CEE Growth & Development

UPCES
Lecture 14

Fall Semester, 2014

Before we start...

In neo-classical framework:

- People have rational expectations
- Individuals maximize utility, firms maximize profits.
- People act independently, based on full and relevant information.

Productivity: Efficiency and Technology Open Economy and Capital Mobility

Lucas Paradox:

- Consider two countries with same CRS; and, K, L are homogeneous.

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- Therefore, in an open economy with a free flow of capital, investments will go to poorer countries. This will hold until $K/L_1 = K/L_2$, or $r_1 = r_2$ and $w_1 = w_2$

Lucas Paradox continued...

However, flow of capital towards countries with low level of K is not as suggested by theory.

Investments in Developed vs Developing Countries

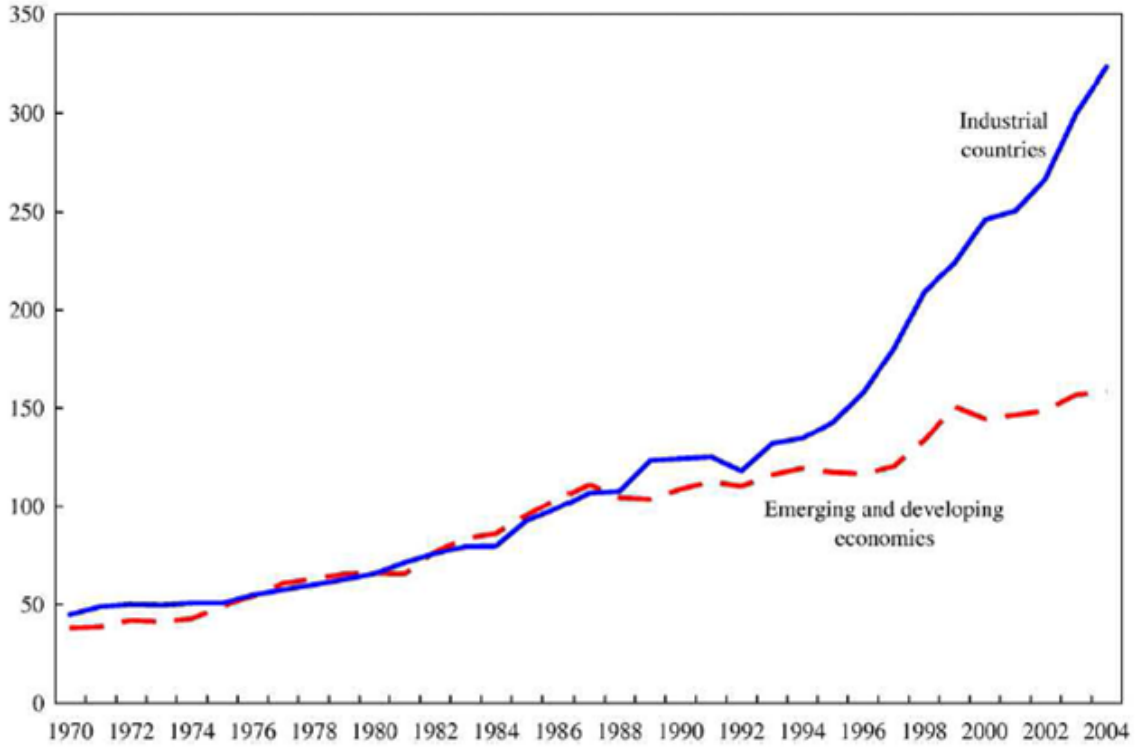


Figure 6: Ratio of sum of foreign assets and liabilities to GDP
Lane, Milesi-Ferretti, 2007

External Assets and Liabilities

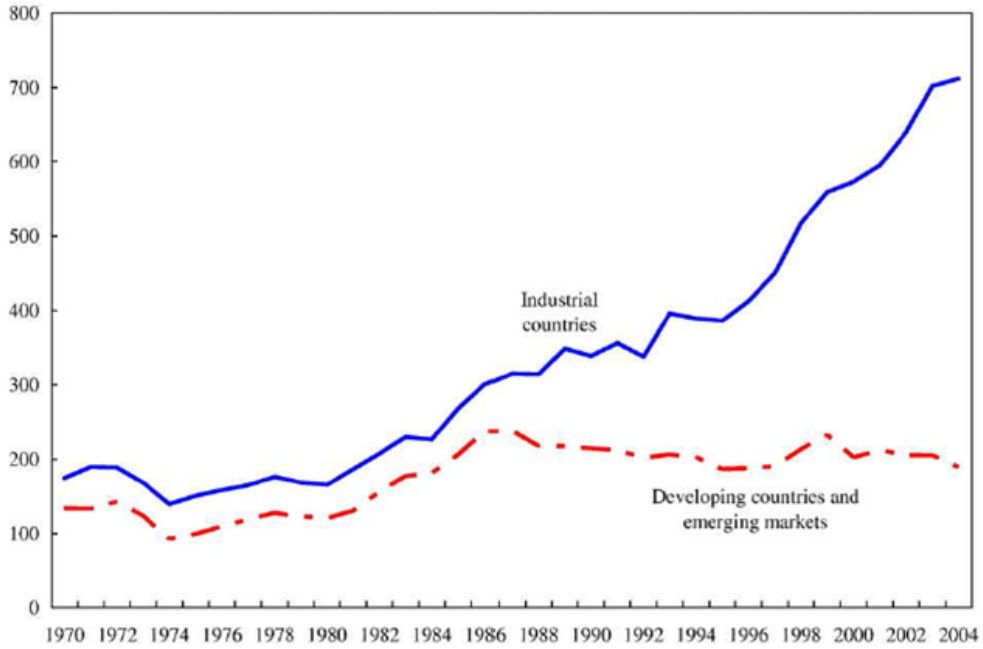


Figure 7: Sum of external assets and liabilities in percent of sum of exports and imports
Lane, Milesi-Ferretti, 2007

Net Foreign Assets

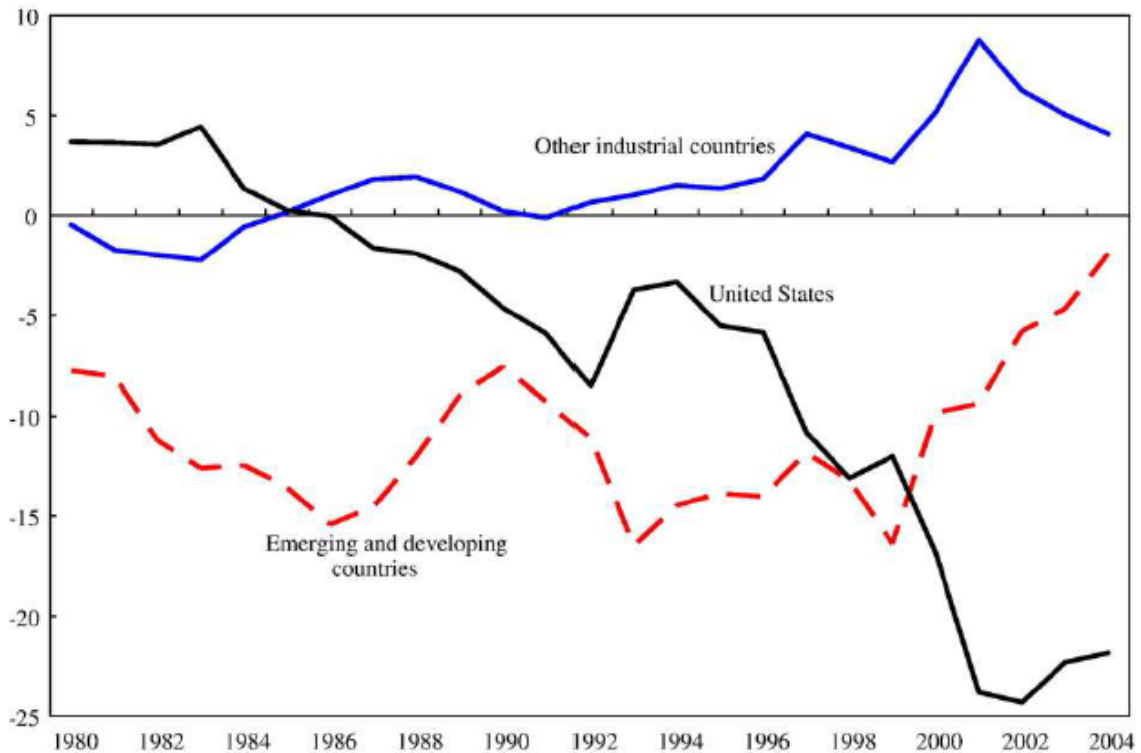


Figure 8: Net foreign assets, divided by each group/country's GDP
Lane, Milesi-Ferretti, 2007

Lucas (1990)

Why doesn't Capital Flow from Rich to Poor Countries?

Firm profit maximisation:

$$\begin{aligned} M\,\mathrm{Pr} &= 0 && (1)\\ TR - TC &= 0 && (2)\\ pY - (wL + rK) &= 0 && (3) \end{aligned}$$

Profit maximisation condition:

$$\begin{aligned} MR_K &= MC_K && (4)\\ (V)MP_K &= r && (5) \end{aligned}$$

Equilibrium capital:

$$\alpha A k^{\alpha-1} = r \qquad (6)$$

Lucas (1990)

Why doesn't Capital Flow from Rich to Poor Countries?

Production function:

$$y = Ak^{\alpha}$$

Equilibrium capital:

$$\begin{aligned} \alpha A k^{\alpha-1} &= r \\ k &= \left(\frac{\alpha A}{r}\right)^{\frac{1}{1-\alpha}} \end{aligned}$$

Equilibrium interest rate:

$$y = (A\alpha^{\alpha})^{\frac{1}{1-\alpha}} \left(\frac{1}{r^*}\right)^{\frac{\alpha}{1-\alpha}}$$

Lucas (1990)

Why doesn't Capital Flow from Rich to Poor Countries?

Equilibrium:

$$y^{CZ} = (A\alpha^{\alpha})^{\frac{1}{1-\alpha}} \left(\frac{1}{r^{CZ}}\right)^{\frac{\alpha}{1-\alpha}}$$

Two countries:

$$\frac{y^{CZ}}{y^{DE}} = \frac{(A\alpha^{\alpha})^{\frac{1}{1-\alpha}} \left(\frac{1}{r^{CZ}}\right)^{\frac{\alpha}{1-\alpha}}}{(A\alpha^{\alpha})^{\frac{1}{1-\alpha}} \left(\frac{1}{r^{EU}}\right)^{\frac{\alpha}{1-\alpha}}} = \left(\frac{r^{DE}}{r^{CZ}}\right)^{\frac{\alpha}{1-\alpha}}$$

Lucas (1990)

Why doesn't Capital Flow from Rich to Poor Countries?

Lucas answer (human capital):

$$y = Ahk^{\alpha}$$

Balassa-Samuelson 'answer':

$$\frac{y^{CZ}}{y^{DE}} = \frac{(A\alpha^{\alpha})^{\frac{1}{1-\alpha}} \left(\frac{1}{r^{CZ}}\right)^{\frac{\alpha}{1-\alpha}}}{(A\alpha^{\alpha})^{\frac{1}{1-\alpha}} \left(\frac{1}{r^{EU}}\right)^{\frac{\alpha}{1-\alpha}}} = \left(\frac{(r/p)^{DE}}{(r/p)^{CZ}}\right)^{\frac{\alpha}{1-\alpha}}$$

Productivity:

$$A = \textit{Technology} \cdot \textit{Efficiency}$$

Overheating theory:

It does, and it is not always good!

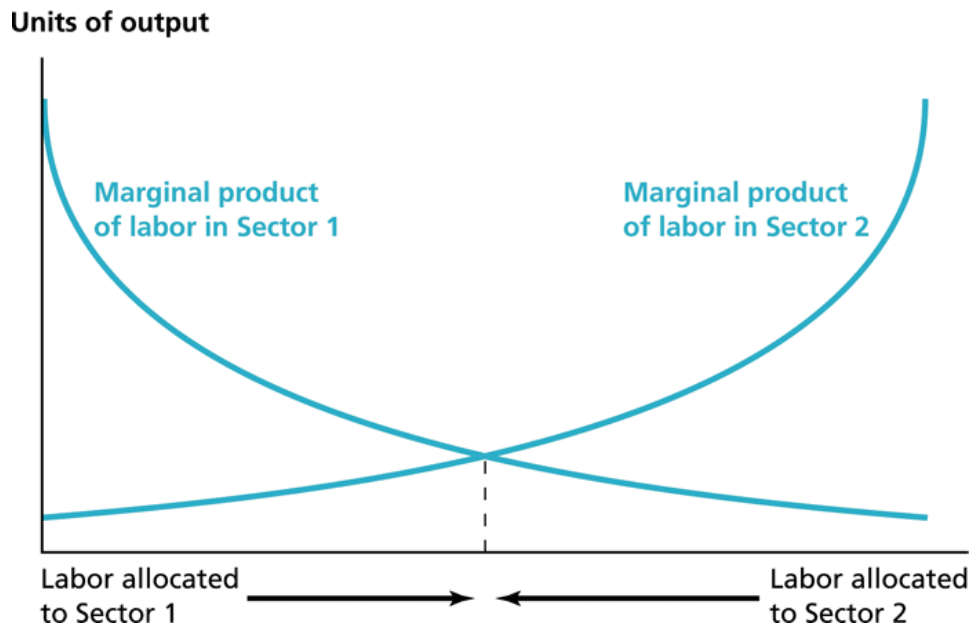
Balassa-Samuelson (or Penn) Effect

Two countries (A and B) and two sectors (T and NT).
Non tradable sector:

$$MPL_{nt,A} = MPL_{nt,B} \, [= 1]$$

Labour market equilibrium:

$$p_{nt,A} \cdot MPL_{nt,A} = w_A = p_t \cdot MPL_{t,A}$$



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Assume country A more productive:

$$\begin{aligned} MPL_{t,A} &> MPL_{t,B} \\ p_{nt,A} &> p_{nt,B} \end{aligned}$$

Productivity and Efficiency

Productivity:

$$A = \textit{Technology} \cdot \textit{Efficiency}$$

Sources of inefficiency

- Idle resources and unproductive activities
  - unemployment, overeducation, 'krysha', and rent-seeking
- Misallocation of factors (among sectors and firms)
- Missing markets
  - e.g. financial
- Tacit knowledge
- Production and technological blocking (Luddites)
- Institutional inefficiencies

Innovation and imitation

$$\begin{aligned} A_{t+1} - A_t &= u_n (\gamma - 1) A_t + u_m \left(\breve{A}_t - A_t \right) \\ g_t &= \frac{A_{t+1} - A_t}{A_t} = u_n (\gamma - 1) + u_m (a_t - 1) \end{aligned}$$

- innovation ferquency, u_n
- innovation jump, γ
- imitation frequency, u_m
- technological frontier, $\breve{A}_t$
- measure of 'backwardness', a_t

Innovation and imitation

- Innovation:
  - R&D, paying for R&D, Patents, 'Creative destruction'
- Imitation: Trickle up and down, Catching up & Leapfrogging

Feldstein-Horioka Puzzle

- Savings and investments:

$$\begin{aligned} \textit{Theory} &: [Corr(S, I) = 0] \\ \textit{Reality} &: [Corr(S, I) \neq 0] \end{aligned}$$

Sources of Capital (Money) Movements

- Multinationals (WB and the like)
- Bilateral (intergovernmental borrowings and donations)
- FDIs and Portfolio investment
- Remittances