

NEO-CLASSICAL ARGUMENT

General theory: Flows of investment are explained by, and positively related with the marginal productivity of capital. Hence:

$$\frac{q}{k} = v > 0, \text{ where } q = \frac{\partial Q}{\partial K}, \text{ and } k = \frac{\partial K}{\partial K}$$

$$I = I(v)$$

Pure theory: technology is exogenous and similar across production functions. Therefore, technology is embodied in the production process and acquired with the choice of technique. Poorer economies tend to be labour intensive and capital scarce. Hence, these economies yield higher marginal productivity for capital than richer (capital abundant) economies. Provided that capital is perfectly mobile, it will flow from richer to poorer economies until factor price equalisation.

New growth models (alternative to pure neo-classical theory): technology is endogenous to the production process, and is an endogenous explanatory variable of the growth process. Hence, production functions may differ with respect to technology, and different growth path may emerge from the same combination of capital and labour due to technology differences. Hence, the importance of the marginal productivity of capital (measured as a function of relative factor intensity) is weakened because differences in technology affect the productivity of capital and labour irrespectively of their relative intensity. Thus, capita abundant economies may yield higher returns to investment in capital than labour abundant economies because of the higher productivity attained in the former due to differences in technology. In other words, technology differences may reverse the assumption of decreasing returns to capital, hence increasing the attractiveness of the technology abundant economy as opposed to the labour abundant economy. Therefore, capital may not flow from richer to poorer countries. Hence

$$I = I(v, \lambda), \text{ where } \lambda \text{ refers to endogenous technology.}$$

DATA

- Net resource flow (nrf) into developing countries:
 - By mid 90s, nrf as % of GNP had recovered from the sharp decline that followed the debt crisis of the early 1980s;
 - Nrf as % of GNP increased faster in LDCs than in MICs;
 - Nrf as % of GNP in LDCs changed from being 1/2 to being twice as high as that of MICs;
 - Nonetheless, MICs received 57% of nrf flowing into developing countries (US\$118bn/US\$207bn);
 - The composition of nrf also changed from being mostly private banking lending to being mostly foreign direct investment (fdi).
- Foreign direct investment (fdi) into developing countries:

- over two and a half decades, fdi flows to developing countries increased by an average of 6.5% per year, from US\$2.27bn to US\$80.1bn.
 - developing countries received ¼ of total inward fdi, but 6 developing countries alone (Mexico, Malaysia, Indonesia, China, Thailand and Philippines) received almost ¾ of all inward fdi flowing into developing countries;
 - the share of LDCs in total inward fdi has doubled over the last decade (after being stagnant for 2 decades), but this increase is almost exclusively due to fdi accruing to China. If China is excluded, the LDCs share of fdi has been stagnant for 3 decades;
 - developing countries' share of total outward fdi increased by 7 times (from 0.8% to 5.3% of total outward fdi). This represented an increase in outward fdi from US\$1.4bn to US\$55.2bn.
- Distribution of fdi across developing countries:
 - all developing countries' outward fdi is owed to MICs and their new MNEs;
 - fdi as % of GNP increased much more dramatically in LDCs than in MICs, mainly because MICs GNP increased much faster than LDCs GNP; and China accounted for almost all the increase in fdi % GNP in LDCs;
 - nonetheless, MICs received the bulk (57%) of the fdi accruing to developing countries, and 6 countries alone received ¾ of all fdi that flown into developing countries;
 - distribution of fdi across LDCs:
 - average fdi % GNP is significantly > than median = skewness. This means that few countries receive the bulk of the fdi.
 - As fdi flows increase, the skewness also increases. This means that the marginal flow is due to fewer countries, and that flows of fdi have contributed to increasing differentiation amongst LDCs;
 - Until the late 1980s, 25% of LDCs received no fdi at all.
 - distribution of fdi across MICs:
 - average > median = skewness;
 - however, skewness is constant; this means that all share increases in fdi;
 - since the mid 1970s', all MICs receive some fdi.
 - comparing the distribution of fdi across LDCs and MICs:
 - MICs average and median significantly > than LDCs. This means that MICs receive more fdi than LDCs, but also that the average MIC is more likely to receive fdi than the average LDC;
 - skewness is constant in MICs, which means that all share the changes in fdi (at least when fdi increases). Whereas skewness in LDCs increase as fdi increases, showing that a smaller and smaller number of LDCs benefit from the marginal fdi;
 - all MICs have received some fdi for the last 3 decades, whereas until a decade ago 25% of LDCs had no access to fdi.
 - Both MICs and LDCs have very skewed distribution of fdi within the group. Hence the aggregate figures say little about individual countries (for example, why some receive significantly more fdi than others; if, and why, there are some LDCs that receive more fdi (per capita and as % of GNP) than some MICs);
 - LDCs are significantly more differentiated than MICs with respect to distribution of fdi within the group; and this differentiation tends to increase as fdi into LDCs also increases.
 - MICs seem to have been able to take advantage more efficiently of the fdi they received, as their GNP has grown much faster than LDCs

GNP. Again, there is a significant skewness with respect to these figures.

RESULTS FROM REGRESSION ESTIMATES

- the neo-classical argument in its purest form does not hold. This is observable directly from the data and from the regression estimates that are not significant;
- new growth models, when technology differences are allowed into the regression, produce more robust results than the purest form of the theory that relates investment flows to capital stocks;
- despite producing more robust estimates, the new growth models estimates produced significant estimates in less than 1/3 of the cases;
- hence, neither the pure nor the adjusted neo-classical estimates explain the distribution of fdi across developing countries. Therefore, the relative stock of capital (in its purest form, or adjusted by differences in technology) cannot be the sole explanation for the distribution of fdi.

NOTES

- the way technology is depicted in the regression estimates matters for the final result of the estimate. A disaggregated approach (that breaks technology into different proxy variables, such as education, R&D, etc.) produces more robust results; this might be because more variables are included in the regression, or because the disaggregation captures more effects (for example, education may affect the ability to select and use better technologies, but also the quality of management, institutions, etc);
- a few economists have developed models that relate capital flows with infrastructures and human capital, which have an impact on v and λ , but also in many other aspects (see, for example, Lucas), and with the level of integration of the financial markets (see, for example, Fitzgerald).