

Why Doesn't Capital Flow from Rich to Poor Countries (Lucas (1990))

- There are 2 basic reasons why per capita incomes differ
 - 1.) saving / investment rates
 - 2.) technology / productivity
- Lucas asks whether observed differences in living standards can be explained by differences in saving & investment
- He argues the answer is no.
- Suppose rich & poor countries have same technology

$$y_r = A k_r^\alpha \quad y_p = A k_p^\alpha \quad \Rightarrow \quad \frac{y_r}{y_p} = \left(\frac{k_r}{k_p} \right)^{\frac{1}{3}}$$

$\alpha = \frac{1}{3}$

$$\Rightarrow \quad \frac{k_r}{k_p} = \left(\frac{y_r}{y_p} \right)^3$$

• Therefore, if $\frac{y_r}{y_p} = 10 \Rightarrow \frac{k_r}{k_p} = 1000 !$

- This difference in capital/labor ratios would create huge incentives for capital to flow from rich to poor countries.

- Steady state $\bar{k}$ is determined by

$$\boxed{sA\bar{k}^\alpha = \delta\bar{k}} \implies \frac{sA}{\delta} = \bar{k}^{1-\alpha}$$

$$\implies \frac{\bar{k}_r}{\bar{k}_p} = \left(\frac{s_r}{s_p}\right)^{\frac{1}{1-\alpha}} \quad (\text{since } A + \delta \text{ are the same})$$

$$\implies \frac{y_r}{y_p} = \left(\frac{s_r}{s_p}\right)^{\frac{\alpha}{1-\alpha}} \quad (\text{since } y = A\bar{k}^\alpha)$$

$$= \left(\frac{s_r}{s_p}\right)^{1/2}$$

• Therefore, $\frac{s_r}{s_p} = \left(\frac{y_r}{y_p}\right)^2 = 100!$

- Or, since $r = \alpha A\bar{k}^{\alpha-1}$

$$\frac{r_p}{r_r} = \left(\frac{\bar{k}_p}{\bar{k}_r}\right)^{\alpha-1} = \left(\frac{y_p}{y_r}\right)^{\frac{1-\alpha}{\alpha}} = \left(\frac{y_p}{y_r}\right)^2 = 100!$$

- Such huge differences in saving rates & rates of return are not observed in the data.