Do Development Considerations Matter for Exchange Rate Policy?

John Williamson
Peterson Institute for International Economics

Chile was one of the world's fastest-growing economies in the 1990s. Its growth rate of 6.8 percent per year from 1990 to 2000 (inclusive) was the seventh highest in the world, and by far the highest in Latin America. Poverty was halved, and while this was overwhelmingly due to growth rather than a reduction in the concentration of income, public services became much more equitably distributed. Inflation fell progressively from over 20 percent at the beginning of the decade to under 4 percent at the end. My own explanation of this success centers on the well-rounded policy measures that were implemented in Chile over the period. The Central Bank was one of the institutions responsible for implementing these successful policies.

In particular, it helped that the Central Bank took a balanced view of its responsibilities. It aimed to reduce inflation, but it took a gradual approach rather than believing that a sudden reduction in inflation would automatically bring all other good things in its wake or that there were no trade-offs. It was also concerned with securing an anticyclical policy that would stabilize the real economy. Furthermore, it took into account the *encaje,* an important instrument in the battle to maintain a competitive exchange rate, and thereby avoided the overvaluation that had such a devastating effect in other Latin American countries.

The questions that I address in this paper are whether considerations of growth and development demand a more competitive exchange rate than might emerge spontaneously. If so, what (if any) instruments should be used to affect the exchange rate?

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1. The Primacy of Inflation

I am as firm an anti-inflationist as a reasonable central banker could ask for. I find the evidence that the inflation tax is regressive to be quite persuasive, at least for Latin America. If governments want to spend more, they should finance their spending honestly, by raising taxes, and not seek to pass the cost on either to the next generation, by borrowing, or to the poor, through inflation. I am not dismissing the Keynesian argument for deficit financing when needed to avoid the waste of idle capacity, but rather expressing a conviction that the case for deficit spending on more than a cyclical basis is only occasionally relevant.

I am also a convert, if not a particularly enthusiastic one, to the cause of inflation targeting. The macroeconomy seems to be adequately described by an open-economy Keynesian model incorporating an inflation-augmented Phillips curve (the sort of model that was popularized by Edmund Phelps, among others). The case for the central bank having a particular concern with inflation, however, rests on political economy rather than economic principles. An agency that commands sufficient policy instruments to stop inflation, while having an explicit mandate to preserve price stability and being independent of the short-run political process, acts as a safeguard against the sort of temptation summarized in the literature on the political business cycle. Views seem to have coalesced around the idea that a low but positive inflation rate, of perhaps 2.0 or at most 2.5 percent a year, provides the best possible balance between the costs of inflation and the danger that a zero floor to the nominal interest rate could lead to the emergence of a real interest rate that is too high for anticyclical policy.

But a particular concern is not the same as an exclusive one. I agree that a central bank's main interest should be controlling inflation, but this does not preclude it addressing other issues. I do not, however, believe that in normal times those other issues need give particular weight to output or unemployment. The way that one stabilizes inflation involves monetary stimulus when unemployment rises, because at such times inflation may decline to a rate below the target. Under abnormal circumstances, like much of the world in the 1930s or Japan in the 1990s, unemployment may become so high and ingrained that it is desirable to target its reduction explicitly. Most of the time, the only monetary policy objective that may merit consideration—other than inflation targeting—is the maintenance of

a sufficiently competitive exchange rate to preserve the incentive to invest and, thus, the supply-side growth rate.

2. Exchange Rate Modeling

The overwhelming conventional view in the profession is that it is a mistake to try to manage exchange rates. Maybe not everyone in the foreign exchange market has rational expectations, but enough do to create the expectation that the exchange rate will be equal to the long-run expected exchange rate discounted by the impact of the currently expected disequilibria between now and the long run. If there are some irrational people who do not conform to those expectations, they will be driven out by Friedmanite profitable stabilizing speculation. This is known as the rational expectations, efficient markets (or REEM) model.

The model is aesthetically appealing, but unfortunately it is overwhelmingly rejected by empirical evidence. De Grauwe and Grimaldi (2006) list several problems with this popular model, of which the three most convincing are the following. First, exchange rate changes are not driven mainly by changes in fundamentals, as has been known since Meese and Rogoff (1983). Second, chartist rules are profitable. This shows no sign of being a temporary phenomenon. Milton Friedman's argument that destabilizing speculation must be unprofitable is wrong (Friedman, 1953). Finally, exchange rate changes are not normally distributed, but exhibit fat tails (that is, they display more instances of extreme exchange rate changes than would be consistent with a normal distribution, given mean and standard deviation).

Theories are not supplanted because they prove inconsistent with the facts, but because some more appealing theory becomes available. De Grauwe and Grimaldi offer such an alternative theory, which they label a behavioral model. The essence of their model is the existence of two alternative bases for forecasting exchange rates: fundamentalist and chartist.[1] Fundamentalists believe that, absent special factors, exchange rates will tend to revert to their long-run equilibrium level. They forecast exchange rates on the basis of REEM models. Chartists extrapolate recent exchange rate changes into the longer-term future.

1. Their model has antecedents in a number of other papers, such as Frankel and Froot (1986).

Their actions tend to reinforce recent changes in exchange rates. At any one time, particular actors in the foreign exchange market tend to behave as either fundamentalists or chartists, but they may revise the principle used to forecast exchange rates if they find that the alternative behavior is currently more profitable. They choose between these two rules not because of a conviction that this results in actions that are perfectly rational, but because they are boundedly rational, that is, unable to understand the world in its full complexity and thus forced to resort to imperfect but comprehensible rules of thumb. They are rational in the sense that they discard a rule that is serving them badly.

De Grauwe and Grimaldi are unable to solve their model analytically, so they simulate the model several thousand times to establish its properties. Their main findings are as follows:

—Exchange rate changes are usually disconnected from changes in fundamentals, although the exchange rate is cointegrated with its fundamental value

—The exchange rate is sometimes, but unpredictably, disconnected from its fundamental value and instead involved in bubble-and-crash dynamics;

—If one sticks to one rule at all times, then a chartist rule tends to be more profitable than a fundamentalist rule (it can be better still to switch between these rules); and

—Exchange rate changes have fat tails.

In other words, the model is consistent with the main facts about exchange rate markets that should cause acute embarrassment to those who still adhere to the profession's mainstream model.

In this model, sterilized intervention is not always the exercise in futility suggested by conventional models, although that may be true (depending on unpredictable initial conditions) of the sort of ad hoc seat-of-the-pants intervention currently favored by most of the world's monetary authorities. More systematic intervention, however, can help to limit misalignments. Assuming that it is used in that way (or even that it consistently leans against the wind), and that it is not a vain attempt to defend disequilibrium exchange rates, intervention tends to increase the profitability of fundamentalist trading strategies. By making fundamentalism more profitable, it encourages the private sector to adopt fundamentalist and not chartist strategies. The main impact of intervention has nothing to do with the portfolio changes on which most professional attention has focused.

2.1 Corden's Three Views of Exchange Rate Policy

Corden (2002) distinguishes three alternative views of the objectives of exchange rate policy. Perhaps the most familiar in Latin America is the nominal anchor view of the exchange rate, which holds that the purpose of exchange rate policy should be to provide the economy with a nominal anchor. Fix the exchange rate, and the postulate of zero-degree homogeneity of the system in all absolute prices ensures that all other prices will eventually be pinned down. That is surely true of equilibrium prices, but the theory is silent on the time that it will take to reach equilibrium and the costs of getting there. Experience in countries that have made an exchange rate anchor the center of their stabilization policy, including Chile in 1979–82, shows that those costs can be prohibitively high.

An alternative view is much more prevalent in my own country (Great Britain), where it also has a formidable academic pedigree. This view, which Corden calls the real targets view of the exchange rate, holds that the exchange rate, or maybe the exchange rate regime, should be chosen to facilitate the achievement of simultaneous internal and external balance. The (real) exchange rate has real effects in influencing from where demand is satisfied, and these should be exploited.

Corden calls his third approach the exchange stability view of the exchange rate. This is his own attempt to make some sense of the hostility to exchange flexibility found in many European circles. It holds that exchange rate volatility is capricious and that allowing it free rein can increase the total amount of instability in the system, so that keeping exchange rates fixed has some virtue. According to this view (for which there is some empirical support), suppressing exchange rate flexibility does not shift volatility to the interest rate, as is sometimes perceived, but reduces the total volume of noise.

Although some economists are happy to commit themselves wholeheartedly to one of these three views, it is not necessary to take such a narrow position. One can perfectly well recognize that several views have merit; different policies may be appropriate at different points in time, and one will need to trade these considerations off against one another. Indeed, part of my enthusiasm for the basket, band, and crawl (BBC) regime is stimulated by a belief that it offers a particularly favorable combination of exchange rate flexibility where it serves a serious social purpose and suppresses much of the more frivolous, frothy kind of volatility that serves only to increase the noise in the system.

Corden's taxonomy is thus a useful contribution to our understanding of exchange rate policy. My main criticism is that it is incomplete. It does not recognize the place of thinkers like the late Bela Balassa, who regarded a competitive exchange rate as a central instrument of development policy. My next task is to repair this lacuna.

2.2 The Development Strategy View of the Exchange Rate

The development strategy view of the exchange rate attempts to formalize the view advocated most prominently by Balassa. He held that a competitive exchange rate was a key incentive for outward-oriented development, which had a far better prospect of supporting sustained growth than inward-oriented policies. This helped spark the large literature in search of particular growth virtues in the production of nontraditional exports, exploring whether such exports offer better opportunities for productivity growth, generate greater competition in the economy, allow learning-by-doing, propagate externalities, and so on. The channels at work have never been definitively identified, but the idea that a country is unlikely to get very far with its development if it allows the evisceration of its nontraditional export industries has become a part of conventional wisdom. The contention that a misaligned exchange rate—particularly an overvalued rate, although also a seriously undervalued rate—impedes growth receives strong empirical support in a recent study of Aguirre and Calderon (2006).

The basic idea of the development strategy view (laid out in Williamson, 2003) is to analyze the determinants of a growth-maximizing exchange rate. A more competitive exchange rate increases the profitability of investing in tradables, so it is expected to increase investment in—and, in due course, the output of—tradable goods. It is also likely to have an analogous effect in decreasing the profitability of investment in nontradables, but that will probably leave a net negative impact on investment through a low exchange rate (that is, an overvalued currency), for two reasons.[2] First, part of the demand for nontradables is a derived demand from the tradables

2. In accordance with the Latin American tradition, an exchange rate is measured in this paper as the price of the national currency in terms of the dollar. Hence an appreciation of the national currency results in a lower exchange rate, and vice versa.

sector, since many nontradables are inputs in the production of tradables. Second, the demand for nontradables is limited by the national market, while tradables sell on a world market that is typically many times the size of the national market. It is ultimately an empirical question as to whether a competitive exchange rate stimulates overall investment, and I am not aware of any studies that have addressed this issue. Unless and until empirical evidence indicates the need to drop what seems a natural assumption, I shall assume that a more competitive exchange rate increases the net desire to invest.

Some advocates of what they like to call export-led growth, notably the exponents of Bretton Woods II (Dooley, Folkerts-Landau, and Garber, 2003), stop the analysis at this point. They consider only the demand for investment, implicitly assuming that the resources to effect the desired level of investment are always available. This hyper-Keynesian assumption may have been a reasonable approximation to conditions in China, on which their analysis has principally focused, although I would argue that even in China intertemporal utility would have been increased if the resources that were invested in low-yielding U.S. Treasury bills had instead been used to increase domestic consumption. At any rate, it is an untenable assumption in general. Investment can be constrained by the supply-side—by the resources available for investment—as well as by the demand-side—by a lack of desire to invest.

The resources available for investment are domestic savings plus those that flow in through the current account. It was once generally assumed that growth was always constrained by the amount of investment that a country could undertake, so countries that imported more capital were expected to grow faster. This turns out not to be true (Prasad, Rajan, and Subramanian, 2006), but that is no reason to go to the other extreme of assuming that all that matters is the incentive to invest. The development strategy view of the exchange rate considers both sides of the equation. It asserts that the growth-maximizing value of the exchange rate is characterized by the increased incentive to invest induced by a real depreciation being equal at the margin to the increased ability to invest allowed by a real appreciation.

In practice, the serious danger appears to be that open capital imports in good times will lead to overvaluation and a consequent danger of robust growth being undermined by Dutch disease. Prasad, Rajan, and Subramanian (2006) conclude (like Aguirre

and Calderon, 2006) that the empirical evidence indicates that this harms growth in developing economies, although (contrary to Aguirre and Calderon) they find no evidence that the same is true in developed countries. Razin and Collins (1999) also find empirical evidence that serious overvaluation hurts growth in developing countries. The main casual support for the importance of a competitive exchange rate in preserving the incentive to invest comes from East Asia, where exchange rate policy is customarily considered one of the reasons for the region's success. Perhaps the most conspicuous instance of defying balance-of-payments need and devaluing to sustain growth despite having ample reserves was provided by Indonesia in 1978. The contrast between the squandering of Nigeria's oil wealth and the productive use to which the Suharto regime put (most of) Indonesia's similar windfall is well known (see, for example, Little and others, 1993). A crucial element of the latter was the decision to devalue "unnecessarily."

3. Implications of the Development Strategy Approach

Assume first that both the growth-maximizing exchange rate and the equilibrium exchange rate are known to the government, and that they are the same. Standard theory says that optimal policy is to float freely, which will achieve the equilibrium rate (and thus the growth-maximizing rate). The behavioral view, in contrast, argues that the government can expect to reduce misalignments by a policy of intervention. The question is how those interventions should be structured: whether they should be ad hoc or systematic and, if the latter, how the system should be designed.

For many years, I argued in favor of a basket, band, and crawl (BBC) regime as the answer to this problem. It seems clear, however, that many governments value the freedom of not being constrained by exchange rate obligations, and they increasingly prefer to use inflation targeting rather than the exchange rate as their nominal anchor. These judgments seem sensible, and they are probably irreversible, so there is no point in trying to reverse them. The question is whether one could achieve some of the same advantages with a less constraining system than the BBC. I have argued that this could be accomplished with a reference rate system (Williamson, 2007), which offers a way of structuring intervention.

Specifically, a reference rate is an exchange rate that the authorities commit themselves not to push their exchange rate away from. It is in that sense an officially endorsed estimate of where the equilibrium rate lies. It carries no obligation to hold or even push the rate toward that level, but simply prohibits attempts to push the rate away from it. The obligation should extend to all policies designed specifically to influence the exchange rate: not just intervention in the foreign exchange market, but also jawboning (or so-called oral intervention, including declarations of faith in a strong currency), changing interest rates other than for reasons of domestic monetary management, changing capital controls, and so on.

A reference rate can be surrounded by a monitoring zone for the exchange rate, defined as a zone within which intervention is prohibited. As long as the exchange rate remains in that zone, it floats freely. When it deviates more than 5 or 10 percent in effective terms (depending on the size of the monitoring zone) from the reference rate (which should also be defined in effective terms), then countries have the right—but not an obligation—to enter the market so as to try to limit further deviations. This provides a set of rules that both constrains governments from actions perceived to be against the international interest and informs the private market of what can be expected. If the behavioral model is basically right in that both market and oral intervention are effective tools, this could be expected to limit deviations of the effective rate from the reference rate.

Assume next that, although the authorities know both the growth-maximizing rate and the effective rate, the two are not equal. Specifically, consider the case that has often troubled people in Chile, where the growth-maximizing rate is higher (more depreciated) than the equilibrium rate. In this case, central bank operations can at best provide a breathing space for nonmonetary actions, because the equilibrium rate in the behavioral model is completely determined by fundamental factors, just as in the traditional model. Hence, it is only something that affects those fundamentals that can bring the long-run equilibrium rate into line with the growth-maximizing rate. Five candidates come to mind as falling in that category:

—Tighten fiscal policy (although I pity the finance minister who has to explain to the prime minister or president that they need to raise taxes or cut expenditures because the country is so prosperous and the foreigners are so anxious to lend money);

—Impose controls to impede the entry or increase the cost of foreign capital (which Chile did when it imposed the *encaje* in the 1990s, but that eminently sensible instrument has now been abolished[3]);

—Accumulate foreign assets (as a number of countries are currently doing, including many East Asian countries, led by China; a number of oil exporters, with a few like Kuwait and Norway adopting it as a conscious act of long-term policy; and Singapore and Switzerland, which face low rates of return on investment at home and therefore see foreign asset accumulation as part of a strategy of optimal asset accumulation);

—Alter the currency composition of foreign borrowing (since a country's currency will tend to be stronger if it borrows in foreign currency, as most Latin American countries traditionally have done, than if they issue more domestic-currency denominated debt and sell some of it to foreigners, who will hold more domestic debt only if it is available more cheaply); and

—Impose export taxes on traditional exports (which Argentina is currently doing, and succeeding in maintaining a highly undervalued currency).

All of these actions are liable to impose costs of some sort, which presumably tend to increase progressively if the policy is pushed to more extreme levels. Restrictive fiscal policies involve higher taxes or lower expenditures (or both), which will be welcomed by neither taxpayers nor economists transfixed by distortions. Their most enthusiastic supporters are unlikely to deny that capital controls create distortions. Large reserves cost the taxpayers money whenever the rate of return on those reserves (including the likely future change in the exchange rate) is less than the opportunity cost of investing an equivalent sum in the domestic economy. So long as it commands less

3. There is an extensive Chilean literature examining the effect of the encaje, which I once surveyed (Williamson, 2000, pp. 37–45). I was not persuaded by the many papers purporting to prove that the encaje had no effect on the level of capital inflow or the exchange rate. (Almost all papers agreed that the encaje altered the composition of borrowing, in the direction of increasing the maturity of the foreign debt.) To begin with, I could not understand why the encaje continued to evoke so much hostility if it were as ineffective as claimed: investment bankers laugh at ineffective instruments; they do not foam at the mouth. Nor could I understand why a tax yielding so much revenue should not be applauded if it had no effect on resource allocation; distortion-free taxes are the economist's ideal, not something to be dismissed as useless. I argued that the reason empirical work had often failed to uncover a relation between the encaje and capital inflows or exchange rates was that a given level of encaje could influence either one or the other (or some combination of them), but that which of the two would be influenced would depend on policy and would not (as the econometricians had all assumed) be the same in all situations.

confidence, domestic-currency debt will require a higher yield in order to attract foreign buyers. Yet another set of distortions is created by taxing some exports at a different rate than others. Hence, a country that seeks to resist an excessively low (uncompetitive) exchange rate will usually find it advantageous to apply a mix of policies, rather than relying on any single policy to prevent overvaluation.

What is clearly not tenable is the view that the exchange rate given by the market has to be accepted stoically as a fact of life. It may not be worthwhile to try to avoid an uncompetitive rate, but one would expect that a country in which growth matters would be willing to pay some price to limit overvaluation. Much more persuasive is the view that the tools needed to devalue the long-run equilibrium exchange rate are not those of the central bank, but even this has to be qualified. For example, prudential regulations on the banking system will have some of the same effects as capital controls. It is sensible to limit the open position that banks can take. If they are allowed to extend foreign currency loans to the nontradable sector at all, they should be required to recognize that this practice involves risks and to insure those risks (see Rojas-Suarez, 2003). Again, the mix of reserves and domestic credit used to achieve a given expansion of the money supply will have some effect on the equilibrium exchange rate, and this is within the control of the central bank. The effect of both factors is likely to be minor, but it is not true that all the instruments wielded by central banks are, in principle, unable to influence the equilibrium exchange rate.

Do I believe that it is still important to maintain a competitive exchange rate in Chile? Yes, though I doubt it is as important as it was in the 1990s. Chile still has many poor people to absorb into the modern economy, and as long as this remains true, the finding that a competitive exchange rate lacks explanatory power for the growth of a developed country cannot be used to dismiss concern over the exchange rate.[4]

3.1 Ignorance

So far the analysis has been conducted on the supposition that the authorities know both the growth-maximizing exchange rate and the long-run equilibrium rate. What are the implications of a more realistic recognition of their limited clairvoyance?

Total ignorance is inconceivable. There is always some sense of what exchange rate is inappropriate. The crucial question would seem to be whether the authorities or the market have a better sense of what the

4. And even this finding is disputed, as noted above.

growth-maximizing and equilibrium rates are. If the authorities know less than the market (which is probably believed by some advocates of floating), then presumably they should do nothing. Similarly, if prompt action by the authorities is constrained by foolish institutional constraints (like those of Bretton Woods, which obliged the authorities to defend an inherited parity until it was clear to the market that it was indefensible), it is preferable for them to cease to be active.

It is more intellectually interesting and perhaps more realistic to consider the other case, in which the authorities have a better idea of the long-run equilibrium exchange rate than the market. The authorities have both the resources and the incentive to undertake research on the question, whereas it is unclear that any individual market trader does. Traders rarely command the resources to undertake a major research effort, and their primary interest is in where the exchange rate is likely to jump in the next few minutes, rather than what it is likely to average over the next few years. Furthermore, the relevant question is whether the authorities are less prone to being driven to extreme positions than market operators, not whether they are more accurate on average. Under these conditions, it seems that a reference rate system would again be totally appropriate.

Estimating the growth-maximizing exchange rate is a far less familiar practice than estimating the long-run equilibrium exchange rate (on which there is now a vast academic literature). This theoretical construct brings out two points. First, it reinforces the proposition that it is a policy mistake to let the market exchange rate fall substantially below the equilibrium exchange rate for a considerable period. Second, it emphasizes that it may be necessary to contemplate nonmonetary measures to increase the exchange rate. It would be good to know a lot more, and Aguirre and Calderon (2006) begin to take matters forward. They find that the growth-maximizing exchange rate is typically somewhat more competitive than the equilibrium exchange rate. Their estimate is that a moderate undervaluation, of up to about 12 percent, is likely to lead to a faster growth rate than the equilibrium exchange rate would generate, so presumably their implicit estimate of the growth-maximizing exchange rate is about 6 percent higher than the equilibrium rate. They are pessimistic about the feasibility of finding policy actions that will sustain an undervaluation of that size, but that is another issue.[5]

5. My own candidate would be the imposition of additional taxation on interest earnings by a foreign resident.

4. Conclusions

This paper has made several points. First, the current fashion in the profession for clean (that is, unmanaged) floating exchange rates rests on an empirically erroneous model. A behavioral model in better accord with the stylized facts suggests that a systematic policy of sterilized intervention can limit the misalignments to which floating rates are subject. Second, the maintenance of a sufficiently competitive exchange rate to ensure the continued growth of nontraditional exports is vital to the long-run growth rate; this accentuates the importance of preventing misalignments involving a very low exchange rate. However, changing the equilibrium exchange rate to bring it more into line with the growth-maximizing rate in the event of a discrepancy is likely to require non-monetary tools like restrictive fiscal policy, controls on capital imports, accumulation of foreign assets, altering the currency composition of foreign borrowing, and the imposition of taxes on traditional exports or additional taxes on interest earned by foreign residents. Finally, good measures of the growth-maximizing exchange rate are not yet available, and very few studies explore the policy measures that might be able to influence the equilibrium rate if it diverges from the growth-maximizing rate. One possibility that deserves examination is a tax surcharge on interest income earned by foreign residents.

Although the central bank does not command instruments adequate to avoid overvaluation, it should not be indifferent to a major misalignment. The central bank has an important role in deciding the range of policies that a country adopts, and intervention provides a crucial tool until other instruments are brought into play. Central banks need to concern themselves about misalignments and especially overvaluation.

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