

**The Real Exchange Rate and Economic Growth<sup>1</sup>**  
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It is a pleasure to be here in Trinidad and Tobago and an honor to deliver the W. Arthur Lewis Lecture. I only had the opportunity of meeting Professor Lewis once. The occasion was a talk I gave at Princeton when I was on the job market in 1980. That this was a one-time encounter will tell you that I didn't get the job. In the event, Sir Arthur had just published his great book, *Growth and Fluctuations, 1870-1913*, which covers some of the same ground as this lecture, albeit with considerably greater authority.

Traditionally, the real exchange rate has not exactly been at the center of analyses of economic growth. It featured not at all in the first generation of neoclassical growth models or in their practical policy incarnations, which focused on the determinants of savings and investment. That these were closed-economy models dictated that there was no role for the real exchange rate, defined as the ratio of the relative prices of nontraded goods (all goods being nontraded in closed economies). Applications of the early neoclassical model having focused attention on the large fraction of output growth not explained by the growth of observable factor inputs, subsequent treatments considered the "capability" of societies to raise the productivity of those inputs, in turn directing attention to domestic institutions. Institutions being deeply embedded, it is not obvious that they are shaped by exchange rate policy, especially in the short run. The most recent generation of neoclassical growth models can be thought of as putting flesh on these analytical bones. They consider, inter alia, the system of property rights (e.g. patent and

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copyright protection), the intensity of competition (e.g. the presence or absence of entry barriers), and the extent and nature of education and training as factors shaping the incentive and ability to innovate and emulate, from the theoretical point of view as a way of “endogenizing” technical change. Again it is not obvious that the real exchange rate is of first-order importance for the development of these arrangements.

But other narratives give the real exchange rate more prominence. The literature on export-led growth is essentially about the advantages of keeping the prices of exportables high enough to make it attractive to shift resources into their production. Historically, this has meant the growth of the production for export of light manufactures. Using the real exchange rate to provide an incentive to shift resources into manufacturing thus offers a one-time boost to national income insofar as other distortions make for higher productivity in manufacturing than in agriculture. This process can continue for a considerable period without encountering diminishing returns like those experienced in agriculture as cultivation is expanded onto the extensive margin and in the production of nontradables insofar as relatively inelastic domestic demand means that boosting production will drive down prices. Globalization means that the external demand for manufactures is in effect perfectly elastic, except perhaps for the largest emerging markets. If higher incomes and faster growth support higher savings, it will become possible to finance higher levels of investment out of domestic resources. If learning-by-doing or technology transfer is relatively rapid in sectors producing for export, then there will be additional stimulus to the overall rate of growth. That first Japan, then Hong Kong, Singapore, South Korea and Taiwan, and now China have had success with this model has directed attention to the real exchange rate as a development-relevant policy

tool. The so-called Bretton Woods II model of the world economy is essentially a story about the external consequences of the adoption of a competitive real exchange rate as a growth strategy by China and other developing countries.<sup>2</sup> But the controversy surrounding this model suggests that there may costs as well as benefits of keeping the real exchange rate low, especially if the authorities stick with the policy for too long.

Other narratives focus not on the level of the real exchange rate but on its volatility. Here it is argued that exchange rate volatility discourages trade and investment, which are important for growth. The literature on balance-sheet mismatches and financial fragility shows that sudden drops in the exchange rate can have disruptive financial consequences. In particular, currency crises (essentially episodes when there is a sharp increase in exchange rate volatility, which are measured in practice as a weighted average of exchange rate changes and reserves changes, with stress on the former) can have significant costs in terms of the growth of output.

That said, the idea that minimizing exchange rate volatility is an essential part of the growth recipe is disputed. The evidence linking exchange rate volatility to exports and investment is less than definitive. The implications of volatility for financial stability will depend on the presence or absence of the relevant hedging instruments and markets. There is some evidence that these markets develop faster when the currency is allowed to fluctuate and that banks and firms are more likely to take precautions, hedging themselves against volatility, than when the authorities seek to minimize volatility. This is evident for example in the accelerating development of these markets and instruments following the Asian crisis. More generally, there is evidence that countries with more variable exchange rates tend to have more liquid foreign exchange markets, since it is

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<sup>2</sup> See Dooley, Folkerts-Landau and Garber (2003).

their banks and firms that have an incentive to participate.<sup>3</sup> And some studies of currency crises conclude that these cause only temporary and transient disruptions to growth.<sup>4</sup>

In the remainder of this lecture I will seek to evaluate what we know about the real exchange rate and economic growth, and suggest some directions for further research. I will argue that keeping the real exchange rate at competitive levels and avoiding excessive volatility are important for growth. That said, the statistical evidence is not overwhelming. But this fact, in and of itself, conveys an important message. A stable and competitive real exchange rate should be thought of a facilitating condition. Keeping it at appropriate levels and avoiding excessive volatility enable a country to exploit its capacity for growth and development – to capitalize on a disciplined labor force, a high savings rate, or its status as attractions as a destination for foreign investment. Absent these fundamentals, policy toward the real exchange rate will accomplish nothing. In this sense it is not surprising that analyses of the correlation between growth and the level or volatility of the real exchange rate produce a variety of statistical results.

### **1. Is the Real Exchange Rate a Policy Variable?**

Before analyzing the implications of the real exchange rate for growth, it is necessary to address a prior question, namely whether the real exchange rate is a policy variable. The real exchange rate is the relative price of nontraded goods. Except in

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<sup>3</sup> See Hohensee and Lee (2004) and Duttagupta, Fernandez and Karasadag (2004).

<sup>4</sup> See e.g. Calvo, Izquierdo and Talvi (2006).

planned economies, relative prices are not controlled by policy makers directly. Rather, they are the outcome of other policies and processes influencing supply and demand.

What policies and processes? Since the world price of traded goods is fixed from the point of view of a small open economy, it can be conveniently normalized to unity and the real exchange rate can be expressed as the nominal exchange rate relative to the price of nontradables. The tendency for the prices of nontraded goods to move more sluggishly than exchange rates, except in high-inflation economies, is familiar. Thus, monetary policy shifts and other disturbances that are felt mainly as shocks to financial markets will add to the volatility of the nominal exchange rate and thereby to the real exchange rate. With time, of course, inflation will react, and the prices of nontraded goods will adjust. The implication is that in the long run monetary policy cannot be used to sustain a particular real exchange rate, other than that dictated by the fundamentals. Of course, policies that affect the real exchange rate even in the intermediate run may be enough to have a significant imprint on growth. And, in any case, repeated unpredictable shifts in the stance of monetary policy may result in instability in the real exchange rate to the detriment of investment, trade and growth.

Fiscal policy is likely to have a more sustained impact. Consider first the case where the exchange rate is pegged (or at least heavily managed). Increased public spending (or increased private spending in the case where the fiscal expansion takes the form of tax cuts) falls partly on traded goods, whose prices are given, and partly on nontraded goods, whose prices consequently tend to rise. The pressure of public spending can therefore cause the real exchange rate to become overvalued. It will shift resources into the production of nontraded goods. Conservative fiscal policy thus tends

to be part and parcel with the maintenance of a competitive real exchange rate and encouragement of export-led growth.

How conservative depends on how much pressure is felt by the market for nontraded goods from other forms of spending. If household and corporate savings are high, as in China, then the government can engage in additional spending without placing undue pressure on the prices of nontraded goods. If investment spending is relatively weak, as it has been in East Asia since the crisis in 1997-8, then a given level of public spending will be associated with a more competitive real exchange rate. We see here how it is that East Asian countries experienced substantial real exchange rate depreciation following their crises despite the fact that fiscal policy did not become strongly contractionary except for a short period. Similarly, the weakness of private demand explains how Argentina experienced a sustained real depreciation following the crisis of 2001-2.

While this framework can be extended in various directions, these basic enable us to analyze a number of cases of contemporary and historical interest. For example, consider China, its strategy of export-led growth, and its current account surplus. A competitive real exchange rate is at the heart of the authorities' development strategy. In conjunction with the priority they attach to creating urban employment opportunities for the roughly ten million individuals migrating from the countryside to the cities each year, this explains their reluctance to allow the exchange rate to appreciate.

Imagine now that the Chinese authorities are prepared to allow the real exchange rate to rise in order to limit the growth of net exports and address the problem of global imbalances but that they also wish to avoid a slowdown in employment growth. What

should be the accompanying policy adjustments?<sup>5</sup> First, a tighter monetary policy will allow the nominal exchange rate to appreciate faster. Second, increased public spending would support employment growth. Third, the liberalization and development of financial markets would encourage additional private spending. Demand will remain the same overall, but its composition would shift toward nontraded goods. We see here how different policy mixes can produce different real exchange rates, subject to the influence of other conditions. That the Chinese authorities hesitate to go down this road reflects their judgment that the consequences for growth are more favorable when incremental employment is in traded manufactures rather than nontraded services.

Or consider Korea in the 1960s. Before 1964 the real exchange rate was kept at a relatively high level. The pressure of public spending was strong, as the Park regime sought to buy support following student demonstrations that had overthrown a previous government in 1960, and the capacity of the economy to supply goods and services was still limited, reflecting lingering disruptions from the end of the Japanese occupation and the Korean War. The tendency for the excess demand for traded goods to create an unsustainable external deficit was contained by a system of multiple exchange rates, which acted as de facto taxes on imported goods. Since Lerner it has been understood that import taxes are equivalent to export taxes; they discourage the allocation of resources to the production of exportables. So it was in Korea.

An increase in export incentives starting in 1958 led to significant depreciation of the real exchange rate, but this change in relative prices was quickly eroded by inflation. By 1964 it had become clear that U.S. aid was winding down and that it would be necessary to find other ways of financing essential imports and sustaining employment

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<sup>5</sup> The points here are developed at greater length by Blanchard and Giavazzi (2006).

growth. In May of that year the country's multiple exchange rates were unified at a level that constituted a significant devaluation. In 1965 exporters were given priority in securing import licenses. And this time the authorities undertook a significant fiscal consolidation. In consequence, the real depreciation was not eroded by inflation as it had been in the late 1950s.

Rodrik (1995) has objected that real depreciation in 1957-9 was in fact slightly larger than in 1962-4 and questions on these grounds whether the 1962-64 change in relative prices can explain the economy's subsequent growth spurt. What this observation overlooks is that, as just noted, the real depreciation of 1957-9 was temporary – it was eroded by inflation, returning relative prices to earlier levels – whereas the real depreciation of 1962-4 was enduring – the real exchange rate stayed at its new level. If the level of the real exchange rate has to endure in order to have a sustained effect on export supply, then there is no inconsistency between the fact that the real exchange rate was temporarily depreciated in 1957-59 but there was no surge in export supply.

The valid aspect of Rodrik's critique is that Korean development depended on more than just the level of the real exchange rate. There is no disputing this point: it reflected, among other things, high levels of human capital, proximity to a rapidly growing Japanese economy, and the Park Government's preoccupation with stimulating industrial growth. One can make similar observations about China today, where a variety of factors besides export orientation (a disciplined labor force, large inflows of foreign direct investment, and a Korea-like preoccupation with growth on the part of officials) have contributed to the economy's sterling performance. This suggests viewing the real



exchange rate as a facilitating condition: it cannot support sustained economic growth in and of itself, but appropriate real exchange rate policy can be an important facilitating condition enabling a country to capitalize on existing opportunities for growth.

These examples also remind us that the real exchange rate is a relative price and that, as such, it is not under direct control of the authorities. But it can be influenced by policy. For those who believe that the most effective way of jump-starting growth is by encouraging the growth of light manufacturing, many of whose products must be exported at least initially, it is a useful summary indicator of the growth-friendly or unfriendly stance of economic policy. In addition, the Korean case reminds us that it is not just the level of the exchange rate but also the stability of that rate which matters for economic growth.

## **2. Maintaining competitiveness**

An alternative view is that it is not the stability of the real exchange rate per se but its average level that matters importantly for growth. If the exchange rate becomes significantly overvalued, then the right approach to fostering growth and development is to realign it. This can be accomplished by nominal depreciation, ideally in conjunction with policies of wage restraint designed to prevent the real effects from being dissipated by inflation, and appropriate adjustments of monetary and fiscal policies, as described above.

But if a competitive real exchange rate helps to foster growth and development, then why isn't it automatically delivered by market forces and policy choices? One answer invokes Mancur Olson's theory of collective decision making: while the benefits

of a competitively valued real exchange rate are diffuse, the costs are concentrated; hence the incentive to engage in self-interested lobbying is stronger for those who favor overvaluation; conversely, the incentive to free ride – to leave to someone else the choice of making a costly investing in influencing policy – is stronger for those who benefit from avoiding overvaluation.

The other critical question is: what exactly is the mechanism through which a competitive real exchange rate fosters growth? Avoiding real overvaluation may be necessary simply to encourage the optimally balanced growth of traded- and nontraded-goods producing sectors. Alternatively, there may be nonpecuniary externalities associated with the production of exportables (learning by doing effects external to the firm) that do not exist to the same degree in other activities – meaning that market forces, left to their own devices, may produce a real exchange rate that is too high.

There is now a substantial literature, as noted above, linking the level of the real exchange rate to output and employment growth. But none of it addresses the \$64,000 question, namely, the mechanism through which the real exchange rate affects economic growth. This is symptomatic of the state of the literature, which has invested more in documenting the growth-real exchange rate correlation than in identifying channels of influence. Here there are two distinct but compatible interpretations, as I have already noted. First, distortions in the political market, of the sort just analyzed, that give concentrated interests disproportionate sway may allow them to influence policy in ways that produce a real exchange rate outcome that is detrimental for the nation as a whole. Left to its own devices, the market will presumably produce a real exchange rate that encourages resources to flow into sectors producing traded and nontraded goods just to

the point where their marginal returns is equalized, and their contribution to growth is maximized. In contrast, political pressures that result in strong favoritism for one sector (in the canonical case the sector producing nontradables) may cause the real exchange rate to become misaligned (in the canonical case to become overvalued) and the marginal return on capital and the productivity of labor in that sector to diminish sharply and aggregate growth to suffer. This points to pro-growth political reforms, or at least to political obstacles that need to be overcome in order to sustain a real exchange rate conducive to steady growth: land reform that empowers rural – and, in many countries, export-oriented – interests, more constraints on the executive, and so forth.

In addition, there may exist positive externalities associated with export-linked activities that are not equally prevalent in other sectors. Learning and demonstration effects external to the firm may be more pronounced in export-oriented sectors. Complementarities between different activities that cannot be encompassed within the same firm (that cannot be internalized, in other words) may be more pronounced in export-oriented sectors.<sup>6</sup> Because these additional positive effects are external to the firm or industry, market forces left to their own devices will not allocate sufficient resources to their pursuit. In addition, it is necessary to have a strong government or a political system that endows exporters with disproportionate influence in order to ensure the maintenance of a real exchange rate that does as much as possible to foster growth.

This is the presumption in much of the literature on export-led growth, but it is also where empirical work falls down. There is little systematic evidence on the nature and prevalence of such externalities, and much of what exists is indirect. A number of authors have observed that rapidly growing developing countries tend to have unusually

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<sup>6</sup> This is the premise of the literature on backward and forward linkages.

large manufacturing sectors and that growth accelerations are associated with structural shifts in the direction of manufacturing. These findings are cited as evidence of the positive externalities associated with manufacturing exports. But the nature of the externality remains obscure. Indeed, it may be that all we are seeing is the elimination of other distortions, not the operation of positive externalities.

Similarly, the literature attempting to document the existence of spillovers from exporting is less than conclusive. While a number of studies report that proximity to other exporting firms increases the likelihood that a subject firm will itself export – and that its profits and productivity will develop favorably – other studies fail to find similar evidence. A charitable interpretation is that the existence of spillovers is contingent on facilitating conditions which may or may not be present. The potential beneficiaries must be close to a port or land border. Or they must possess the organizational flexibility needed to assimilate new technology and adjust their labor force appropriately.

A less charitable interpretation is that the thought experiment is poorly designed and empirical results are contaminated by omitted variables bias. If firms from a given neighborhood have a disproportionate tendency to export, this may simply reflect the operation of an unobservable determinant of behavior that is common to the firms in question, say that they all have links to the same overseas immigrant network. If one firm starts exporting this year and others follow next year, this may simply reflect that they make contact with members of that overseas network at different times, rather than any tendency for the latecomers to learn from the pioneers. The standard methodology does not provide a convincing way of discriminating between demonstration effects

specific to export sectors and omitted variables. And if all that we are observing is the effect of omitted variables, then there is no reason for policy makers to favor exports.

Methodological fashion would recommend finding a “natural experiment” – that is, a purely exogenous reason unrelated to the state of the domestic economy for why a particular firm or firms begins to export – and analyzing its impact on other firms. The popular strategy here is to take inward foreign direct investment as exogenous and to test for spillovers to the export performance of domestically-owned firms. Results of such studies are broadly consistent with the spillover hypothesis.

But the problems with this approach will be apparent. Foreign investment enterprises differ from domestic firms by more than just their propensity to export; in addition they tend to be more sophisticated technologically and organizationally. Using the real exchange rate to encourage domestic firms to enter the export sector will not generate spillovers to other domestic firms if it is the technological and organization knowledge of foreign multinationals that is the source of the spillovers rather than the exporting per se.

Moreover, the maintained assumption that FDI can be taken as exogenous is dubious. A difficult-to-observe-and-quantify improvement in the economic climate can both enhance the capacity to export of domestic firms and to attract foreign investors. As before, there is the danger that all we may be observing is the effect of common omitted variables, not learning or demonstration effects.

One can imagine solutions to this problem. The literature on mergers and acquisitions (a form of FDI) suggests that such activity depends on the internal resources of firms in the acquiring countries. Thus, when asset markets boom in the United States,

they have a greater tendency to use the resulting resources to undertake mergers and acquisitions abroad. Hence there will be a component of FDI in emerging markets that is exogenous with respect to economic conditions there – that will depend on interest rates and other measures of financial market conditions in the advanced economies. Using those measures as instruments for FDI in emerging markets would be a step more toward convincingly identifying the associated spillover effects.

### **3. Implications for Policy and Research**

When asked to ponder the fundamental determinants of growth, economists tend to focus on, inter alia, education and training, savings and investment, and the institutional capacity to assimilate and generate organizational and technological knowledge. The real exchange rate is best thought of as a facilitating condition: keeping it at competitive levels and avoiding excessive volatility facilitate efforts to capitalize on these fundamentals.

Even a facilitating condition can be important. Development experience – first and foremost that of the high-growth economies of East Asia but development experience more generally – shows that keeping the real exchange rate at competitive levels can be critical for jump-starting growth. It is hard to think of many, or for that matter any, developing countries that have experience sustained growth accelerations in the presence of an overvalued rate. Experience also shows that high levels of exchange rate volatility can be disruptive to exports and investment. This is *not* the same as saying that real

exchange rate policy can substitute for the presence of a disciplined labor force, the mobilization of domestic savings, or the creation of a foreign-investment-friendly climate. But it can be useful for jump-starting growth by encouraging the redeployment of resources into manufacturing and reaping immediate productivity gains. This way of thinking about the issue has the merit, as noted, of explaining why the simple correlation between growth and the level and volatility of the real exchange rate is weak, since that relationship will depend on the presence or absence of other fundamentals.

This way of framing the issue also points to the question of how long to stick with these policies. If keeping the exchange rate competitively valued and limiting volatility are mainly useful for jump-starting growth, then the case for doing so will become less compelling once growth has successfully started. This will be especially the case if pegging the exchange rate at low levels has costs as well as benefits. Once resources have been shifted from agriculture to manufacturing and as the productivity gap between two sectors closes, the next stage in growth typically involves developing the service sector. Many services still being nontraded, this requires allowing the real exchange rate to rise. Resisting this tendency may mean that the adjustment ultimately comes about via a costly and financially-disruptive inflation. Similarly, limiting exchange rate variability limits the incentive to invest in the relevant hedging markets and instruments, leaving banks and firms defenseless in the face of a spike in volatility. This is just to restate the obvious, that policies useful for jump-starting growth will not remain useful forever.

China is the obvious poster boy for these dilemmas. It has utilized a low and stable real exchange rate to move resources into manufacturing. The Chinese authorities are reluctant to see the real exchange rate rise because there are still hundreds of millions

of workers to be redeployed out of low-productivity agriculture. They hesitate to permit greater exchange rate variability, since banks and firms lack markets and instruments on which to hedge exposures. But they also appreciate the costs of the indefinite maintenance of present policies. A real exchange rate that continues to favor export-oriented manufacturing along the coasts stunts the development of the service sector and heightens inequality with other regions. Sooner or later excessive concentration on this sector will translate into declining efficiency of investment. Resisting market pressures for balanced growth means that adjustment will come about through a financially and economically disruptive inflation. Resisting a significant increase in exchange rate variability until hedging markets and instruments develop, where the development of hedging instruments and markets depends in turn on the existence of exchange rate variability, may mean that those markets fail to develop in appropriate time. And of course reluctance to exit from this policy regime contributes to global imbalances, creating financial risks and fanning trade tensions with the United States. Policy makers in China and other developing countries are aware of these issues, but they are uncertain about the appropriate strategy for exiting from the prevailing regime.

Here it may be useful to make two final points. First, the literature on exit strategies points to the advantages of exiting while growth is still rapid rather than waiting until a significant slowdown. Similarly, altering the exchange rate regime – allowing for a significant increase in volatility – will do less to disrupt market confidence when the authorities undertake it voluntarily than when the change is implemented under duress. This literature also points to the existence of status quo bias. As time marches on, interest groups benefiting from prevailing policies come to be in an increasingly



strong position to resist change. In addition, the authorities will be understandably reluctant to abandon a tried-and-true strategy for an untested alternative. These arguments suggest that policy makers need to be proactive in the pursuit of adjustment.

Second, how long it pays to stick with a policy mix favoring export-oriented manufacturing depends on the prevalence of nonpecuniary externalities and on whether learning spillovers and other externalities are also present in other sectors. And here, as earlier discussion has emphasized, the evidentiary base is limited. Better documenting the presence or absence of the relevant externalities should be the priority for research. What form do the relevant externalities take – demonstration effects, other learning effects, labor market effects, improvements in the supply of inputs? In what activities specifically are they concentrated? Better answers to these questions are valuable in general, but they also will help to inform decisions regarding the exit problem in particular.

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