$

Factor Cost: Cost of manufacturing a product  
Market price: Price at which it is sold in market.

$$\Rightarrow \text{FC} = \text{MP} - \text{NIT} \quad \& \quad \text{NIT} = \text{IT} - \text{Subsidies}$$

$$\Rightarrow \text{SO} \quad \text{GDP}_{\text{MP}} = \text{GDP}_{\text{FC}} + \text{NIT}$$

$$\& \quad \text{Net} = \text{Gross} - \text{Depreciation}$$

$$\text{NDP}_{\text{MP}} = \text{GDP}_{\text{MP}} - \text{Depreciation}$$

$$\boxed{\text{NDP}_{\text{FC}}} = \text{GDP}_{\text{MP}} - \text{Dep.} - \text{NIT}$$

Domestic Income.

⇒ GNP (Gross National Product) — Based on nationality of Indiv. & not geographical boundary.

$$\text{NFIA} = \text{Factor Income from Abroad} - \text{Factor Income to abroad.}$$

⇒  $\text{NNP}_{\text{FC}} = \text{GDP}_{\text{NP}} + \text{NFIA} - \text{NIT} - \text{Dep.}$   
National Income

| Developing Countries                                                                                                                           | Devlpd countries                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• NFIA for them is usually negative and</li><li>• Thus <math>\text{GDP} &gt; \text{GNP}</math></li></ul> | <ul style="list-style-type: none"><li>• NFIA for them is usually positive and</li><li>• Thus <math>\text{GNP} &gt; \text{GDP}</math></li></ul> |

### Phasewise growth trend

Phase ① 1950-51 to 1979-80 : Hindu rate of growth

⇒ The hindu rate of growth refers to Ind.'s persistent low GDP growth of only 3.5-4% from 1950s to 1980s.

⇒ It was coined by economist Raj Krishna (DSE) in late 1970s to describe india's structural growth trap prior to reforms.

⇒ GDP growth remained largely unchanged despite wars, droughts, famines & pol. transition reflecting system-wise rigidity.

### ② Decade-wise break down

⇒ The average annual real National Income growth rate was approx. 3.8% in 1950s, 3.5% in 1960s & 3.1% in 1970s

⇒ India's avg. annual GDP growth rate between 1956 and 1975 was 3.4% i.e. almost exactly matching the Hindu rate of growth. Before the economic reforms of 1991, per capita income averaged growth of around 1.3% per annum.

## ① Key structural Reasons

### ⇒ Nehruvian Model

- Heavy industry focus via Mahalanobis framework, private investment constraint by licensing.

### ⇒ Agricultural Contribution

- 50% of GDP making growth hostage to monsoon variability.

### ⇒ Industrial Bottleneck persisted

- Despite push for industrialization

⇒ Excessive dependence on Agri., low land-man ratio, low tech. & poor infra. constrained national income growth.

## Phase ② 1980s-91 : Break from stagnation

⇒ The 1980s marked a significant departure from previous decades growth rate. The Nat. Income accelerated to 5.6% during this period signalling the beginning of India's break from Hindu rate of growth.

⇒ Partial industrial deregulation (Relaxation of licensing system) and fiscal expansion through govt. spending (though this led to the fiscal deficit)

⇒ India grew 4.8% / annum during 1981-88 & at 7.6% from 1988-91.

⇒ The 6<sup>th</sup> FYP (1980-85) recorded a high growth rate of 8.4%, the highest achievement of any plan upto that point.

⇒ However, the fiscal deficit increased significantly and balance of payment situation deteriorated leading to a severe foreign exchange crisis by 1991. The Debt-to-GDP ratio rose alarmingly making India vulnerable to external shock.

### Phase ③ 1991-2003 : LPG reforms & Transitional growth

- ⇒ The 1991 balance of payment crisis triggered structural reforms under finance minister Manmohan Singh. (LPG)
- ⇒ Industrial licensing was abolished, Import controls eased, FDI opened up & the rupee was made convertible under the Current account.
- ⇒ Growth rose to approx. 4% as the reform shock caused short-term destruction but then recovered strongly. Services especially I.T. & Fin. services emerged as the new growth engine and Agri.'s share in GDP continued its structural decline.

### Phase ④ 2003-11 : High growth phase

- ⇒ From \$30 bn economy in 1947, India grew into a \$3.4 tn powerhouse by 2024.
- ⇒ Service contribute the largest share of GDP including IT, finance and trade.
- ⇒ Industry adds growth through manu. & construction AND Agri. contributes a smaller share but remains important for employment & rural income
- ⇒ The 2003-2008 period saw GDP growth exceeding 8 to 9% annually (India's Golden growth phase) ~~is~~ driven by the IT services boom, rising private investment, FDI inflows and global commodity cycle
- ⇒ The 10<sup>th</sup> FYP from 2002-07 recorded the growth of 7.2% the highest among all FYPs.

## Phase ⑤ Moderation and structural challenges : 2011-2020

- ⇒ Growth moderated to 6.7% range as global slowdown, NPAs in the banking system, demonetization 2016 and GST implementation disruptions weighed on the economy.
- ⇒ India's GDP growth rate for 2019 was approx. 3.89%, a sharp decline from previous years.

## Phase ⑥ 2020 till present: Pandemic shock & recovery

- ⇒ Growth turned sharply negative in 2020-21 at -7.4% due to Covid-19.
- ⇒ The next year 2021-22 saw a strong rebound with growth of over 9.5%.
- ⇒ India's GDP growth rate in 2023-24 was estimated at around 8% placing India amongst the fastest growing major economy globally supported by strong domestic demand, govt. spending & govt investment.
- ⇒ According to the IMF, the GDP growth rate in 2026 is projected at 6.5%.

## Trends in Per capita Income

- ⇒ In 1950-51, per capita Income was ₹ 12,493/annum. It increased only to ₹ 63,462/annum by 2011-12 — slow growth driven by population pressure & structural limitations.
- ⇒ Per capita GNI grew most rapidly in the 2 decades after 2000 with the best decadal growth exceeding 50%. However growth in the last 3 decades was punctuated by growing evidence of increasing income inequality.

## Sectoral composition of National Income

⇒ The share of primary sector (Agri.) has declined from 59% to around 24% of National Income. The Industrial sector has not grown to the expected level. Instead the service sector has reached 52% of the national Income.

⇒ The share of Agri. in GDP fell from around 55% in 1950-51 to around 30% in 1990-91 and further to under 18% by 2020. (The classic pattern of structural transformation)

Though India's case is notable for the service sector bypassing the manufacturing sector.

# Poverty its measures, trends and Inequality

- ⇒ Poverty refers to a condition where individual lacks the min. income / consumption required to meet basic needs.
- ⇒ In India, poverty is measured in absolute and relative terms

## Measures of poverty

### ① Income / consumption-based Measures

#### 1) Poverty Line

- The most fundamental tool ~~below~~ defines a threshold below which a person is considered poor.
- Based on percapita monthly consumption expenditure.
- Derived from National sample Surveys.
- Separately estimated for rural and urban areas

#### Key poverty Line Committees

| Committee           | Year | Basis                                                           | Urban Poverty line (₹/month) | Rural Poverty Line (₹/month) |
|---------------------|------|-----------------------------------------------------------------|------------------------------|------------------------------|
| Alagh committee     | 1979 | Calorie norms<br>(2100 calories-Urban)<br>(2400 calories-Rural) | ₹57                          | 49                           |
| Lakdawala Committee | 1993 | Calorie + clothing<br>+ fuel                                    | Updated<br>periodically      | Updated<br>periodically      |
| Tendulkar Comm.     | 2009 | Basket (food<br>& non-food items)                               | 1000                         | 816                          |
| Rangarajan Comm.    | 2014 | Broader Basket,<br>Higher threshold                             | 1407                         | 972                          |

⇒ Tendulkar comm. methodology replaced Lakdawala methodology and was official till Ranga Rajan, Ranga Rajan gives higher poverty ratios

#### 2) Headcount Ratio (HCR)

- Formula as  $HCR = \frac{PoPn \text{ BPL}}{\text{Total PoPn}} \times 100$
- Most widely used but ignores depth of poverty.

### 3) Poverty Gap Index

- Measures how far poor from the poverty line
- Captures intensity of poverty

### 4) Squared Poverty Gap

- Gives extra weight to the poorest of the poor.
- Captures severity of the poverty.

### 5) Multidimensional Poverty Measures

#### 5) Human Development Index (By UNDP)

- Combines Income + Education + Health
- India's HDI rank is 134<sup>th</sup> / 193 countries (2023-24)

#### 6) Multidimensional Poverty Index (MPI)

- Consists of 3 dimensions and 10 notifications

##### ① Health

Nutrition

child mortality

##### ② Education

years of schooling  
Sch. Attendance

##### ③ Living standards

Assets  
Ownership

Housing

Electricity

Drinking  
water

Sanitation

Cooking Fuel

- A HH is MPI poor if deprived in ~~greater~~  $\geq 1/3$  weighted Indicators (4 or more indicators)

- India's MPI progress

— 415 mn people escaped Multidimensional poverty between 2005-06 to 2019-21 (Largest reduction globally)

### Measures of Inequality

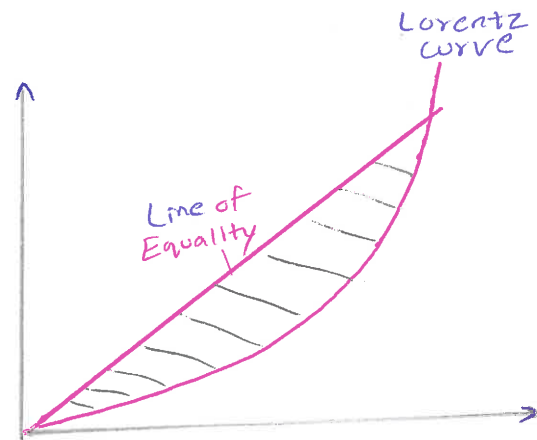
#### ① Gini Coefficient

- Ranges from 0 (Perfect equality) to 1 (Perfect Inequality).
- India's Gini (Consumption) is 0.35 for rural and 0.38 for Urban (2011-12 data)
- Income Gini is higher — 0.51 to 0.55 (World Inequality Report)

## ② Lorentz Curve

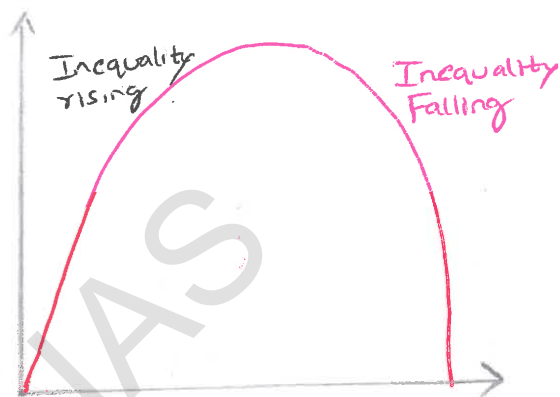
→ Plots cumulative Income share vs cumulative population share

→  $Gini = \text{Area bet}^w \text{ Lorentz curve \& Line of Equality} \times 2$



## ③ Kuznets Inverted 'U' hypothesis

→ Inequality 1<sup>st</sup> rises and then falls with development.



## ④ Palma ratio

→ Income share of Top 10% divided by Income share of bottom 40%.

## Trends in poverty since independence

### Phase ① 1947-70: High poverty, slow decline

- ⇒ Planning model focussed on capital intensive heavy industry, (Nehru-Mahalanobis Model)
- ⇒ Agriculture neglected initially - Mass rural poverty.
- ⇒ Green Revolution 1965-70 improved food security; benefits concentrated in pun. / Hary.
- ⇒ 'Garibi Hatao' (1971) political slogan but no structural change

### Phase ② 1970-1991: Poverty, moderate decline

- ⇒ Poverty declined from 55% (1973-74) to 36% (1993-94). [Lakdawala estimates]
- ⇒ Several reforms were launched.
- ⇒ Land reforms partially implemented.
- ⇒ Annual decline of 1% points.

### Phase (3) 1991-2004: LPG reforms mixed impact

- ⇒ Liberalization: High ~~the~~ growth but Jobless growth concerns.
- ⇒ Urban poverty declined faster but Rural poverty was sticky & it did not decline that fast.
- ⇒ Poverty ratio was 36% in 1993-94 & 28% in 2004-05.  
[According to Tendulkar estimates]
- ⇒ Inequality began rising (K-shaped recovery)

### Phase (4) 2004-11: Rapid decline (MNREGA era)

- ⇒ Fastest poverty reduction in post-independence era.
- ⇒ Tendulkar — 37.2% in 2004-05 (↓) to 21.9% in 2011-12  
Absolute no. 400 mn (2004-05) ⇒ 270 mn (2011-12)

#### Drivers

- { MNREGA 2005
- { PM KSY (Kati Shakti)
- { RTE
- { High GDP growth (8-9%)

- ⇒ Rural wages rose significantly.

### Phase (5) 2011-Present: Further decline + COVID setback

- ⇒ Pre-COVID poverty declined steadily; COVID 19 pushed 56 to 75 mn back in poverty.
- ⇒ Post-COVID recovery was uneven.
- ⇒ According to Niti Aayog: 29.28% (2013-14) → 11.28% (2022-23)

## Trends in Inequality since Independence

### ① Consumption Inequality

- ⇒ Relatively stable / mild and the Gini coefficient for it is 0.30 to 0.38.
- ⇒ Rural Consumption inequality lower than urban.

### ② Income / Wealth Inequality

- ⇒ It is severe & rising
- ⇒ Wealth Inequality report 2022; Top 1% hold 22% of National Income & Top 10% hold 57%.
- ⇒ Bottom 50% hold only 13% of National Income.
- ⇒ India is amongst the most unequal large economies.

### ③ Regional Inequality

- ⇒ BiMaRU states versus southern / western states
- ⇒ Per capita Income gap between the richest state (Goa) and the poorest state (Bihar) is 10:1.

### ④ Rural-urban Inequality

- ⇒ Urban MPLE is 2x Rural MPLE consistently.
- ⇒ Urban inequality rising faster (Financialization, IT sector boom) (2x rate)

### ⑤ Interpersonal Inequality

- ⇒ Caste-based income gaps persists — SC/ST. Income significantly below upper caste.
- ⇒ Gender-pay gap: women earn 20-30% less than men for same work

## Causes of Persistent Poverty & Inequality

### ① Land Concentration

- Incomplete Land reforms, due to which land is conc. with few.

### ② Caste System

- social exclusion from productive assets

### ③ Low Human Capital

- Education / Health gaps.

### ④ Capital Intensive Industrialization post-Independence

### ⑤ Agricultural distress

⇒ Small / Marginal farmers (86% of farmers holds < 2 hec. of land)

### Policy failures

- ① Trickle down growth - strategy inadequate
- ② Inadequate public investment in Health/Edu.
- ③ Urban bias in planning

### Govt. Anti-poverty programmes

| Era            | Programme                                                              |
|----------------|------------------------------------------------------------------------|
| 70's - 80's    | IROP, NREP, Antyodaya.                                                 |
| 90's           | JRY, PMRY, DWCRA (Outlet of W & C in Rur. areas)                       |
| 2000s          | MNREGA, PMGSY, NFSA                                                    |
| 2010 - present | PMKISAN, UJWALA Yojana, Ayushman Bharat<br>PM Garib Kalyan Anna Yojana |

### Critical Evaluation

#### ① Successes

- Headcount ratio declined from 55% to 11% in the 75 yrs
- 415 mn lifted from Multidimensional poverty
- Life expectancy rose from 32 yrs (1947) to 70 yrs (2023)

#### ② Failures

- Rising Income & wealth inequality even as consumption, poverty falls.
- Persistence of Hidden Hunger (micronutrient deficiency)
- India ranks 111<sup>th</sup>/125 on global hunger Index (Report 2023)
- High NEET (Not in Edu., Empl't., Training)
- Jobless growth (Economic growth not translating to emplyt)

## Post Liberalization

## Agri. & WTO

- ⇒ India became a founding member of WTO on 1<sup>st</sup> Jan. 1995
- ⇒ The Agrec. on Agri under WTO became the central framework governing Agricultural trade, subsidies and market access with profound implications for India's Agrarian economy.
- ⇒ The AoA operates on 3 pillars;

| Pillar             | What it governs                                             |
|--------------------|-------------------------------------------------------------|
| ① Market access    | Reduction of tariff & non-tariff barriers for Agri. Imports |
| ② Domestic Support | Limits on subsidies distorting produc. / Trade              |
| ③ Export subsidies | Reduction / elimination of Export Subsidies                 |

### The Boxes frameworks of Dom. Supp.

- ⇒ WTO classifies Agricultural subsidies into coloured boxes.

#### ① Amber Box (Trade Distorting)

- Direct price support, Input subsidies linked to production
- Must be reduced under AoA
- Measured via aggregate measurement of support (AMS)
- Oulpd ~~A~~ countries should reduce it by 20% and drpping by 13.3%.

#### ② Green Box (Permitted - Non-distorting)

- Research and development, infra., food security stockholding, direct income support decoupled from production.
- India's MSP based procurement is contested here.

#### ③ Blue Box (Partially distorting)

- Subsidies linked to production limiting programmes.
- Allowed without limits under certain conditions.

## Special and differential treatment (S&DT) for Developing Countries

### ① De minimis (level) clause

→ Developing nations exempt if product specific support is  $\leq 10\%$  of product value

### ② Special Safeguard Mechanism (SSM)

→ Allows temporary tariff hikes on import surges (only for developing)  
→ India has consistently defended its right to food security subsidies

## Key conflicts between India and WTO

### ① Food Security Stockholding disputes

- India's National Food Security, 2013, involves procurement at MSP & distribution at subsidized rates.
- WTO rules this as trade distorting (Price gap between MSP and external reference price)
- At Bali Ministerial 2013, a peace clause was adopted i.e. Developing country's food security programme shielded from WTO's action until permanent solution.
- India has been pushing for permanent solution — not yet achieved

### ② Agriculture subsidies vs Diled world Hypocrisy

- USA, EU give massive farm subsidies classified as green box
- India's input subsidy (fertilizer, power, water) classified as amber box
- Developing countries argue that classification favours rich countries — a core N-S divide in WTO negotiations.

### ③ Sanitary and phytosanitary measures (SPS)

- Developed countries use SPS as non-tariff barriers to block Indian agri exports. [e.g. Pesticide residue limit on basmati, Alphonso mango ban in EU]
- India must constantly upgrade quality & certification infra.

### ④ TRIPS & Seed Patents

- WTO's TRIPS agreement requires patent protection for Plant varieties

- India enacted the protection of plant varieties and Farmer's rights Act, 2001 balancing breeder's right with farmer's rights.
- India has resisted product patents on seeds, allows process patents only

PLUTUS IAS

## Post Liberalization agricultural trade

### Key data points

⇒ India became a Net agricultural exporter post 1991 reforms

#### ⇒ Major Exports

- Rice (world's Largest exporter)
- Spices
- Marine products
- Cotton.
- Sugar
- Buffalo Meat

#### ⇒ Major Imports

- Palm oil (from Malay. / Indo.)
- Pulses
- Cashew Nuts

⇒ Agricultural exports grew from ₹6000 crore (1990-91) to over 4.25 Lakh crore (2022-23).

⇒ Apeda (Agricultural and Processed Food products exports development authorities) — Nodal body for promoting Agri exports

### India's Negotiating position at WTO Ministerials

| Ministerial          | India's stand                                                                                       |
|----------------------|-----------------------------------------------------------------------------------------------------|
| ① Doha (2001)        | - Pushed for food security exemptions, reduction of developed country's farm subsidies              |
| ② Cancun (2003)      | - Part of G20 coalition, demanded rich nation cut amber box                                         |
| ③ Bali (2013)        | - Secured peace clause for food security stock holding                                              |
| ④ Nairobi (2015)     | - Pushed for special safeguard mechanism for developing countries                                   |
| ⑤ Geneva MC12 (2022) | - Agreed to fisheries subsidies deal, food security stock holding; permanent solution still pending |

## Impact of World Trade organization on Indian Agriculture

### ⇒ Negative Impacts

- ① Increased Import competition in oil seed, pulses after tariff reduction.
- ② Falling prices for export crop like cotton due to global overproduction (US subsidies)
- ③ Farmer distress in cash crop regions (Vidarbha cotton crises linked partly to global price collapse)
- ④ Constraints on MSP based support being classified as trade distorting

### ⇒ Positive Impacts

- ① Expanded market access for rice, spices, marine products, horticulture
- ② Discipline on government agricultural policies encouraging efficiency.
- ③ Compelled Investment in quality standards.
- ④ Diversification towards High value export oriented horticulture

# Food Processing Industry

## Meaning

- ⇒ Food processing involves the transformation of raw agriculture produce into Value added products through physical, chemical or biological means.
- ⇒ It bridges agriculture and industry and it's critical for reducing post harvest losses, generating rural employment and increasing farmer income.

Note — Food processing is a key component of secondary sector and bridges primary, secondary and services value chains.

## Structure of the Food Processing Industry in India

| Subsector                | Key products                                           |
|--------------------------|--------------------------------------------------------|
| ① Dairy                  | — Milk powder, Butter, whey, cheese, Ice cream         |
| ② Fruits and vegetables  | — Juices, pulp, dried / Frozen products, Pickles       |
| ③ Grain processing       | — Flour milling, Rice Milling, starch, <del>Meat</del> |
| ④ Meat & Poultry         | — Processed meat, frozen poultry, sea food,            |
| ⑤ Fisheries              | — Frozen fish, shrimp                                  |
| ⑥ Beverages              | — soft drinks, Packaged beverages, Alcoholic           |
| ⑦ Bakery & confectionery | — Biscuits, cake, chocolate, snack food                |
| ⑧ Edible oils & fats     | — Vanaspati, refined oil, Hydrogenated fats            |

## (Key statistics)

### ⇒ Post-Harvest Loss

→ ₹ 1.52 lakh crore annually — Food Processing is the structural solution.

### ⇒ FOI in food processing

→ 100% FOI allowed under Automatic route (except alcohol and items requiring approval)

## Policy Framework Post Liberalization

### ① Ministry of Food Processing Industry (MoFPI)

- Established in 1988, expanded post liberalization
- Nodal Ministry for policy, incentives and infrastructure

### ② National Food processing policy, 2012.

- Target: 20% of agricultural output to be processed by 2015 (Partially achieved)
- Focus: Focus on Infra., technology upgradation, reducing wastage

### ③ PM Kisan Sampada Yojana (PMKSY), 2017

→ Umbrella scheme replacing earlier scheme.

→ Components:

- (i) Mega Food Parks i.e. cluster based processing infra.
- (ii) Integrated cold chain and value addition infrastructure.
- (iii) Creation / expansion of food processing and preservation capacities
- (iv) Agro-processing clusters

(v) Backward and Forward linkages

(vi) Food safety and quality assurance infrastructure.

#### ④ PLI schemes for Food processing, 2021

→ Production Linked Incentives of ₹ 10,900 crore outlay

→ Targets:

(i) Ready to eat, marine products, mozzarella cheese, organic products.

(ii) Aims to boost <sup>domestic</sup> manufacturing & exports

#### ⑤ Mega Food Parks

→ Concept: Modern food processing facilities with supply chain infra. from farm to market

→ Each park has a central processing centre (CPC) and Primary processing sector (PPC)

→ 42 Mega Food Parks sanctioned across India

#### ⑥ Cold chain Infrastructure

→ Cold chain is the backbone of perishable food processing

→ India has significant gap: 8,186 cold storages (largely potato focussed, not multi-commodity)

→ National Centre for cold chain Development (NCCCD)

→ Govt. Incentivises Integrated cold chain projects

Technical Body

## WTO and Food Processing - The Linkage

- ⇒ WTO's TRIPS affects Food Processing through Geographical Indications (GIs) — Darjeeling Tea, Basmati Rice, Alphonso mango protecting Indian processed brands globally.
- ⇒ FSSAI established under FSS, 2006 is India's SPS compliance body.
- ⇒ SPS measures by importing countries affect processed food exports (Aflatoxin in spices — rejected by Europe; Antibiotic residue in sea food)

## Challenges in Food processing

- ⇒ High raw material cost volatility — Agricultural price volatility.
- ⇒ Inadequate cold chain — Fragmented, Uneven geographic distribution
- ⇒ Fragmented Landholdings — Small farms make contract farming and supply chain linkages difficult.
- ⇒ Low technology adoption — Mostly small and Informal units.
- ⇒ Inadequate skilled labour for high value processing
- ⇒ Regulatory complexity — Multiple licensing is required (FSSAI, State excise, Municipal, etc)
- ⇒ Export challenges — SPS non-tariff barriers in EU & US market

## Opportunities and way forward

- ⇒ Contract farming (Legitimized under Model APLM Act 2017 and produce Trade and Commerce Act 2020)
- ⇒ FPOs (Farmer Producer Organization) as aggregators linking small farmers to the food processing units.
- ⇒ Sunrise sector (Organic Food, Ready to eat healthy foods)
- ⇒ Export potential — India's geographic diversity i.e. Tropical, Semi-arid, temperate gives unparalleled raw material diversity.
- ⇒ Integration with One District One product (ODOP) scheme for local GI based processing centre.

## Impact of public expenditure on Agri.

⇒ Public expenditure effects agri. through 2 distinct channels

### ① Developmental expenditure.

→ Capital formation, irrigation, R & D, extension services, all these raises productive capacity

### ② Non-developmental expenditure

→ subsidies, debt waivers, price support; all these influence incentives but often without creating durable assets

The central tension in India's agrarian policy is that political economy consistently pushes spending towards the second category at the expense of the first.

## Capital expenditure in Agriculture

⇒ Public investment in agriculture crowds in private investment rather than displacing it. i.e. a well established empirical finding of India (Rau and Gulati committee)

### ⇒ Key channels

#### → Irrigation Infrastructure

→ Canal systems, dams and microirrigation expand the cultivable command area, reduce rainfall dependence and enable double/triple cropping.

→ The Green Revolution's success in Punjab, Haryana was inseparable from canal irrigation built through public funds

#### → Rural road — PMNSY

→ Connectivity reduces post-harvest losses, lowers marketing cost and integrates farmers into competitive markets; better roads alone have been shown to increase farm income by 10-15% in some studies.

#### → Agri. R&D

→ ICAR funded research on HYV seeds, pest resistant varieties & soil science & historically generated returns of ₹7 to ₹9/₹1 invested i.e. among the highest in any public invest. category.

## → Soil Health and Land development

→ Soil health card schemes, watershed development (restore productive capacity of degraded land)

### The problem

- India's public Agricultural Capital expenditure as a share of GDP has been declining since 1980s.
- The 12th FYP and Niti Aayog both flagged this deterioration

The Subsidy paradox — Revenue expenditure crowding out capital

⇒ India spends enormously on Agriculture but largely on subsidies

| Category           | Nature       | Effect                                                            |
|--------------------|--------------|-------------------------------------------------------------------|
| Fertilizer subsidy | Revenue exp. | Does not raise land productivity                                  |
| Power subsidy      | Revenue exp. | Encourages groundwater overextraction, Fiscal burden on states    |
| Food Subsidy (MSP) | Revenue exp. | Price signal distortion, procurement concentrated in wheat & rice |
| Loan waivers       | Rev. exp.    | Moral Hazard, crowds out credit to non-waiver states              |

### The Structural Problem

- Revenue subsidies consume 70 to 80% of total public Agricultural spending in many states, leaving little for irrigation, R&D or rural roads.
- This is the Subsidy Trap i.e. politically difficult to exit, fiscally corrosive and agriculturally unproductive
- Irrigation : The highest impact public expenditure.

Why Irrigation matters disproportionality?

- Only 52% of the India's Net sown area is irrigated i.e. the rest is rainfed & highly vulnerable.
- Irrigated farms show 2-3 x (times) higher productivity than rainfed equivalents.

- Irrigation stabilizes income volatility i.e. the primary driver of agrarian distress.

## Public Investment Failures

- (i) AIBP (Accelerated Irrigation Benefit Programme)
  - Chronic cost overruns and time delays; many projects took 20 to 30 years to get completed.
- (ii) PM Krishi Sinchayee Yojana (PMKSY)
  - Consolidated multiple schemes but implementation quality varies sharply across states.
- (iii) ~~xxx~~ Inter state water disputes (Cauveri, Krishna) limits optimal utilization of existing infra.
- (iv) Agricultural Credit — Public sector banks and PSL
  - The mandate on public sector banks to direct 18% of ANBC to Agri. is a form of Indirect public expenditure via directed credit

Adjusted Net  
Bank Credit

## Impact

- Institutional credit has expanded significantly (Kisan Credit Card Sch.)
- Yet 50% + of small & marginal farmers still depend on informal Lending [NABARD surveys]
- Priority sector targets often met through indirect routes rather than actual farm lending.

## The NABARD role

- As a refinancing and developmental institution, its role itself is a public expenditure instrument. RJOF (Rural Infra. Dvlp fund) has financed 1000s of Rural Infra. projects through state govt.

## (v) Technology Dissemination and Extension service

- Krishi vigyan Kendra, the frontline extension network suffers from severe underfunding.
- India's extension worker to farmer ratio is worst in asia.

## Digital Public expenditure

→ PM KISAN , e-NAM , soil Health Cards , AgriStack — represents a newer form of agrarian public investment with uncertain but potentially high returns if last mile delivery is solved.

### (vi) State level Heterogeneity — The Federalism complication

→ Agri. is a state list subject i.e. Central public expenditure works through CSS, with matching grants (50:50)

→ states like Punjab , Maharashtra & Andhra Pradesh had historically invested more in Agri.,

→ states with weaker fiscal policy (Many in the NE , Bihar) under invest creating a spatial divergence in agricultural productivity that public expenditure cannot easily correct if state's finances are constrained.

### (vii) The Gross Capital Formation in Agricultural problem

→ GCF in Agri. as percentage of total GCF has been declining. This is the most damning single indicator.

→ Public GCF in Agri. fell from 4% of total GCF in 1980s to 2% by 2020.

→ Private GCF partially compensated , but private investment follows public investment in Agri. (complementarity) . so declining public invest. also suppresses pvt. invest.

⇒ The Economic Survey 2022-23 & multiple CAG reports have flagged Low utilization of capital budget in Agri. Meaning even allotted fund often go unspent due to implementation bottlenecks

## Critical Assessment

### ⇒ What works?

- Irrigation investment, rural roads, agricultural R & D and direct income transfer (PM KISAN) have demonstrated measurable productivity or welfare gains.

### ⇒ What doesn't work?

- Blanket fertilizer subsidies distort input use, loan waivers create moral hazard without fixing the structural problem of agricultural risk and MSP based procurements concentrates benefits among large farmers in few states.

### ⇒ The fundamental contradiction

- Indian agricultural public expenditure is politically driven towards visible, short-cycle payoffs (loan waivers before election, free power) and away from long gestation, high return investm. (Irrigation, R & D, Roads)
- Until this political-economy constraint is addressed — through better fiscal rules, DBT substitution for subsidies and strengthened FRBM discipline at state level — the structural gap between expenditure volume and agricultural growth outcomes will persist.

# New Economic Policy

## Strategy of Industrialization and Privatization

⇒ The NEP emerged from a triple crisis i.e.

- (i) Balance of payment Crisis (forex reserves down to 2 weeks Import)
- (ii) Fiscal Deficit at 8.8% of GDP
- (iii) Inflation exceeding 13%.

⇒ The IMF conditioned structural adjustment package forced India to dismantle its existing framework. The architects - P.V. Narasimha Rao (PM), Manmohan Singh (FIM) and Montek Singh Ahluwalia embedded industrial and privatization reforms within the broader LPG framework (Liberalization, Privatization, Globalization)

## Strategy of Industrialization

### (A) Dismantling the Industrial License Raj

→ The cornerstone of pre-1991 Industrial policy was the Industries (Development & Regulation) Act, 1951 and MRTP Act 1969.

→ This created a system where firms needed govt-licenses

- (i) to start production
- (ii) Expand capacity
- (iii) Change product lines
- (iv) Relocate plants

→ Post 1991 reforms

- Before 1991, 18 industries were reserved for public sector, 800 items requiring industrial license, MRTP Act restricted large firms (assets > ₹ 100cr) and compulsory locational restrictions

- Critical point — The licensing system had created rent-seeking, inefficiency and capacity underutilization. Firms deliberately stayed below threshold limit to avoid MRTP scrutiny which was a structural drag on economies of scale.

## ⑧ Dereservation of Small Scale Industries (SSI)

- This (i) prevented scale economies in Labour intensive sectors  
(ii) Made Indian firms globally uncompetitive.  
(iii) Protected inefficiency rather than promoting genuine enterprise development.
- Post 1991 dereservation was gradual but  $\neq$  consistent. By 2015, the reserve list was nearly eliminated. This allowed large firms and FDI to enter textiles, leather, toys, garments, etc where India needed export competitiveness
- Critical Analysis
  - Dereservation was contested, i.e. small manufacturers argued that it exposed them to unequal competition without institutional support.
  - The policy ignored differential access to credit, technology and market

## ⑨ Foreign Investment and Technology Policy

- FDI automatic approval route opened for 50% equity in priority Sectors (raised progressively to 100% for most sectors)
- FIPB (Foreign Invest. promotion Board) est. for cases needing approval
- Technology import agreement Liberalized.
  - Firms no longer needed govt. approval for royalty payment.
- Portfolio investment (FII route) opened for equity markets in 1992, SEBI est. in 1992.
- This shifted India's Industrialization strategy from Import substitution to Export-led and FDI driven growth which was a Paradigm shift from Mahalanobis model.

## ① Trade policy Reforms Linked to industrialization

- Import Licensing on capital goods and raw materials largely abolished.
- Custom duties slashed
  - Peak rate of 150% to 50% by mid of 1990s (further reduced subsequently)
- Exchange rate Liberalized
  - Rupee made convertible under current account. (1994)
- This meant that indian industry now face import competition as a disciplining mechanism that is intended to force efficiency improvement. The flip side, several domestic industries (fertilizers, chemicals, machinery) faced structural damage without adequate adjustment support.

## Strategy of Privatization

- ⇒ India's privatization was explicitly cautious. India adopted gradualism. The term officially used was 'disinvestment', rather than privatization.
- ⇒ Conceptual clarification

| Term                                                | Meaning                                                            |
|-----------------------------------------------------|--------------------------------------------------------------------|
| (i) Disinvestment                                   | Govt. sells minority stakes in PSUs but retains controls.          |
| (ii) Partial <del>Privatization</del> Privatization | Govt. sells stake but retains majority (>51%).                     |
| (iii) Strategic Disinvestment                       | Transfer of management control + majority stakes to private buyer. |
| (iv) Full privatization                             | Complete exit of govt. from ownership                              |

- ⇒ India primarily practised disinvestment (minority stake sale) through the 1990s. It had economically limited impact.

## Evolution of Disinvestment policy

- ⇒ Phase 1 (1991-1999): Minority stakes sale

- Narasimha Rao Govt. sold minority stakes in PSUs, to mutual funds and financial institutions & not to private strategic investors.
- Target: Raise Fiscal Revenue to manage deficit.
- PSUs listed: BHEL, SAIL, ONGC, etc partial stake sold.

## → Critique

- No transfer of management control so efficiency gain was minimal.
- It was essentially asset Liquidification for revenue not genuine privatization.

## ⇒ Phase 2 : 1999-2004 - Strategic Disinvestment under NDA

- Arun shourie (Disinvest. minister) pushed for strategic sales.
- BALCO sold to SterLite (2001) 51% stake, management transfer.
- BSNL sold to TATA group (2002)
- Hindustan Zinc sold to SterLite (2002)
- Modern Food Industries sold to HLL (Hindustan Lever Ltd.)
- Disinvestment Commission setup in 1996 to identify PSU candidates.

## ⇒ Phase 3 : 2004-2014 - UPA Reversal & stagnation

- UPA govt. dependent on left parties (2004 to 2008) effectively halted disinvestments, focus shifted back to minority stake IPOs.
- National Investment Fund (NIF) created to channel disinvestment proceeds to social sector spending.
- Disinvestment was used purely as fiscal tool, not structural reform.

## ⇒ Phase 4 : 2014 - Present - NDA-2

- Ambitious targets and mixed outcomes.
- New PSE policy 2021 : Only 4 strategic sectors retain public sector's presence ; all other PSUs to be privatized or closed.
- Strategic sectors like atomic energy, space, defense, Banking insurance & Fin. services.
- Air India successfully privatized to TATA sons in 2020,  
↑  
Landmark Case.
- BPCL Privatization stalled repeatedly.
- Disinvestment target consistently missed like ₹1.75 Lakh Crore for 2021-22 vs ₹13000 crore actual

## Official Rationale [Rationale of Privatization Critique]

→ PSUs had become sites of Patronage outstaffed that is over staffed, Loss making, absorbing budgetary transfer.

→ Crowding Out Private Investment through preemption of capital (emptied previously - taken up)

→ soft budget constraints.

- No market discipline for PSU manager

→ Release govt capital for social infrastructure (health, education)

## Critical Counter Argument

### ① Natural Monopoly problem

→ Privatizing infrastructure ~~PSUs~~ PSUs (Railway, Telecom, Power) without adequate regulation transfers monopoly rents from state to the private hands and consumers do not get benefitted.

### ② Strategic sector's concerns

→ Defense PSUs, space, atomic energy - privatization risks national security and technological sovereignty.

### ③ Labour Displacement

→ PSU workers, especially (in loss making units) face retrenchment without adequate social protection (CVRS was inadequate).

### ④ Under Valuation risk

→ Strategic sales like BALCO & Hindustan Zinc were criticized by CAG, (NDA-I)

### ⑤ Regional equity

→ PSUs were often located in backward regions. (SAIL in JK, od; NALCO in od). Privatization may lead to closure rather than efficiency, worsening regional imbalance.

## Assessment

→ what the NEP's Industrial Privatization strategy achieved & failed?

| Dimension                                             | Achievement                                                                       | Limitations / failure                                              |
|-------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Industrial growth<br>(incl. Prim., Sec., Ter sectors) | - GDP growth accelerated, manufacturing diversified                               | - Jobless growth: Manufacturing employment share stagnant          |
| FOI                                                   | - Flows increased from near 0 to \$80+ billions annually (2020s)                  | - Concentrated in services, not Labour-intensive manufacturing     |
| PSU' efficiency                                       | - Some privatized PSU (Hindustan zinc, VSNL) showed <del>marked</del> improvement | - Most PSUs remained under govt. control: Reform incomplete        |
| Competition                                           | - Domestic market became genuinely competitive in many sectors                    | - Informal sector remained unprotected: Many SSI's collapsed       |
| Fiscal                                                | - Disinvestment contributed to Deficit management                                 | - Revenue motive dominated over efficiency motive in most of cases |

## New Economic Policy and the Role of FDI & Multinationals

Q. Why FDI became central to NEP?

- ⇒ India's pre-1991 regime was built on FERA, 1973 which capped foreign equity at 40% in most sectors, forced dilution of MNC stakes (IBM & Coca Cola exited rather than comply) and treated foreign capital with deep suspicion rooted in colonial memory.
- ⇒ The 1991 BoP crisis with forex reserves down to 2 weeks of import cover broke that ideological dam, FDI became a necessity first and policy choice second.

### Liberalization of FDI entry norms

⇒ Pre NEP Reality

FDI required case by case FIPB approval, sectoral caps were low, technological transfer agreements were tightly controlled

⇒ Post NEP shifts

| Dimensions                    | Pre NEP                     | Post NEP                             |
|-------------------------------|-----------------------------|--------------------------------------|
| (i) Equity Cap (most sectors) | 40% FERA                    | upto 51%, later 74% eventually 100%. |
| (ii) Approval route           | Case by case FIPB           | Automatic route for listed sectors   |
| (iii) Repatriation of Profit  | Heavily restricted          | Progressively liberalized            |
| (iv) Technology Tie-up        | Govt-approved               | Freely permitted                     |
| (v) FERA replaced by          | (FERA was Criminal as well) | FEMA, 1999 (Civil not criminal)      |

The automatic route was the structural turning point, it removed discretionary bureaucratic gate keeping for sectors below threshold.

Note : Factor payments

Profit } Repatriation  
Rent }

wages — Remittance

Capital — Interest

## Role of MNCs

### (1) Capital formation

- ⇒ India's domestic saving rate was adequate i.e. 23% of GDP.
- ⇒ But investment in frontier technology sector required foreign capital.
- ⇒ MNCs filled the gap between domestic savings & capital requirement in capital with MNCs.
- ⇒ FDI inflows from 100 mn \$ in 1991-92 to 3.5 bn \$ by 1997-98 & accelerating thereafter.

### (2) Technology formal transfer

- ⇒ Perhaps the most structurally significant contribution
- ⇒ MNCs brought embodied technology (machinery, process) & disembodied technology (patents, managerial practices, R & D)
- ⇒ Automobile sector' example
  - Suzuki Maruti bought modern manufacturing, just in time inventory and vendor development that transformed Indian automobile sector.
- ⇒ IT sector
  - MNCs presence legitimized India as a technology hub

### (3) Export promotion

- ⇒ MNCs integrated Indian production into global value chains (MNCs)
- ⇒ Export oriented FDI in software services, pharmaceuticals and gem & jewellery.
- ⇒ All this helped India to diversify from Primary commodity export to manufactured, services exports.

### (4) Employment

- ⇒ Direct employment by MNCs was never massive in absolute numbers relative to India's labour force.
- ⇒ Indirect / spillover employment through vendor ecosystem was more significant
- ⇒ MNCs often used capital intensive, not labour intensive methods limiting direct job creation.

## Competition & efficiency (5) Competition and efficiency

- ⇒ (1) Breaking domestic monopolies / Oligopolies was perhaps NEP's most underrated FDI benefit.
- ⇒ (2) Consumer goods, automobiles, electronics, telecom, etc.
  - ⇒ MNC entry forced Indian incumbents to modernize or exit.
- ⇒ (3) The license Raj premium that Indian firms earned through rent seeking evaporated under competitive pressure

## Sectoral Progression of FDI Liberalization

### (1) 1991

- ⇒ FDI upto 51% in 34 high priority industries under automatic route.

### (2) 1996 - 2000

- ⇒ Defense, Insurance, Retail progressively opened (Partially)
- ⇒ In Telecom: FDI progressed from 49% to 74% to 100% (over subsequent years)
- ⇒ Insurance: opened at 26%, raised to 49% (in 2015) and 74% in 2021
- ⇒ Retail (single brand): 51% in 2006 and 100% by 2012
- ⇒ key sectors that remained restricted (reflecting political economy constraints) were Agriculture, Media, Real estate revealing that Liberalization was never ideologically uniform

## Critical Assessment: The Uncomfortable Realities

### (1) FDI Quality problem

- ⇒ Much early FDI was in non-productive sectors i.e. Real Estate, Financial Services rather than manufacturing where technology spillovers are highest.

### (2) Round-tripping via Mauritius route

- ⇒ ~~Ind~~ Inflated FDI figures (Indian capital leaving & reentering as FDI to exploit Tax treaties)

## MNC behaviour

- (1) Transfer pricing manipulation allowed profit shifting out of India, eroding tax base,
- (2) MNCs preferred wholly owned subsidiaries once 100% FDI was permitted reducing technology spillovers to domestic partners that joint ventures created
- (3) Contractual restrictions on technology

## Crowding Out vs Crowding In debate

- ⇒ Evidence on whether FDI crowded in domestic investment (by raising productivity) or crowded out (by outcompeting domestic capital) is mixed and sector-specific.
- ⇒ In Automobile, clear crowding in (vendor ecosystem developed)  
In consumer goods, more displacement of domestic FMCG players. (crowding out)

## BoP Impact — 2 sided

- ⇒ FDI inflows improved capital account but profit repatriation created a structural outflow on the current account.
- ⇒ India's Investment Income account has been persistently negative (Income generation in propor. to Invest. is low)

## Institutional framework shift

| Institution / Policy | Role                                      |
|----------------------|-------------------------------------------|
| FIPB — 1991          | Cleared non-automatic route FDI proposals |
| RBI                  | Managed FDI through FEMA                  |
| SEBI                 | Regulated FPI; <del>SEZ, 2005</del>       |
| SEZ 2005             | Gave MNCs special rebates in tax          |
| DPIT                 | Current Nodal ministry for FDI policy     |

# New Economic Policy and Intellectual Property Rights, Implication of TRIPS, TRIMS, GATS & EXIM policy

## Intellectual Property Rights

→ IPR are legally enforceable, exclusive rights granted to creators and innovators over their mental / creative labour for a defined period. They transform intangible knowledge into tradable economic assets.

## Why IPR matters in the NEP framework?

→ India's New Economic Policy of 1991 built on Liberalization, privatization, globalization (LPG) made IPR critically important for 3 reasons:

| Drives                           | Link to IPR                                                             |
|----------------------------------|-------------------------------------------------------------------------|
| (i) <u>Foreign Investment</u>    | - MNCs demanded legal protection for their brand before entering India. |
| (ii) <u>WTO membership</u>       | - TRIPS agreement made IPR compliance mandatory                         |
| (iii) <u>Technology Transfer</u> | - IPR framework determines terms on which foreign tech. enters India.   |

## TRIPS Agreement: the Central Pillar (Trade Related aspects of IP rights)

→ TRIPS agreement under WTO, 1995 is the most significant International IPR framework for India:

- ① It sets minimum standards for IPR protection across all WTO members.
- ② India has to amend domestic laws substantially to comply.
- ③ The transition period for developing countries was till 2005.
- ④ India amended the Patents Act (most critically in 2005) to extend product patents to pharmaceuticals and agrochemicals.

## Types of IPR and key Indian Legislations

| Type                          | What it Protects                                    | Indian Law                                                        |
|-------------------------------|-----------------------------------------------------|-------------------------------------------------------------------|
| (i) Patents                   | • Inventions, processes                             | Patent Act, 1970 (amended in 2005)                                |
| (ii) Trademarks               | • Brand names, Logos                                | Trademark Act, 1999                                               |
| (iii) Copyright               | • Literary, artistic, musical work                  | Copyright Act, 1957 (amended in 2012)                             |
| (iv) Geographical Indicators  | • Regional products — Basmati Rice, Darjeeling Teas | GI of goods Act, 1999                                             |
| (v) Industrial Designs        | • Aesthetic product appearance                      | Design Act, 2000                                                  |
| (vi) Plant Variety Protection | • New plant breed                                   | PPVFR, 2001 (Protection of Plant Varieties & Farmers' Rights Act) |
| (vii) Trade secrets           | • Confidential Business Info.                       | Contract Law                                                      |

## IPR and India's Trade Relations

### ⇒ The Pharma Patent Controversy

- Pre 2005, India allowed only process patent (Not product patent)
  - Generic Drug industry flourished
- Post 2005, TRIPS compliance: Product Patents introduced, hence MNCs could block generics.
- Section 3 (d) of patents Act: India's defensive clause prevents Evergreening of patents (minor modifications to extend monopoly)
- This became major Trade friction point with USA

### ⇒ US special 301 report

- USA annually places India on its priority watch list under special 301 for alleged IPR protection.
- Key concerns:
  - Patent standard (Section 3D, compulsory Licensing, data exclusivity demand)
- Reflects North-South Tension i.e. Developed vs Developing countries for IPR

## ⇒ Compulsory Licensing

→ Under Sec. 84 of Patents Act, India can issue compulsory licenses if:

- ① Drug is not reasonably available to public.
- ② Price is not reasonably affordable.

## ⇒ GI tags and Export competitiveness

→ GI protection helps India command premium prices in export markets.

ex: Darjeeling Tea, Alphonso mango, Basmati Rice, Kanchipuram silk, Mysore Sanded soap, etc.

→ Protects against biopiracy

## National IPR policy 2016

⇒ India launched its first comprehensive National IPR policy in 2016 with motto — "Creative India, Innovative India".

⇒ Single-window for IPR services.

⇒ Reduce pendency of patents, trademark application.

⇒ Awareness generation

## Key tension: Development vs IPR protection

IPR — Double edge sword

⇒

### Arguments for strong IPR

- Attracts FDI and technology
- Incentivises R&D (own innov. & no copying)
- Builds Export brand value
- Integrates with global value chain.

### Arguments against (Ind's stand)

- Raises prices of essential medicines
- Limits access for the poor
- Undermines technology transfer
- Neo-colonial IP dependency

## TRIPS - Trade Related aspects of Intellectual Property rights

⇒ TRIPS agreement is the most comprehensive multi-lateral agreement on IPR. Negotiated during Uruguay round. It was pushed primarily by U.S., EU and Japan (major IP exporters) who faced massive losses from developing countries.

⇒ India opposed TRIPS during negotiations fearing access to cheap medicines and technology.

### ⇒ Key TRIPS principles

| Principles                         | Content                                                      | Implications for India                                             |
|------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------|
| (i) National Treatment (Article 3) | Foreigners get same IP protection as Nationals               | India must protect foreign patent equally.                         |
| (ii) MFN (Article 4)               | Any IP advantage given to 1 WTO member must be given to all. | No discriminatory IP treaties                                      |
| (iii) Minimum standard             | Sets floor for protection (countries can go higher min)      | India only meets minimum, US pressurizes for TRIPS+                |
| (iv) Enforcement (Art. 41 to 61)   | Civil, Criminal, border measures must be available           | Custom officers can seize counterfeit goods                        |
| (v) Transition period              | LOCs exempted until 2033 for pharma                          | India used transition till 2005 to delay product patent in pharma. |

### ⇒ TRIPS and Indian pharma: The central battle

→ Pre-1970, India followed process patents (not product patent) allowing Indian firms to make same molecule using a different process.

→ The Patents Act, 1970, entrenched this; India became the pharmacy of developing world. TRIPS mandated product patents in all fields including pharma by January 2005 for developing countries. India complied via Patents Act, 2005

### ⇒ Section 3D: India's Strategic Resistance

→ India inserted section 3D into the patents Act which said new forms of a known substance (salt, ester, polymorphs, etc) are not patentable unless they show significantly enhanced efficacy.

→ This directly blocks evergreening i.e. a strategy where pharma companies make trivial modifications to extend patent life.

→ Novartis vs Union of India (2013, SC)

- Gleevec (cancer drug) patent rejected under section 3D. Major global precedent.

⇒ TRIPS flexibilities: DOHA declaration 2001.

| Flexibility                   | Declaration                                                                              | India's usage                                                 |
|-------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| (i) Compulsory Licensing (CL) | — State can authorize use of Patent without owner's consent in favour of public interest | — NATCO pharma, Sero fenib 2012; proposed for COVID vaccines. |

## Micro economics

- Cardinal Utility Analysis (Marshall & Walrus)
- Welfare Economics

- PPC
- New-welfare Economics
- Kaldor-Hicks welfare criteria
- Scitovsky paradox & double criteria of welfare.
- Arrow's Impossibility Theorem
- Bergson-Samuelson social welfare function.
- Rawls' concept of social Justice & welfare criteria.

## Int'l Economics

- Linder's Theory of Demand & Trade Pattern
  - Impact of External Economies of Scale
  - Int'l trade: Mkt. structures
  - Production life cycle theory.
  - Internal Economies of scale
- } EOS in Int'l trade

## Macroeconomics

- Public Finance

## Money and Banking

- Monetary Policy (Tools, Repo, CRR, SLR, LAF, MSF, Intermediate tgts, Money supply & IF as an Inter-med tgts.)

Qn. Explain first phase of Indian Railways (150 words)

⇒ The first phase of Indian Railways is broadly referred to as 'Colonial Inception' of Private Railway infrastructure in India during the period 1820s upto 1947.

## First phase of Indian Railways

### Introduction

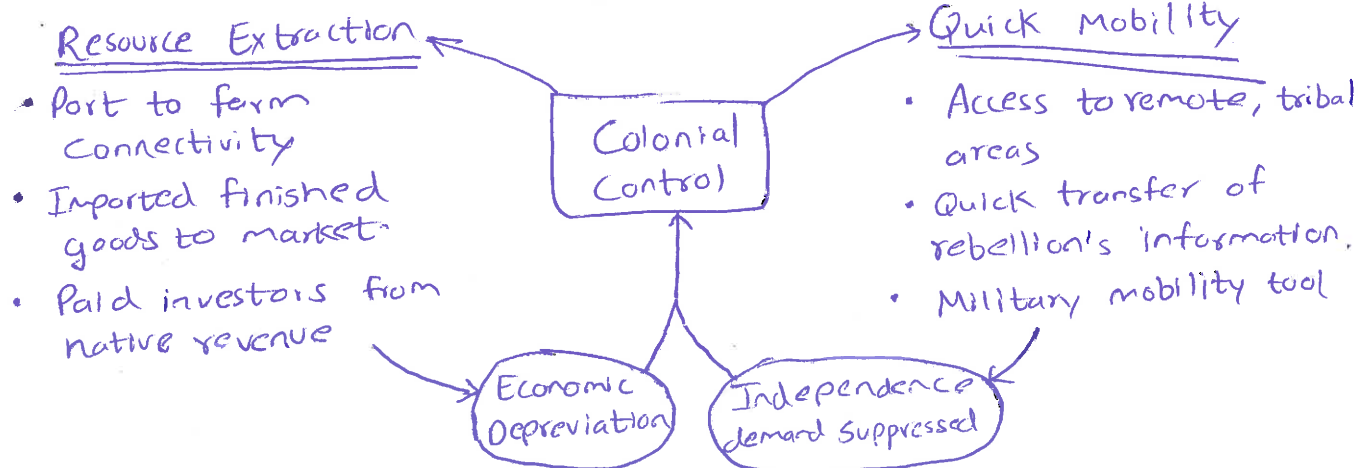
- Early 1820s, steam engine railways started in Britain and Infrastructure buildup in India started by 1830s.
- First Indian Railway (steam engine) ran between Thane and Bombay (21 miles) in 1853.

### Ownership and Investment

- Owned by private investors and companies and especially East India Company with government's guarantee of Annual 5% profit.
- Capital equipment like coaches, wheels, axles imported from Britain.

### Motif behind this development

→ can be broadly encapsulated as follows



## Extent of Railways

- Between the early days of Infrastructure buildup and the second world war, around 53,000 km of Railway track had been laid down.
- Commercial Capital preferences
  - Largely limited to connectivity between commercial cities like Ahmedabad, Bombay, Calcutta, Madras among others.
- Foreign Investment and Manufacturing Multiplier
  - Capital equipments imported and domestic manufacturers discouraged by heavy raw material import tariffs and excise duties.

## One Bright story

- TISCO (Tata Iron and steel Company) emerged in 1907 in Jamshedpur, supplying Iron and steel for the growing demand of Indian Railways.
  - Not to give a chance but to accommodate the over-expansive demand (by britishers)

Indian Railways especially with respect to 'Colonial Inception' is held by historians as "Blessing in Disguise" as it was not intended to but indirectly benefitted Indians.

## AK Model

AK Model represents the growth model in which savings are the defining factor for growth & extent of Technology determines the output per unit of Capital.

It is given as  $\boxed{Y = A \cdot K}$

Here A is the technology constant.

Physical capital  
(Diminishing returns)

Human capital  
(Increasing returns)

Thus, Growth of an economy is determined by the change in stock of capital.

$$\begin{aligned}\therefore \Delta K &= \text{Investment} - \text{Depreciation} \\ (\text{growth}) &= sY - \delta K \\ &\quad (\text{with A.K. model})\end{aligned}$$

$$\Delta K = s(A \cdot K) - \delta K$$

$$\therefore \Delta K = K(sA - \delta)$$

$$\therefore \boxed{\frac{\Delta K}{K} = s \cdot A - \delta}$$

Thus rate of Capital accumulation is obtained & it is equal to growth rate (as it is the determining factor)

$$\therefore \frac{\Delta Y}{Y} = s \cdot A - \delta$$

Thus it can be observed that according to A.K Model growth is dependent on certain factors & savings rate determines permanent growth — Growth effect, Unlike Solow model where it determined a temporary growth — Level effect.

## Determining Factors

- ① Savings rate
- ②  $A$  — technology constant (Output per unit Capital)
- ③ Rate of depreciation.

## 2<sup>nd</sup> Model — 2 sector Model

It represents the persistent growth rate determined by 2 sectors that is

- (i) Manufacturing sector
- (ii) Knowledge sector

Manufacturing sector → which produces goods

Knowledge sector → which produces knowledge  
→ Used by both sectors.

→ Function of 2 sector Model given as

$$Y = f [K, (1-u) L]$$

$K$  — knowledge extent

$u$  — Efficiency rate due to knowledge extent.

$uL$  — Labour producing knowledge

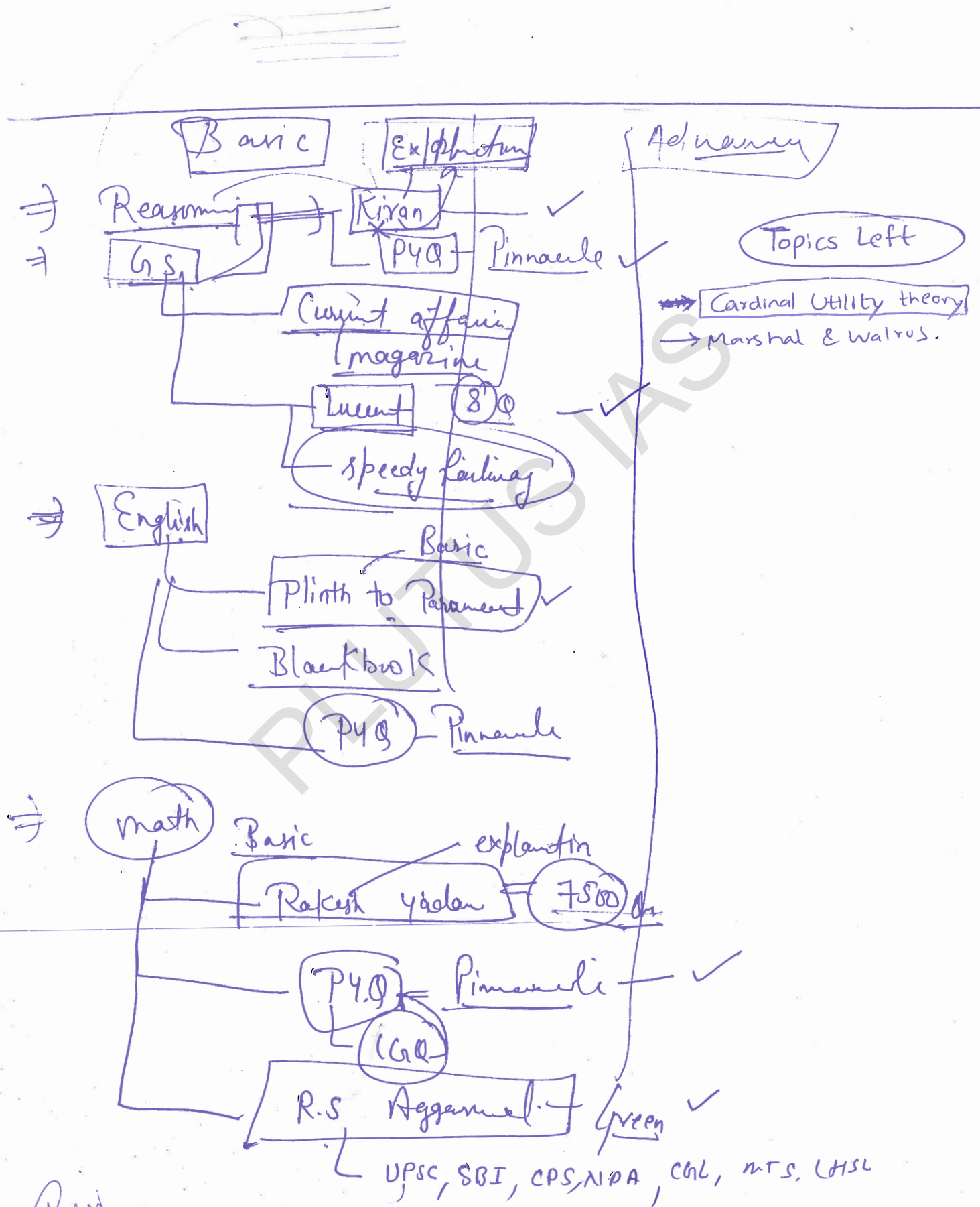
$(1-u)L$  — Labour producing goods.

Note:  $u$  is given as  $\frac{\Delta E}{E} = f(u)$

i.e. Rate of change in Efficiency is the function of  $u$  (because knowledge is responsible for Efficiency)

A.K Model & 'persistent growth' 2 sector model represents the Growth Effect obtained due to technology created & knowledge produced culminating into the growth rate.

Thus Development of Human Capital is obtained as the Modus operandi for attained sustained growth i.e. growth effect.



*Ben*

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