Commentary: Patterns of International Capital Flows and Their Implications for Economic Development

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In their wide-ranging paper, Prasad, Rajan, and Subramanian (PRS) update and explore a new dimension of the well-established, though seemingly perverse, Lucas puzzle—that capital tends to flow from poor to rich countries. Building on the recent finding by Gourinchas and Jeanne (2006) that capital flows to nonindustrial countries have been relatively concentrated among the slow, not the rapid growers, PRS document that current account balances for these countries are also *positively* correlated with long-run growth. Thus, countries that grew more quickly have been less reliant on foreign finance. In contrast, they find the opposite (but expected) negative correlation for industrial countries. After presenting a variety of relevant empirical relationships, the authors consider possible explanations for this new "stylized fact." Their preferred hypotheses focus on the role of underdeveloped domestic financial markets that limit countries' ability to absorb foreign capital and on countries' desire to avoid capital inflows that would cause overvaluation. They also discuss a variety of possible implications, including for interpreting recent global imbalances and informing policy toward capital account openness.

A strength of the paper is its wealth of interesting and provocative empirics. In particular, I found the documentation of the correlations between current accounts and growth to be novel as well as convincing. The paper also updates and extends indicators of both the well-known Lucas paradox and the more recent Gourinchas-Jeanne "allocation puzzle."

However, as the authors recognize in places, correlations do not imply causality. While I found their preferred explanations plausible, the empirical evidence they present is suggestive at best. It is difficult to draw conclusions from regressions that relate clearly endogenous variables, such as the current account, saving, and investment, to output growth. The analysis would benefit from additional structure and a more explicit attempt to identify underlying exogenous factors. Indeed, a simple framework suggests that finding faster growth tends to be associated with current account surpluses may not be so puzzling after all. There are also significant difficulties with available measures of key variables such as financial development and integration. Thus, I am particularly uncomfortable when, in the final sections of the paper, PRS push their analyses in an attempt to draw policy conclusions.

In the remainder of my remarks, I first elaborate on the possible interpretations of the new stylized fact that current accounts and growth are positively correlated in nonindustrial economies. I then address three additional issues: (1) linkages between saving, investment, and growth; (2) difficulties in measuring financial integration; and (3) the apparent differences between foreign direct investment (FDI) capital flows.

Most of my discussion relates to the linkages between current account balances and growth, and relatively little to the parts of the paper that focus on the Lucas paradox. PRS devote considerable attention to the latter, including carefully and creatively documenting that capital flowed even more intensively from poor to rich countries during the recent period of greater international financial integration than previously. However, as emphasized by Gourinchas and Jeanne

among others, the small amount of capital flowing to developing countries could be explained by low relative returns to investment in these countries, perhaps arising from domestic distortions and weak institutions. Much more puzzling and seemingly perverse is why capital flowing to developing countries should be relatively concentrated among those that have grown slowly, where returns were relatively low. While PRS acknowledge this point, the role of returns more generally warrants greater attention than it receives here and must clearly be a central piece in solving the puzzles regarding patterns of global capital flow.

Current accounts and growth

The standard accounting identities provide a useful starting point and a simple organizing structure for examining the current account. The balance of the payments account implies that the current account is identically equal to the change in a country's net foreign assets, as well as to exports less imports of goods and services (ignoring unilateral transfers). The national income and product account implies that the current account is identically equal to the difference between national saving and investment.

$$(1) \qquad CA = \Delta NFA = S - I = X - M$$

While all of these relationships must, of course, hold simultaneously, each one provides a potentially valuable alternative "window" into understanding (and modeling) economic performance.

For example, consider an economy with constrained access to foreign capital—perhaps arising from distortions in the global financial system. In many such models, additional inflows of capital would raise domestic investment and accumulation of physical capital, spurring output growth. The higher investment would be associated with deterioration in the current account—generating a negative correlation with growth. If this is the expected scenario, finding a positive correlation between current account balances and growth is indeed quite puzzling. But a variety of alternative scenarios are also plausible. Suppose the underlying *shock* is a demographic shift that

both reduces dependency rates and increases the share of the population of labor force age. As noted in an earlier version of the paper, this might raise both saving and output growth, resulting in a positive correlation between growth and the current account. To the extent that this channel has been important, we should not be surprised to observe a positive correlation. Indeed, as discussed further below, PRS's regression results do show that most of the positive correlation stems from a relationship between saving (not investment) and growth. Furthermore, as they note, a number of studies have documented that faster GDP growth tends to raise saving. Ideally, a structural estimation would more clearly specify the relevant linkages and address the fundamental issues of simultaneity.

In the current version of the paper, PRS highlight another possible saving-related explanation for the positive correlation. In financially underdeveloped economies, they suggest that productivity shocks might raise output but cause consumers to save much of the increased income, as financial impediments limit both profitable investment opportunities and desired private consumption. While plausible, the channel is highly speculative, and no direct evidence is provided to show that the link between productivity shocks and saving depends on financial development. PRS provocatively revisit this interpretation in the section on external imbalances.

A third possible explanation for the positive correlation comes from the exports minus imports perspective. Suppose the shock is a policy shift toward export promotion (possibly including avoidance of overvaluation to maintain competitiveness). If successful, exports, and the current account, should increase and stimulate faster output growth. PRS find that overvaluation is associated with slower growth among nonindustrialized countries, and that those nonindustrialized economies actually receiving more capital inflows tended to have relatively overvalued exchange rates. Taken together, these findings do suggest this may be a fruitful avenue for further examination. However, the link to (financial account and export promotion) policy choices of countries has yet to be developed. PRS are unable to find significant evidence that policy

toward financial integration matters for either overvaluation or growth. Indeed, available indicators of financial integration are not strongly correlated with measures of actual flows among developing countries.

These are only some of the many channels that may have been operating during the 1970-2000 period PRS examined. There are a great many jointly determined variables, but, unfortunately, few clearly exogenous variables to use as instruments, making it very difficult to tease out the relative importance of any particular hypothesis.

The long time period studied in most of the analysis also may exacerbate the difficulties of uncovering the underlying relationships between key variables. In particular, shorter periods (such as five-year panels) would provide additional variation in country experiences that may enable the authors to estimate the two-way linkages between saving and growth that are buried in 30-year averages. The same is true for studying overvaluation and growth, as countries may experience both considerable overvaluation and undervaluation during different decades. A short period of extreme overvaluation may have different implications for growth than a long period of mild overvaluation, but the two are observationally equivalent in the current formulation.

Saving, investment, and growth

Saving seems to be the driving force behind the positive relationship between current accounts and growth that PRS uncover. The regressions reported in Table 2 of the PRS paper show that including saving (in a growth regression that already includes the current account balance) adds more explanatory power than including investment. This finding is worth highlighting for at least two reasons. First, it emphasizes the need for additional research to understand saving in developing economies. Researchers continue to debate reasons for the strong positive cross-country correlation between growth and saving found in the data. As also noted by Gourinchas and Jeanne, the finding that saving and growth are more highly correlated than investment and growth makes it even more challenging to develop a theory consistent with all relevant empirical facts.

Second, some may interpret the relatively small coefficient on investment as suggesting that capital accumulation is unimportant for growth. However, as discussed in more detail in Bosworth and Collins (2003), a country's average investment rate is only a good proxy for the change in its capital stock in steady state. But a constant capital-output ratio is clearly a weak assumption for developing countries, which are initially relatively capital poor. For a similar sample of countries and time period to that used by PRS, we show that average annual growth in the capital stock and average investment has a surprisingly low correlation. This is primarily because a given investment rate will imply a much smaller capital stock change in a country with zero (or negative) output growth than in one with growth that is rapid and sustained. To illustrate the point, the adjusted R2 goes from just 0.25 when we include the investment rate in a simple growth regression to 0.67 when we substitute the change in the capital stock. While saving and investment are clearly an appropriate way to disaggregate the current account, investment should not be taken as an indicator of the role of capital accumulation for growth.

Measuring financial integration

As PRS appropriately highlight, the large number of available indicators of financial integration raises a potentially confusing plethora of alternative results. Their empirical strategy is to explore the range of options, present representative results, and indicate cases in which the results appear sensitive to choice of indicator. While this seems a sensible approach for documenting patterns in the data, next stages in the analyses would benefit from a closer look at what particular indicators are intended to measure and how well they are able to do so.

Available indicators are typically divided into two broad groupings.[1] The first includes indicators of policy. In particular, the indices of capital account restrictiveness constructed from International Monetary Fund reports are widely used as providing annual data for a large sample of countries over a long time period. However, these are relatively simplistic, classifying policy as "open" or "closed" along a small number of dimensions. This indicator is considered *de jure*, as it

makes no attempt to adjust for the extent of enforcement. The few studies that construct more nuanced indicators of policy are typically available for much smaller samples and time periods. Thus, it remains unclear whether empirical analyses, such as the one undertaken here, do not find indicators of financial openness to be robustly related to economic growth because such policy restrictions really do not matter—or because available indicators are simply not informative.

The second group of indicators measures actual capital flows or cumulated capital stocks. In addition to aggregate measures, one can distinguish by type (FDI, equity, other portfolio, etc.) and look separately at assets and liabilities. Many of these measures behave quite differently across countries and over time, and perform quite differently in empirical analyses. Furthermore, unlike for the industrial countries, *de jure* and actual financial integration measures are not highly correlated for developing countries.

Both of PRS' preferred explanations for the positive current accounts-growth correlation relate directly to international financial integration. The hypothesis about avoiding overvaluation focuses on the role of policy choice. And a growing literature argues that domestic financial sector development is positively linked to financial integration—arguably including both actual flows and policy restrictions.[2]

The apparent differences between FDI and other capital flows

Unlike some other studies, PRS do not find a strong positive correlation between FDI flows and economic growth. However, they do note throughout their analysis that FDI behaves quite differently than the current account balance and other indicators of financial integration. It is worth highlighting these differences in one place. First, net importers of FDI (recipients) do tend to have lower per capita incomes on average than net exporters. Second, during the period 1970-2004, FDI flows to nonindustrial countries were concentrated among those that grew most quickly. (However, this was not true during the relatively short period 2000-2004.) And third, the ratio of FDI to GDP does tend to rise during growth spurts.

On the one hand, these findings suggest that rapidly growing countries do indeed have higher returns to capital, hence, their ability to attract FDI. At the same time, they arguably shine a spotlight on the puzzle as to why aggregate capital flows do not behave in a similar fashion. Is domestic financial sector development less important for FDI? Does domestic policy aimed at avoiding overvaluation tend to encourage FDI relative to other inflows? Perhaps focusing on differences between FDI and other types of flows can help suggest fruitful directions for further analysis. It also would be helpful to distinguish between public versus private sector.

New economic geography?

This paper appears to provide an interesting contrast to the other papers prepared for this conference. A unifying theme throughout that work was the extremely rapid pace at which various global processes appear to be changing. The authors of this paper highlight a puzzling relationship among nonindustrial economies that is most pronounced among the poorest countries. The evidence suggests that this positive current accounts-growth correlation is nothing new and, indeed, may have weakened somewhat among those countries that have developed most. Instead of a "new geography," is this a slowly dissipating vestige of an old pattern that became more pronounced as the volume of international capital flows exploded? I look forward to the next phases of the research to help us better understand this phenomenon.

In sum, the PRS paper presents a wealth of interesting and provocative facts and figures about the patterns of international capital flows. However, the jury is still out regarding what we should conclude about their implications for economic development.

Endnotes

[1]For example, see Edison and others (2004) and Kose and others (2006) for more detailed discussions of alternative indicators of financial integration.

[2]Kose and others (2006) discusses this literature and provides references.

References

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