

The Paradox of Capital

Is foreign capital associated with economic growth and, if not, why does it flow “uphill”?

Eswar Prasad, Raghuram Rajan, and Arvind Subramanian

Standard economic theory tells us that financial capital should, on net, flow from richer to poorer countries. That is, it should flow from countries that have more physical capital compared to their stock of labor—and hence lower returns—to those that have relatively less capital—and hence greater unexploited investment opportunities. In principle, this should make poorer countries better off by giving them access to more financial resources, which they can then invest in physical capital such as equipment, machinery and infrastructure. Such investment would improve their levels of employment and income.

It is natural to expect that as financial globalization—cross-border flows of various forms of financial capital—picks up steam, these flows from industrial to developing countries would increase, making all countries better off. A rosy scenario, indeed, but what is the reality? In a famous article written in 1990, Robert Lucas pointed out that capital flows from rich to poor countries were very modest, and nowhere near the levels predicted by theory. Financial globalization has of course surged in the last decade and a half. What then has become of the empirical paradox that Lucas identified—has increasing financial integration resolved it?

Remarkably, this paradox has, if anything, intensified over time. Consider Chart 1, which shows the average relative income (compared to the U.S.) of countries that are running current account surpluses, in other words, exporting capital. Each country’s weight in this plot reflects the share of its contribution to the total world current account surplus in a particular year. The line marked surplus countries thus shows the evolution of the average relative income of countries that have been exporting capital. The plot of the average relative income of countries that are running current account deficits, that is, importing capital, is constructed in a similar manner. In recent years, the relative income of capital-exporting countries has fallen well below that of capital-importing countries. In other words, capital has been flowing from poor to rich countries!

Recent U.S. current account deficits and Chinese current account surpluses are of course a big part of the reason why capital is flowing “uphill.” But they are hardly the full story. Many industrial economies are now running current account deficits while a large number of emerging market economies are running surpluses. Chart 1 also indicates that uphill flows are not entirely a new phenomenon; a similar pattern can be seen in the mid-1980s.

Capital flows to and from developing economies include official flows, such as inflows of foreign aid and outflows in the form of accumulation of international reserves. These flows

may be driven by factors other than the basic rate-of-return considerations discussed earlier. Do private capital flows behave more in accord with economic theory?

Foreign direct investment (FDI) does flow from richer to poorer countries, which is comforting. But FDI, while rising in importance over time, still accounts for only about 40 percent of private flows to developing countries and a smaller fraction of total flows. Moreover, the pattern of overall flows is ultimately what is relevant in terms of resources available for financing investment in a country. This article examines how capital is allocated around the world and whether foreign capital really promotes growth in developing countries.

Examining the paradox

Perhaps the Lucas paradox isn't such a paradox if one digs deeper. After all, many developing countries are beset by a variety of problems—inadequate infrastructure, a poorly-educated labor force, corruption, a tendency to default on debt from abroad etc—that reduce the risk-adjusted returns to investment. This could explain why capital doesn't flow to developing countries in the quantities one would expect. The risk-adjusted return that foreign investors get from investing in these countries may be much lower than the rate of return that might be anticipated just on the basis of the relative scarcity of capital and relative abundance of labor.

At any rate, of the capital that does flow to nonindustrial countries, more should go to countries that are growing the fastest and, are therefore likely to have the best investment opportunities. Does it?

To examine this issue, we sorted developing countries into a range from low to high average growth rates over the period 1970-2004. We then divided them into three groups with roughly equal aggregate populations. China and India were handled separately since their populations are so large. We added up current account deficits for each group, deflating the computed flows in dollars by the U.S. consumer price index to make them comparable over time. In principle, more capital should go to the group of countries growing fastest and the least to the slowest-growing group.

Chart 2 shows that, over the period 1970-2004, as well as over shorter periods, the net amount of foreign capital flowing to relatively high-growth developing countries has been smaller than that flowing to the medium- and low-growth groups. During 2000-04, the pattern is truly perverse, with China, India, high growth, and medium growth countries, all *exporting* significant amounts of capital, while low growth countries receive significant amounts. That capital flows to developing countries do not follow growth has been dubbed the allocation puzzle by Gourinchas and Jeanne (2006).

The puzzle deepens when we examine net FDI flows (see Chart 3). During the most recent period (2000-2004), even net FDI flows do not follow growth. By and large, however, they do, with the fastest growing group of nonindustrial countries receiving the most FDI over the period 1970-2004, and China receiving substantial amounts. This suggests that fast growing countries do have better investment opportunities, which is why they attract more FDI. Yet they do not utilize more foreign capital overall and, in the case of China, export capital on net.

In short, the apparent perversity of overall foreign financing is even more dramatic when one examines the allocation of capital across developing countries. The paradox of international capital flows is worse than Lucas had imagined!

Driving growth

Why does more foreign capital not flow to nonindustrial countries that are *growing* more rapidly and where, by extension, the revealed marginal productivity of capital (and probably creditworthiness) is indeed high? More importantly, do these perverse flows of capital adversely affect growth in nonindustrial countries?

There is a vast industry of papers that essentially reaches the conclusion that it is difficult, using macroeconomic data, to establish a robust causal relationship between private capital inflows and economic growth. But does this mean that foreign capital does not matter?

To address this question in a different way, we examined the long-run relationship between current account balances and growth. Current account balances are a measure of total external capital financing available for investment in a country. This measure is particularly relevant for our purposes since it is the difference between national savings and national investment. Countries that borrow more from abroad should be able to invest more (since they are less constrained by domestic saving) and, therefore, should grow faster.

We examined the correlation between growth and current accounts using data averaged over a long period for each country. Surprisingly, for the sample of nonindustrial countries, the correlation is positive (see Chart 4). In other words, developing countries that have relied *less* on foreign finance have grown faster in the long run. That is not to say there are no episodes where nonindustrial countries grow fast and run large current account deficits—East Asia before the crisis is a clear counter example. Our attempt is to look beyond short-run foreign-funded booms (and possibly busts), to whether, on average, and in the long run, nonindustrial countries that grow the fastest have depended most on foreign finance. They have not.

We also conducted a more thorough statistical analysis of this relationship, accounting for various other factors that could be driving growth and examined the robustness of the results in a number of ways. For instance, we looked at the correlation just for the period 1985-97.

This was in some sense the heyday of recent global integration, with rising capital flows and a relatively tranquil period in international financial markets (barring the Mexican Tequila crisis). This should have been the period when the benefits of capital inflows shone forth. In most of these cases, however, the association between current account balances and growth remains positive for nonindustrial countries (the correlation is zero in the remaining cases). In no case do we find the negative relationship predicted by economic theory.

Is it savings or investment that matter?

How do we interpret the finding that there is a positive correlation between the current account surplus and a country's growth rate? One possible explanation is that the relationship reflects and is driven by domestic savings, which is either determined by deeper forces or generated through growth itself. After all, if foreign inflows responded largely to investment opportunities, there should be an unambiguously negative relationship between growth and the current account.

Indeed, it turns out that the positive correlation we have found is driven largely by national savings. That is, nonindustrial countries that have higher savings for a given level of investment experience higher growth. Of course, investment in high-saving countries could also be higher, so high domestic savings does not imply low reliance on foreign savings.

In Chart 4, we split the sample of nonindustrial countries into four groups depending on whether they were above or below the average levels of the ratios of investment to GDP and current account to GDP, respectively. The figure shows that, as expected, countries with higher levels of investment fare better than those with lower levels. What is interesting is that countries that had high investment ratios *and* lower reliance on foreign capital (lower current account deficits) grew faster—on average, by about 1 percent a year—compared with countries that had high investment but also a greater degree of reliance on foreign capital.

What's going on?

One explanation for the positive correlation between the current account surplus and a country's growth rate is that higher growth is associated with—and itself generates—higher domestic savings. In other words, fast growing countries may *need* less foreign capital. The problem is that, typically as countries grow (i.e. when they experience a positive productivity shock) they should want to consume more (because they are richer) and invest more (because of the investment opportunities). Thus, the correlation should, if anything, be negative.

This is where the financial system—especially an underdeveloped one—can play a role. If the financial sector was deep and efficient, a sustained increase in productivity would not only result in more investment (as firms borrow to take advantage of investment opportunities) but also more consumption as consumers borrow to consume in anticipation of

their higher income. Conversely, a weak financial sector could translate a sustained increase in the productivity of certain sectors into weaker investment growth and greater savings growth. Corporate investment could be limited to the funds firms generate internally from past investment, while consumers save much of the increased income stemming from the increase in productivity because they cannot borrow in anticipation of higher future income.

Another possibility is that weak financial systems may not help in efficiently intermediating foreign capital. This too could result in the lack of a positive relationship between flows of foreign capital and higher growth. But if financial systems in developing countries are weak, where are the productivity gains coming from? Our conjecture is that the forces of globalization—especially improved supply chains and greater competition resulting in enhanced efficiency of production—may be generating productivity gains in nonindustrial countries *despite* financial system weaknesses.

Consistent with the views that foreign capital may not be needed nor be helpful because of weak financial systems, we find that the positive correlation between current account balances and growth holds up when we examine just the group of countries with less well-developed financial systems. In these countries, the range of profitable investment opportunities, as well as private consumption, for those that experience growth episodes, may be constrained by financial sector impediments, so investment can be financed largely through domestically-generated savings.

Excessive reliance on foreign capital may also have harmful consequences. It can lead to currency appreciation and, in some circumstance, overvaluation (a level of the exchange rate that is higher than the level warranted by economic fundamentals). In turn, this could hurt competitiveness and exports in key sectors like manufacturing. Recent analyses of growth episodes suggest that a dynamic manufacturing sector is a key to long-run growth. Thus, reduced reliance on foreign capital--and the avoidance of overvaluation--may help the development of an export-oriented manufacturing sector.

Caution warranted

An implication of our analysis is that the seemingly perverse flows of capital from poor to rich countries today are not necessarily a sign of inefficiencies in global financial markets. Rather, they may be indicative of financial and other structural impediments that limit a poor country's ability to absorb foreign capital.

Taken at face value, our results suggest that there is a growth premium associated with reduced reliance on foreign finance—though we do not have strong evidence to suggest that this is a causal relationship. The reliance of nonindustrial countries just on domestic savings to finance investment comes at a cost, however. There is less investment and consumption

than there would be if these countries could draw in foreign capital on the same terms as industrial countries.

What does all this mean for policies toward capital account openness? Any discussion of the merits of capital account openness is likely to be very specific to a country. Our results suggest that—insofar as the domestic financial sector is underdeveloped and there is a need to avoid exchange rate appreciation caused by inflows—greater caution towards certain forms of foreign capital inflows might be warranted. At the same time, financial openness may itself be needed to spur domestic financial development and to reap the benefits that financial flows and better growth opportunities provide.

How can this tension be resolved? One approach might be a firm—and hopefully credible—commitment to integrate financial markets at a definite future date, thus giving time for the domestic financial system to develop without possible adverse effects from capital inflows, even while giving participants the incentive to prepare for it by suspending the sword of future foreign competition over their heads. A recent example of this is the Chinese approach of trying to spur banking reform by committing to open up their banking sector to foreign competition as part of their obligations for accession to the World Trade Organization.

A lot more research is needed to better understand how to increase a country's absorptive capacity, which in turn would allow developing countries to benefit from foreign finance even during the process of development.

Eswar Prasad is the Tolani Senior Professor of Trade Policy at Cornell University; Raghuram Rajan is the Eric Gleacher Distinguished Service Professor at the Graduate School of Business, University of Chicago; and Arvind Subramanian is Assistant Director in the Research Department of the IMF.

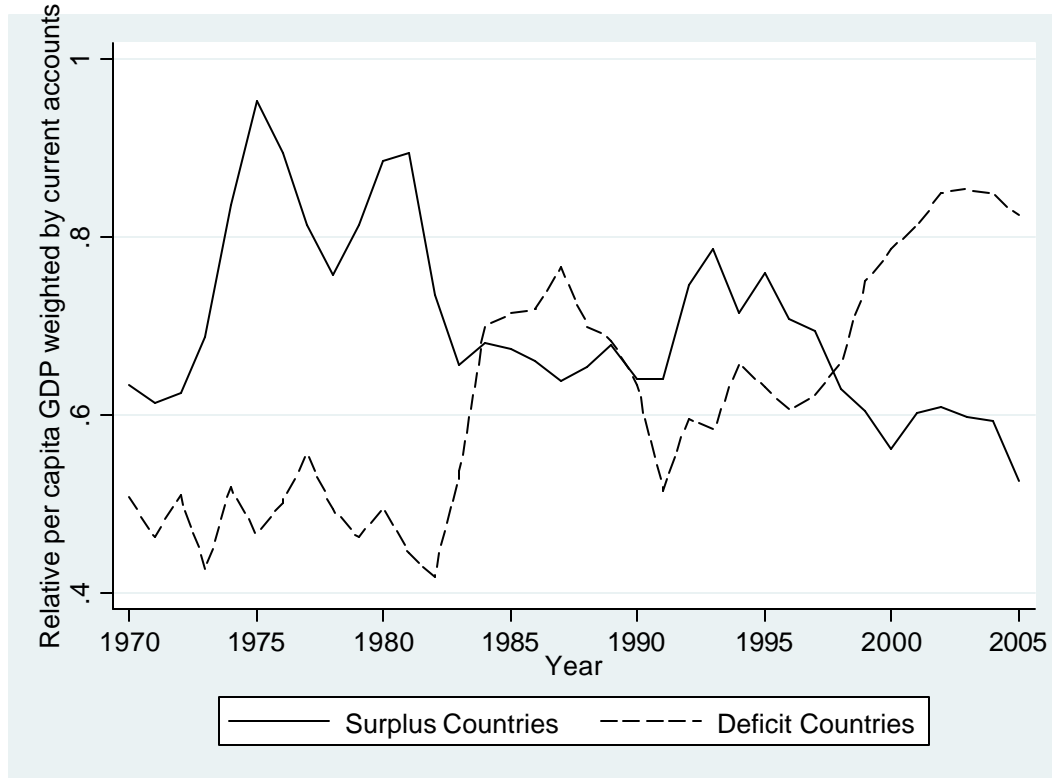
References

This paper is based on a forthcoming IMF working paper by the authors. That paper contains detailed results and references to the literature.

Gourinchas, Pierre-Olivier, and Olivier Jeanne, 2006, “Capital Flows to Developing Countries: The Allocation Puzzle,” IMF Working Paper, forthcoming.

Lucas, Robert, 1990, “Why Doesn’t Capital Flow from Rich to Poor Countries?” *American Economic Review*, Vol. 80, No. 2 (May), pp. 92–6.

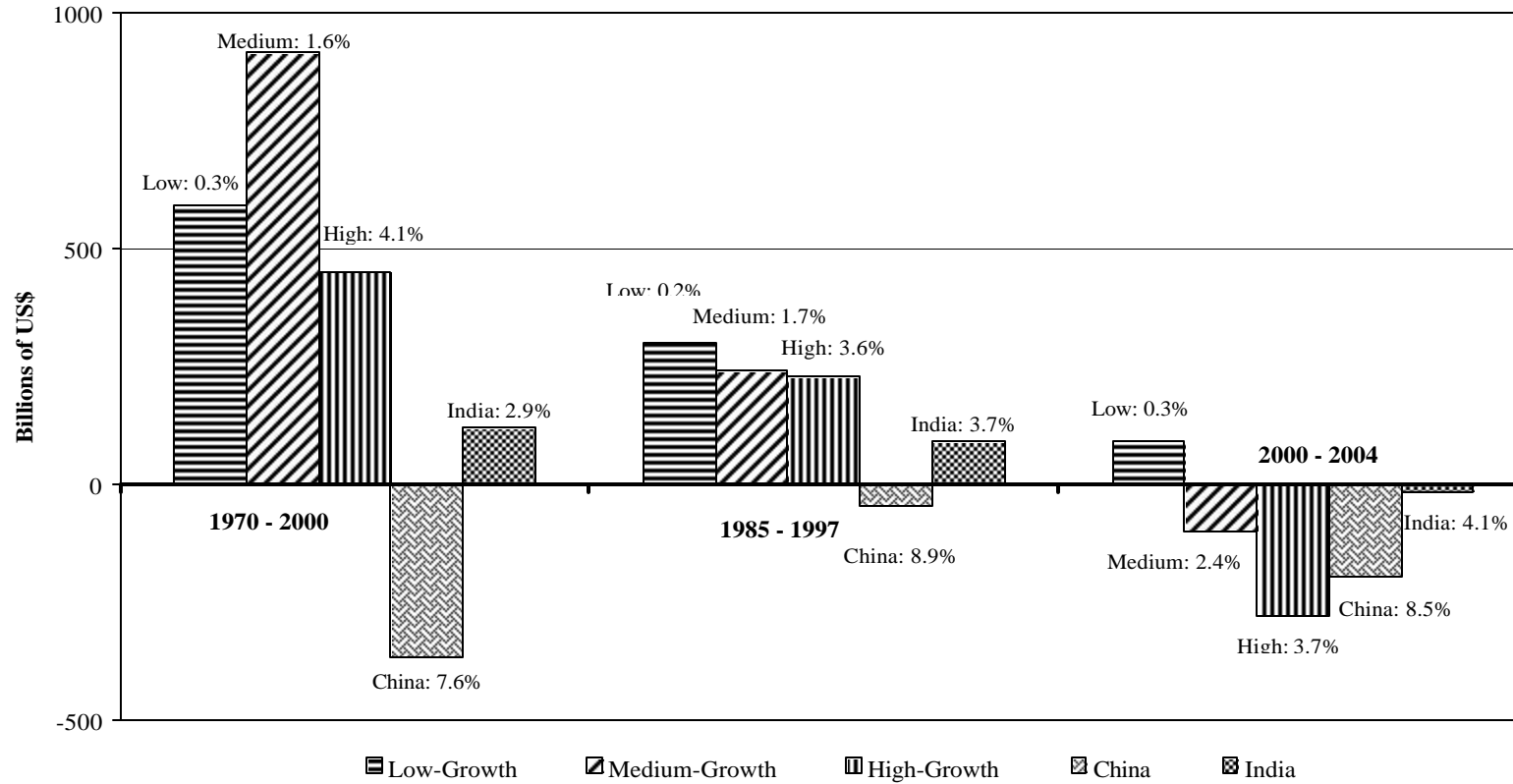
Figure 1. Downhill or Uphill? Relative Incomes of Capital-Exporting and Capital-Importing Countries



Notes: For each year, we separate our sample of countries into two groups—those with current account surpluses and those with deficits in that year. For the first group, we then take each country’s share of the total current account surplus accounted for by all countries in that group. We then multiply that share by the relative PPP-adjusted per capita income of that country (measured relative to the per capita income of the richest country in the sample in that year). This gives us a current account-weighted measure of the relative incomes of surplus countries. We do the same for current account deficit countries. This enables us to compare the relative incomes of surplus versus deficit countries in each year

Figure 2. Does Capital follow Growth? The Allocation of Aggregate Flows to Non-Industrial Countries

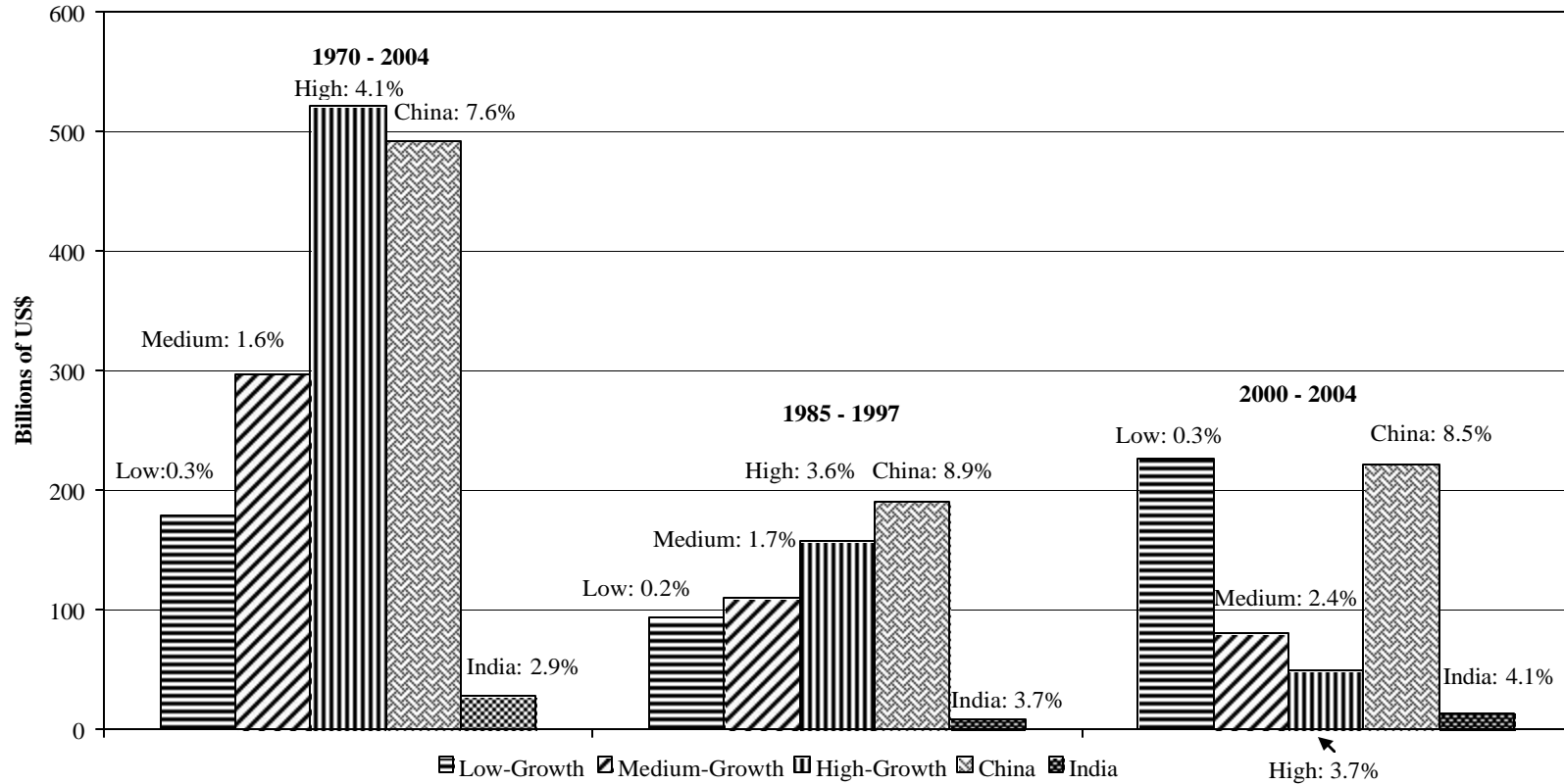
Figure 2. The Allocation of Capital Flows to Non-Industrial Countries



Notes: The non-industrial countries in our sample are split into three groups with roughly equal total populations in each group. China and India are treated separately. Each panel shows the cumulative current account deficits (in billions of U.S. dollars, deflated by U.S. CPI indexed to 1 in 2004) summed up within each group over the relevant period. A negative number indicates a surplus. Median real GDP growth rates for the countries in each group (after averaging over the relevant period for each country) are also shown.

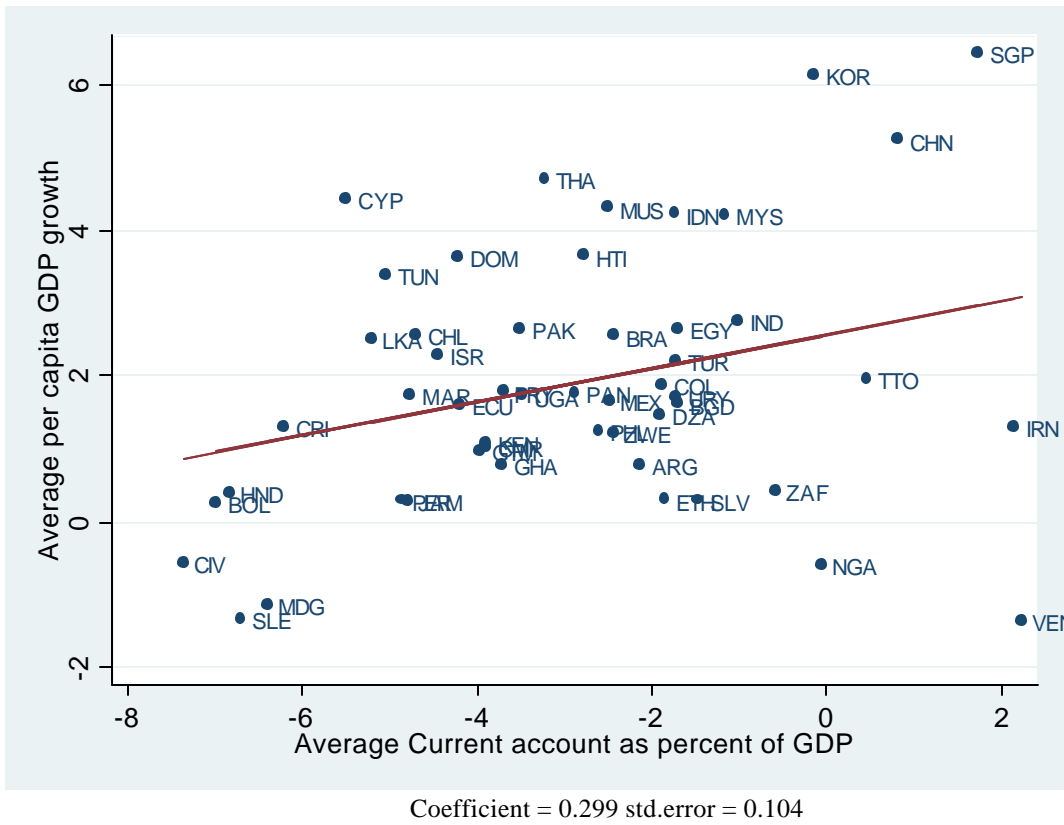
Figure 3: As in the title below

Figure 3. The Allocation of FDI Flows (Net) to Non-Industrial Countries



Notes: The non-industrial countries in our sample are split into three groups with roughly equal total populations in each group. China and India are treated separately. Each panel shows the cumulative net FDI inflows (in billions of U.S. dollars, deflated by U.S. CPI indexed to 1 in 2004) summed up within each group over the relevant period. Median real GDP growth rates for the countries in each group (after averaging over the relevant period for each country) are also shown.

Figure 4. The Simple Correlation Between Growth and the Current Account Balance



Notes: Sample excludes countries with Aid/GDP > 0.10

Figure 5: It's not the Investment but the Savings: Growth, Current Accounts and Savings in Developing Countries

Figure 5. Current Accounts, Investment and Growth in Developing Countries

