



# The Paradox of Capital

Chinese worker at a factory in Anhui province that exports to the European Union.

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**S**TANDARD 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 per worker—and hence where the returns to capital are lower—to those that have relatively less capital—and hence greater unexploited investment opportunities. In principle, this movement of capital should make poorer countries better off by giving them access to more financial resources that they can then invest in physical capital, such as equipment, machinery, and infrastructure. Such investment should 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 will 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 past 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. As Chart 1 shows, the average income, relative to the United States, 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, whereas a large number of emerging market econo-

mies 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 accumulated 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, and a tendency to default on debt from abroad, among other factors—that reduce the risk-adjusted returns to investment. These problems could explain why capital does not 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.

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



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

To examine this issue, we sorted 59 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 because 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 fastest-growing countries 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 (2007).

The puzzle deepens when we examine net FDI flows (see Chart 3). During the most recent period (2000–04), 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 use more foreign capital overall and, in the case of China, they 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 credit-worthiness) is indeed high? More important, do these perverse flows of capital hamper growth in nonindustrial countries?

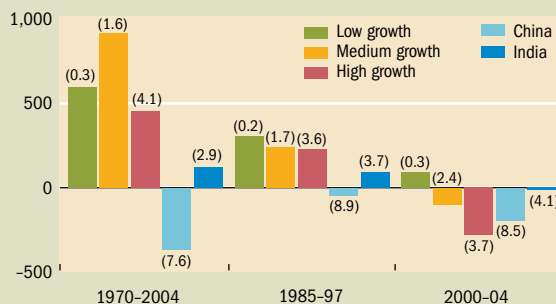
A large body of research has essentially reached the same conclusion: it is difficult, using macroeconomic data, to

Chart 2

### Perverse trends

High-growth developing countries attracted less net foreign capital than medium- and low-growth groups.

(aggregate flows to nonindustrial countries, billion dollars)



Source: Authors' calculations.

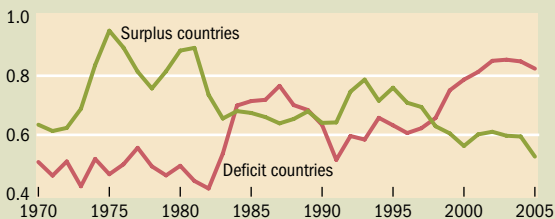
Notes: Median real GDP growth rates for the countries in each group (after averaging over the relevant period for each country) are shown in parentheses. The nonindustrial countries in our sample are split into three groups with roughly equal total populations in each group. China and India are treated separately. Each panel shows the cumulative current account deficits (in billions of dollars, deflated by the U.S. consumer price index starting at 1 in 2004) summed up within each group over the relevant period. Bars below the zero line indicate a current account surplus.

Chart 1

### Downhill or uphill?

The relative income of capital-exporting countries has fallen when compared with the United States.

(relative per capita GDP weighted by current accounts)



Source: Authors' calculations.

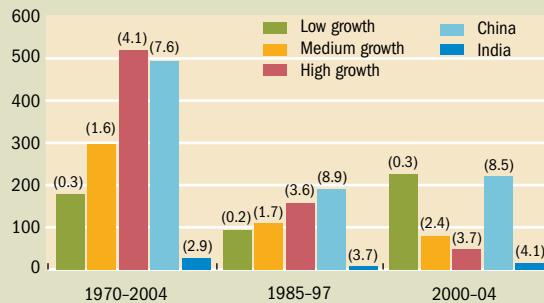
Notes: For each year, we separate our sample of countries into two groups—those with current account surpluses and those with deficits in that year. For the first group, we then take each country's share of the total current account surplus accounted for by all countries in that group. We then multiply that share by the relative purchasing power parity-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.

Chart 3

### Better opportunities

Except for the most recent period, more FDI went to the fastest-growing countries.

(net FDI to nonindustrial countries, billion dollars)



Source: Authors' calculations.

Notes: Median real GDP growth rates for the countries in each group (after averaging over the relevant period for each country) are shown in parentheses. The nonindustrial 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 dollars, deflated by the U.S. consumer price index starting at 1 in 2004) summed up within each group over the relevant period.

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 because it is the difference between national savings and national investment. Countries that borrow more from abroad should be able to invest more (because 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 our sample of 51 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 have grown fast and run large current account deficits—East Asia before the crisis is a clear example. We attempted to look beyond short-run foreign-funded booms (and possibly busts) to whether, on average and in the long run, nonindustrial countries that have grown 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.

### Tapping savings

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 are 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 do not imply low reliance on foreign savings.

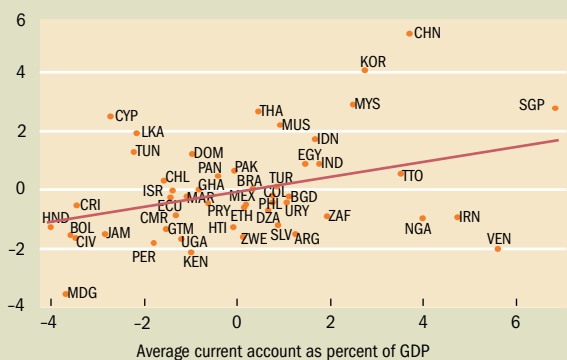
In Chart 5, we split the sample of nonindustrial countries into four groups depending on whether they were above or below the average levels of the ratios of investment to GDP and current account to GDP. The figure shows, as expected, that countries with higher levels of investment fare better than those 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—than countries that had high investment but also a greater degree of reliance on foreign capital.

Chart 4

### Stand alone

Developing countries that have relied less on foreign capital have, in general, grown faster.

(average per capita GDP growth, percent)



Source: Authors' calculations.

Note: Sample excludes Nicaragua.

ARG=Argentina, BGD=Bangladesh, BOL=Bolivia, BRA=Brazil, CHL=Chile, CHN=China, CIV=Côte d'Ivoire, CMR=Cameroun, COL=Colombia, CRI=Costa Rica, CYP=Cyprus, DOM=Dominican Republic, DZA=Algeria, ECU=Ecuador, EGY=Egypt, ETH=Ethiopia, GHA=Ghana, GTM=Guatemala, HND=Honduras, HTI=Haiti, IND=Indonesia, IRN=Iran, Islamic Republic of, ISR=Israel, JAM=Jamaica, KEN=Kenya, KOR=Korea, Republic of, LKA=Sri Lanka, MAR=Morocco, MDG=Madagascar, MEX=Mexico, MUS=Mauritius, MYS=Malaysia, NGA=Nigeria, PAK=Pakistan, PAN=Panama, PER=Peru, PHL=Philippines, PRY=Paraguay, SGP=Singapore, SLV=El Salvador, THA=Thailand, TTO=Trinidad and Tobago, TUN=Tunisia, TUR=Turkey, UGA=Uganda, URY=Uruguay, VEN=República Bolivariana de Venezuela, ZAF=South Africa, ZWE=Zimbabwe

### 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 with this explanation is that, typically, as countries grow (that is, 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 were deep and efficient, a sustained increase in productivity would result not only in more investment (as firms borrow to take advantage of investment opportunities) but also in 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 more efficient production—may be generating productivity gains in nonindustrial countries *despite* financial system weaknesses.

Consistent with the views that foreign capital may be neither needed nor 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. For those that experience growth episodes, the range of profitable investment opportunities, as well as the level of private consumption, may be constrained by financial sector impediments, meaning that investment will have to 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 circumstances, overvaluation (where the level of the exchange rate 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 indicate 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 solely 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 related to 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 toward 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 integration by suspending the sword of future foreign competition over their heads. A recent example of this is China's approach of trying to spur banking reform by committing to open its banking sector to foreign competition as part of its 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. ■

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

### References:

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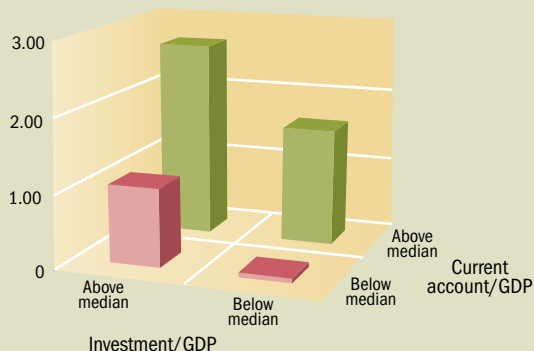
Lucas, Robert, 1990, "Why Doesn't Capital Flow from Rich to Poor Countries?" American Economic Review, Vol. 80 (May), pp. 92–96.

Chart 5

### Less reliant

Countries with high investment ratios and lower current account deficits grew faster than those more reliant on foreign capital.

(average per capita GDP growth; percent)



Source: Authors' calculations.