CHAPTER TWO

# Politics and Exchange Rates: A Cross-Country Approach

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Before the collapse of the Bretton Woods system in 1973, an overwhelming majority of countries, including 90 percent of those in Latin America, had fixed exchange rate regimes. Since then, however, Latin America has seen a wide variety of exchange rate regimes and policies. Different countries, at different times, have adopted exchange rate regimes for reasons ranging from controlling inflation to reducing exchange rate volatility or improving competitiveness. Table 2.1 illustrates the shift away from fixed regimes in Latin American countries.

This chapter explores the impact of political economy factors on exchange rate policy in Latin America. It studies what determines the choice of exchange rate regime, with particular emphasis on political, institutional and interest group factors. The presumption is that differences in institutional and political settings, as well as in economic structure, can affect the choice of regime and, more generally, exchange rate policy. In addition to these structural elements, the chapter examines whether such political events as elections and changes in government affect the pattern of nominal and real exchange rates.

There is evidence that political economy factors are indeed important in determining an exchange rate regime. Governments with strong support in the legislature tend to choose fixed regimes, as do governments that face a fragmented opposition. This is consistent with the idea that sustaining a fixed rate may require a politically difficult adjustment. Economies with an important manufacturing sector are more prone to adopt either floating re-

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**Table 2.1. Use of Exchange Arrangements by Period**

| Type of arrangement | 1960-73 | | 1974-81 | | 1982-88 | | 1989-94 | |
|---|---|---|---|---|---|---|---|---|
| | No. of obsv. | % | No. of obsv. | % | No. of obsv. | % | No. of obsv. | % |
| Fixed to single currency | 322 | 88.5 | 159 | 76.4 | 110 | 60.4 | 56 | 35.9 |
| Fixed to basket | | | | | 4 | 2.2 | | |
| Fixed w/frequent adjustments | 18 | 4.9 | 12 | 5.8 | 4 | 2.2 | 3 | 1.9 |
| Forward-looking crawling peg | | | 9 | 4.3 | 4 | 2.2 | 10 | 6.4 |
| Forward-looking crawling band | | | | | | | 6 | 3.8 |
| Backward-looking crawling peg | 12 | 3.3 | 22 | 10.6 | 46 | 25.3 | 12 | 7.7 |
| Backward-looking crawling band | | | | | | | 7 | 4.5 |
| Dirty floating | 8 | 2.2 | 6 | 2.9 | 5 | 2.7 | 22 | 14.1 |
| Free floating | 4 | 1.1 | | | 9 | 4.9 | 40 | 25.6 |
| Total | 364 | 100.0 | 208 | 100.0 | 182 | 100.0 | 156 | 100.0 |

gimes or backward-looking crawling pegs, both of which tend to deliver more competitive real exchange rates. The influence of the manufacturing sector on the exchange rate regime appears to have been more important in periods when trade was liberalized, since this was when the sector had to face competition from foreign producers. Finally, there is strong evidence that elections and government changes affect the path of nominal and real exchange rates. Devaluations tend to be delayed in the run-up to elections, and only occur immediately after the new government takes office.

## Political Economy Determinants of the Choice of Regime

Traditionally, explanations of exchange rate policy were based on the optimal currency area and related approaches.[2] Scholars focused on how different exchange rate regimes might be desirable for countries with different economic characteristics, and investigated the impact of these characteristics on policy choice.[3] Findings indicated a tendency for small and open economies facing few external price shocks to fix rather than float. But the evidence typically was weak and contradictory.

[2] See Mundell (1961), McKinnon (1962), and Kenen (1969). A modern survey is Tavlas (1994).



More recently, attention has shifted to the potential credibility effects of exchange rate policy. Specifically, it was argued that governments could gain anti-inflationary credibility by fixing to a nominal anchor currency.[4] This constitutes an easily observable target, and deviating from it may impose greater costs on policymakers than deviating from a monetary target. In addition, some authors have argued that a fixed exchange rate disciplines the government because any fiscal excess might end in a currency collapse.[5] While there is little systematic empirical evidence on this score, it has no doubt played a role in many Latin American experiences in the 1990s.

A weakness of these approaches is that they tend to assume a benevolent social welfare-maximizing government. This is problematic for two reasons. First, there is no consensus on welfare criteria for exchange rate regime choice, so that even such a benevolent government might face strongly conflicting advice from experts. Second, and perhaps more important, the assumption of such a benevolent government seems hard to justify on theoretical or empirical grounds. There is little reason to believe that currency policy is made any differently—that is, any less politically—than other economic policies.

In this light, a new generation of investigations of exchange rate policy explicitly incorporates political economy variables. Some studies on developed countries, especially in Europe, have looked at the impact of institutional, electoral and interest group factors on currency policy.[6] However, studies of OECD economies, most prominently of European monetary integration, may have limited applicability to the developing world. In addition, the literature is far from a consensus on the sorts of political and political economy variables expected to affect currency policy.

Some recent studies have included developing countries in the analysis of the political economy of exchange rate policy. Collins (1996) and Edwards (1996) use probit analysis to study the determinants of exchange rate regime. They build their empirical models around a framework in which the political cost associated with devaluation under fixed exchange rates plays a major role.

[3] See Edison and Melvin (1990).

[4] See Giavazzi and Pagano (1988) and Weber (1991).

[5] See Aghevli, Kahn and Montiel (1991). Tornell and Velasco (1995) argue against this logic, pointing out that under fixed exchange rates politicians with a high discount rate will be more prone to fiscal excesses, as the inflationary cost of such excesses is delayed.

[6] See Bernhard and Leblang (1999), Blomberg and Hess (1997), Eichengreen (1995), Frieden (1994, 1998), and Hefeker (1997).

Depreciation under more flexible regimes is less visible and, it is assumed, does not carry the same stigma. Both studies find that factors that increase the need for frequent adjustment (or in the case of Edwards, which increase the political cost of readjustment) reduce the likelihood that a country will fix. Collins does not directly use political economy variables in her analysis, but Edwards introduces variables that measure the degree of political instability and the strength of government. He finds that weaker governments and unstable political environments reduce the likelihood that a peg will be adopted.

This chapter examines a wide range of economic, political economy and political variables that might affect exchange rate policy. It contributes to the literature in several ways. First, it uses a richer and more realistic classification of exchange rate regimes than the usual fixed/flexible dichotomy. Second, it closely examines the impact of interest group variables, a factor overlooked in much previous work.[7] Third, it looks at a large number of Latin American and Caribbean countries over a relatively long period of time (between 1960 and 1994).[8] Finally, it uses new data on political institutions, based on the composition of legislatures.

## Exchange Rate Arrangements

Countries do not choose exchange rate regimes for the regime per se. Different regimes produce different outcomes, and countries choose them according to the outcomes they desire. In choosing their exchange rate arrangement, policymakers must therefore make tradeoffs among these values: credibility, flexibility and stability. Implicit in the discussion that follows is the assumption that governments do have the ability to affect the level of the real exchange rate, at least in the short and medium term, through the use of exchange rate policy. This assumption is supported by the findings of the literature on purchasing power parity, which shows that deviations from purchasing power parity (PPP) are very slow to die out.[9]

[7] Frieden (1994, 1998) and Hefeker (1997) are exceptions.

[8] The 26 countries included in the study are Argentina, the Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

[9] Studies for developed countries show that deviations from PPP have a half-life of between three and five years (see Rogoff, 1996). For developing countries, the evidence shows that misalignments tend to die out more rapidly. However, movements in the nominal exchange rate are still very important to determine changes in the real exchange rate. Kiguel and Ghei (1993) and Goldfajn and Valdés (1999) show that large real depreciations tend to go together with large nominal depreciations.



Governments might choose to adopt fixed exchange rates in the hope of gaining *credibility* in their fight against inflation. The use of a fixed exchange rate as a commitment technology to control inflation has become common, and it clearly responds to the needs of some governments some of the time. At the same time, fixing the exchange rate may provide *stability* of both nominal and real exchange rates, which are relative prices of great importance to local economic agents. This is especially the case in very open economies, where exchange rate volatility may have substantial costs in and of itself (especially in the absence of well-developed forward markets).[10] Fixed exchange rates, however, may compromise the third value, *flexibility*, which can have consequences for both internal and external balance. On the domestic front, fixed exchange rates limit the ability to use monetary policy to react to real shocks. This loss of flexibility, according to the theory of optimal currency areas, should be more problematic if shocks in the country that pegs are uncorrelated to those in the country to which the currency is pegged.[11]

Regarding external balance, a drawback of fixed exchange rates is that an inflation differential between the pegging country and the anchor generates an appreciation of the real exchange rate that, in the absence of compensating productivity gains, hurts the tradables sector and might generate a balance of payments crisis. Flexibility is indeed potentially valuable to a government that is unwilling to forego the use of nominal depreciations for policy purposes. Perhaps the most common such purpose among developing countries is to restore or ensure the competitiveness of its tradables producers. Sachs (1985) associates the greater success of East Asia relative to Latin America during the debt crisis of the early 1980s with the propensity of the former to maintain "more realistic" (i.e., weaker) exchange rates than the latter, thus encouraging the production of exports. Interestingly, he attributes this policy difference to interest group effects.

The benefits and costs of fixed exchange rates depend on the characteristics of the country in question. For example, concern about both credibility and competitiveness should be affected by existing levels of inflation, albeit in different ways. A country with extremely high inflation, desperate to stabilize, might be more likely to use a fixed exchange rate as a nominal anchor for

[10] In contrast, in high inflation countries where fixed regimes tend to require frequent readjustments, pegging the exchange rate may exacerbate, rather than reduce, the volatility of nominal and real exchange rates. See Hausmann et al. (1999).

[11] Recent studies such as Hausmann et al. (1999) and Calvo and Reinhart (2000) suggest, however, that flexible exchange rate countries in Latin America, as well as in other emerging markets, have not really allowed the exchange rate to fluctuate much. Thus, they have not really made use of the flexibility to conduct anticyclical monetary policy.

expectations—that is, for credibility purposes. On the other hand, the higher the rate of inflation, the more a fixed rate will impose competitive pressures on tradables producers and, more generally, pressures on the balance of payments.

Given the history of high inflation in Latin America, this tradeoff between credibility and competitiveness is especially important.[12] And the degree to which policymakers opt to sacrifice competitiveness for credibility, or vice versa, will presumably be a function of a variety of political economy variables. These might include the existence of other mechanisms to enhance credibility, popular pressures to reduce inflation, and the political influence of tradables producers.

In most of Latin America, the credibility-competitiveness tradeoff is central to the political economy of exchange rate policy. For this reason, it is the main tradeoff considered in defining the left-hand side variable to be used in this empirical analysis. At the same time, the desire for nominal and real exchange rate stability may sometimes matter. The classification of regimes used is flexible enough to allow organizing the regime variable along the stability vs. flexibility dimension, if desired.

Most studies of the determinants of exchange regimes, including Collins (1996) and Edwards (1996), use the International Monetary Fund's classification of exchange rate regimes, *Exchange Arrangements and Exchange Restrictions,* to create their dependent variable. Although the IMF classification has undergone some changes over time, its most recent version classifies regimes in the following categories: pegged (to a single currency or basket of currencies); limited flexibility (for cases such as ERM); adjusted according to indicators; other managed float; or free float.

Both Collins and Edwards group the arrangements into two regimes: fixed, and more flexible. Everything other than "pegged" is lumped together under the "more flexible" label.[13] This classification has some unfortunate consequences. For example, Mexico before the Tequila Crisis is classified as "more flexible." So are the *tablitas* of the late 1970s in the Southern Cone countries. Yet, within the inflation-competitiveness tradeoff that underlies these authors' works, these cases are clearly attempts to lower inflation or keep it at bay, even at the cost of accepting a larger misalignment from the target exchange rate.[14]

[12] Calvo, Reinhart and Végh (1995) have derived the tradeoff between the real exchange rate and the inflation objectives in the context of an intertemporal optimization model. See also Lizondo (1991, 1993) and Montiel and Ostry (1991, 1993).

[13] Edwards also tries including the limited flexibility cases together with the fixed, with no change in his results.

[14] In the tablitas, the path of the nominal exchange rate was preannounced, and the rate of devaluation decelerated, in an effort to have domestic inflation converge with that of the anchor.



Cottarelli and Giannini (1998) have recently expanded on the IMF classification, including a special category for forward-looking crawling pegs such as the *tablitas.* This appears to be a step in the right direction. The classification below goes a step further, taking advantage of the fact that, while the IMF classification is not disaggregated enough for the present purpose, the descriptions that appear in *Exchange Arrangements and Exchange Restrictions* are detailed enough to allow a reclassification. Distinctions are made between the following regimes:[15]

1. Pegged to single currency
2. Pegged to basket of currencies
3. Pegged with frequent adjustments (sustained less than six months)
4. Forward-looking crawling pegs (such as the tablitas)
5. Forward-looking crawling bands[16]
6. Backward-looking crawling pegs
7. Backward-looking crawling bands
8. Managed floating
9. Free floating

This classification makes it possible to capture various dimensions related to the exchange rate regime by grouping the different categories in different ways. For the credibility versus competitiveness dimension emphasized in this chapter, these nine categories are placed in the following four groups: fixed (includes pegged to single currency, pegged to basket of currencies, and pegged with frequent adjustments); forward-looking crawling pegs and bands; backward-looking crawling pegs and bands; and flexible (including free and managed floating).[17] Lumping the two floating regimes together is justified since, in emerging markets, even countries classified as independently floating have engaged in a substantial amount of intervention.[18]

Determining how these groups should be ordered on the credibility vs. competitiveness dimension requires looking first at some of the outcomes associated with each of them. The first row of Table 2.2 presents the mean of the real exchange rate for each of these four groups.[19]

[15] The regimes were classified month by month. Whenever there were changes, a country's regime in a given year is the one that was in place for a larger portion of that year.

[16] The term "forward-looking" is used for those regimes in which the path of the exchange rate is either preannounced, as in the *tablitas,* or targeted according to desired or expected inflation.

[17] Given the difficulties in classifying the pegged-with-frequent-readjustments regime into one of the four groupings, in some exercises the observations under this regime will be excluded in order to check the robustness of the results.

[18] Calvo and Reinhart (2000) have called this behavior "fear of floating."

[19] The real effective exchange rates calculated by Goldfajn and Valdés (1999) were used.

**Table 2.2. Real Exchange Rates and Inflation by Regime**

| Regime | Fixed | Forward-looking | Backward-looking | Floating |
|---|---|---|---|---|
| Average real exchange rate | 97.4 | 90.3 | 109.0 | 106.0 |
| Average annual depreciation | -1.55% | -6.31% | 0.98% | 1.39% |
| Average annual rate of inflation | 17.2% | 54.4% | 50.3% | 42.8% |

*Note:* Higher values of real exchange rate indicate more depreciated rates.

To make the comparison meaningful, the real exchange rate in each country was normalized to average 100 throughout the period. The second row presents the average rate of change of the real exchange rate under each group, and the third row presents the average annualized rate of inflation.

Table 2.2 suggests possible orderings of the different groups along the credibility-competitiveness dimension. The fixed and forward-looking regimes have produced, on average, both appreciated and appreciating real exchange rates. The forward-looking pegs and bands are the regimes associated with the most appreciated rate (an average real exchange rate of 90.3), followed by the fixed regimes, with an average of 97.4. Likewise, the forward-looking regimes produce, on average, an annual appreciation of more than 6.3 percent, compared to 1.6 percent in the case of the fixed regimes. The fixed regime, in turn, is associated with the lowest average inflation. This should not be surprising, as the forward-looking regime is usually implemented only when inflation is high enough that a peg would not be sustained.

These two regimes are clearly at the credibility (or anti-inflationary) end of the spectrum. It is not obvious, however, how they should be ordered. On the one hand, the fact that the forward-looking regimes are the ones that tend to deliver the most appreciated and appreciating real exchange rates should not come as a surprise. Countries fix their exchange rates for a variety of reasons, only one of which is to provide a credible and visible target to fight inflation. For example, small and very open economies with low inflation and geographically concentrated trade, such as most Caribbean countries, may choose to fix in order to stabilize exchange rates. In these cases, a fixed exchange rate need not cost the country that adopts it a loss of competitiveness. Forward-looking crawling pegs such as the *tablitas*, however, are unmistakably meant to bring inflation under control, and since the exchange rate is used as a nominal anchor for inflation, this inflation objective comes at the expense of an appreciation of the real exchange rate and loss of international competitiveness. On the other hand, after controlling for the rate of inflation, fixing should deliver lower inflation and faster loss in competitiveness compared to a preannounced crawl. For this reason, this chapter's empirical tests will place the fixed exchange rate first in the ordering, followed by the forward-looking regimes. However, the tests will also check whether the results obtained depend critically on this choice.



At the other extreme of the tradeoff are backward-looking regimes. These are the regimes associated with the most depreciated rate, 109.0, compared to 106.0 for the flexible regimes. The greater rate of depreciation under flexible regimes may occur because these regimes are sometimes implemented immediately after balance of payments crises following an appreciated exchange rate. Backward-looking regimes, on the other hand, are usually put in place when the exchange rate is already depreciated in order to keep its level competitive. A backward-looking crawling peg, adjusting according to the inflation differential, appears to be a more active policy for maintaining competitiveness than flexible regimes.

The appropriate technique when working with multinomial discrete dependent variables, when one has reasons to expect a certain ordering of the groups, is ordered logit or probit. Following the above discussion, most of the empirical tests will make use of a left hand side variable, REGIME, which takes the following values:

0 Fixed (to single currency, basket, or frequent adjustments)
1 Forward-looking crawl and bands
2 Floating (managed or independent)
3 Backward-looking crawl and band.

As discussed above, however, robustness checks are performed to see whether these results change under different specifications of the left hand side variable, such as switching the order of the first two groups, or excluding from the sample the observations associated with fixed regimes with frequent adjustments.

## Potential Determinants of Exchange Rate Regimes

### *Macroeconomic, External and Structural Variables*

Inflation generally has an important effect on an exchange rate regime. High inflation makes a peg unsustainable, and even moderate inflation will require frequent readjustments of the peg. Inflation increases the political cost of abandoning a peg and decreases the likelihood of choosing a fixed regime. High inflation should not discourage, however, the adoption of forward-looking crawling pegs, such as *tablitas*. On the contrary, high inflation increases the credibility gains provided by nominal anchors, and forward-looking pegs can provide this nominal anchor function without making the regime unsustainable.

The empirical analysis uses the log of inflation, as the effects are not expected to be linear, and the variable is lagged one period to avert potential endogeneity problems, as the regime can have an effect on contemporaneous inflation.[20] In addition to the log of inflation, a dummy variable (HYPER) is used, which takes a value of 1 when the inflation rate is greater than 1,000 percent. This variable captures the fact that it may be easier to stabilize prices by fixing the exchange rate starting from hyperinflation, as compared with moderate or high inflation. Under hyperinflation, the nominal exchange rate becomes a natural reference for prices, and this makes it easier to stop the inertial component of inflation by pegging the exchange rate. It is expected that, controlling for inflation, hyperinflation will increase the likelihood of adopting a peg.

Another factor that affects the sustainability of fixed exchange rate regimes is the availability of foreign reserves. Lack of reserves increases the probability of adjusting or abandoning the peg, and thus the probability of incurring the political cost of doing so. Rather than the more traditional measure of reserves in terms of months of imports, (RESM2), the ratio of central bank reserves over money supply (M2) is used.[21] Since the effects of reserves are likely to be non-linear, an alternative dummy variable is used (RESERVESD) that takes a value of 1 when the ratio of reserves to M2 is below a critical threshold.[22] A high value of reserves is expected to be associated with fixed regimes, and reserves below the threshold to be associated with more flexible arrangements. Due to possible endogeneity problems, both variables are lagged in the regressions.

[20] More precisely, the present tests use the log (1+inflation/100).
[21] Data on reserves and M2 come from the IMF's *International Financial Statistics*.
[22] This threshold is defined as the mean of the ratio minus the standard deviation.



The desirability of fixed exchange rate regimes may also depend on other policies in place. For example, controls on capital flows may increase the sustainability of fixed exchange rates, since it is less likely that inconsistencies between fiscal or monetary policy and exchange rate policy will result in capital outflows and the collapse of the regime. A related point is that capital controls make it possible for countries to fix the exchange rate without sacrificing their monetary policy. For these reasons, fixed exchange rate regimes are expected to be more prevalent in periods when countries have capital controls.

Two different measures of capital controls were used in the econometric tests. The first is a dummy that indicates the existence of restrictions on capital account transactions. The second is a variable that adds together four dummy variables, each representing the existence of 1) restrictions on capital account transactions; 2) restrictions on current account transactions; 3) multiple exchange rates; and 4) surrender of export proceeds. The original source for the capital controls data is the IMF's *Exchange Arrangements and Exchange Restrictions*.[23] As will be discussed in more detail below, this dataset has serious shortcomings, in that it provides information only on the existence of controls, rather than on the severity of the controls. Since 1996, the IMF has been publishing much more detailed data on capital account restrictions, which takes into account a large variety of dimensions. Unfortunately, this dataset is not available for the period under study.

For several reasons, it is expected that more open economies will tend to adopt fixed exchange rates. First, the more open the economy, the larger the potential cost of exchange rate volatility. Second, in more open economies, domestic monetary shocks are more easily channeled abroad, so there is less need for an autonomous monetary policy. Third, in more open economies, the law of one price is more likely to operate. In this context of more flexible prices, one of the advantages of floating exchange rates—that they allow changes in real exchange rates when prices are sticky—fades away. Fourth, commitment to fixed exchange rates may become more credible in open economies since, in a context of flexible prices, governments will be less able to engineer a real devaluation through a nominal devaluation. In other words, devaluations become less effective as a means of achieving internal or external balance, and so the temptation to devalue becomes weaker. The empirical analysis includes an indicator of openness, measured as imports plus exports as a share of GDP, and it is expected to have a negative sign.[24]

[23] The authors are grateful to Gian Maria Milesi Ferreti for making this data available in electronic form.
[24] The data comes from the Economic and Social Database of the Inter-American Development Bank.

It is further expected that countries that are subject to significant external shocks will be more likely to adopt more flexible regimes. To measure the importance of external shocks the tests use the coefficient of variation of the terms of trade for the whole period (TOT VOLATILITY). The lack of monthly terms of trade data prevented construction of a variable for terms of trade volatility that can change in response to changes over an extended period of time in a country's structure of imports and exports. The effects of the terms of trade shocks should be more severe for more open economies. For this reason, the measure of terms of trade volatility interacted with openness is also considered.[25]

Collins (1996) introduced a time trend into her empirical analysis to capture what she called the "climate of ideas" regarding the appropriate exchange rate regimes for small open economies. A possible drawback of this measure is that it assumes a linear trend in the climate of ideas. As an alternative, this chapter presents a different variable, VIEWS, which measures the percentage of countries in the world under fixed exchange rate regimes. The data for the construction of this variable comes from Goldfajn and Valdés (1999). However, the correlation between the VIEWS variable and the time trend turned out to be extremely high (-0.96). For this reason, the empirical analysis that follows presents only the results using the time trend.

### *Institutional Variables*

An institutional variable that could have an effect on the exchange rate regime is the degree of central bank independence. However, it is not clear in which direction central bank independence should affect the regime. In countries where the central bank is in charge of exchange rate policy, an independent central bank that pursues price stability may be more prone to tie its own hands by adopting a fixed exchange rate regime. On the other hand, central bank independence may be seen as an alternative to a peg as a means to provide credibility.[26] As a measure of central bank independence, this chapter uses the index of legal independence developed by Cukierman (1992), which includes criteria such as appointment, dismissal and terms of office of the governor, central bank objectives, and the limitations on the bank's ability to lend to the public sector. One problem in using this variable is that it is available only for half of the countries in the sample.

[25] Notice that the variation within countries of this interactive term comes solely from variations in openness. The volatility of terms of trade was measured for the whole period in each country. This would only be a problem for those countries that significantly altered the composition of their trade during the period under consideration.

[26] Even if one did find that central bank independence is associated with fixed regimes, one should be cautious in the interpretation of these results. Both variables could in fact be explained by a third factor, which is not easy to capture in a model: society's aversion to inflation. Posen (1995) has made exactly this point in questioning the importance of central bank independence as a determinant of the rate of inflation.



### *Interest Group Variables*

This chapter also explores the impact of sectoral interest groups, an issue that has been overlooked in previous studies. This neglect is probably due to the difficulty associated with understanding the preferences of different interest groups, and finding good variables to capture the influence that these groups may have on policymakers. In addition, it is often believed that exchange rate policy has broad effects on the population, rather than specific effects on different groups. In contrast, trade policy has long been recognized as having important distributional effects. Even though the role of interest groups may be stronger in trade policy, the hypothesis here—which is supported by evidence in the chapters on Peru and Colombia—is that different groups have very different preferences regarding exchange rate policy, and that these preferences can play a role in the choice of regime. In addition, as countries advance in the process of trade liberalization, this role in choosing the exchange rate regime becomes more fundamental. While an array of subsidies and specific tariffs are available to compensate those who are hurt by the exchange rate policy in place, special interest groups tend to concentrate their demands on these specific measures. However, as liberalization makes these compensatory mechanisms less available, these groups become vocal about exchange rate policy.

It stands to reason that tradables producers should favor a regime that avoids a real appreciation. This should be true both of producers of goods for export, whose (domestic currency) earnings are higher the weaker the exchange rate, and of import-competers. However, there are many potential complications to this simple expectation. One has to do with the price of inputs: firms that use a high proportion of tradables in general, and imports in particular, get less benefit from a depreciation. Many mining firms, for example, use extremely high shares of imported inputs and may be indifferent to the exchange rate. Similarly, some firms or sectors may care less about the exchange rate to the extent that they have international market power and/or the demand for their product is inelastic. The most important (and perhaps only) Latin American example is that of coffee growers during the period when the International

Coffee Agreement was in force. For them, the principal decision variable was the world price of coffee.

Perhaps the most important peculiarity in trying to examine sectoral interests in Latin American currency policy is the role of trade policy, and especially the very high levels of trade protection prevailing in most of the region until the middle 1980s. Where trade barriers to finished manufactured goods were prohibitive, as they were in much of the region from the 1940s until the 1980s, many manufacturers were essentially in nontradable production. They were relatively indifferent to the impact of the exchange rate on their output prices, as they were sheltered by trade barriers. Some of them even preferred a strong (appreciated) real exchange rate, which made imported inputs—machinery, intermediates, raw materials, spare parts and borrowing—cheaper in local currency terms.

The empirical tests include three different variables representing different tradables sectors: agriculture, manufacturing and mining. In light of the discussion above, one would expect the agricultural sector to favor pro-competitiveness regimes (i.e., enter the regressions with a positive sign); the mining sector to be indifferent; and the manufacturing sector to support more flexible regimes when trade is liberalized and to be indifferent when operating in highly protected markets. For lack of a better indicator of the lobbying power of each group, it is simply assumed that each sector's influence on policymakers is proportional to its share in the country's GDP. Due to concerns about endogeneity (for example, there may be a shift to nontradables production under an appreciated exchange rate), these variables (AGRIL, MININGL and MANUFL) are lagged one period.

A separate set of regressions explores changes in preferences as trade becomes liberalized. A dummy variable (LOWTARIFF) is constructed to pick up cases of liberalized trade. The construction of this variable, though, confronted the problem of the lack of good databases on tariffs and other barriers with the coverage needed in terms of countries and years. It was possible to gather data from different sources on average tariffs for 21 of the 26 countries in the sample. However, in most cases data starts only in 1985, and in the best cases in 1980.[27] The criterion used in this instance was to assign a value of 1 to cases where the average tariff was lower than 20 percent. The choice of this threshold took into account the fact that during the import-substitution industrialization period, tariffs for final goods were

[27] Data on average tariffs was provided by Alan Winters of the World Bank Trade Division and by Antoni Estevadeordal of the Integration Division of the Inter-American Development Bank.



much higher than those for intermediate inputs and capital goods. An average tariff of 20 percent generally implies a higher tariff for final goods, and an even higher effective rate of protection. For those years where data were not available, the series was completed using information on dates of trade reform in Edwards (1994), and on the basis of the authors' knowledge of the countries. It is expected that LOWTARIFF will have a positive sign, indicating that pressures for a competitive exchange rate are greater when barriers to trade are small.

If the manufacturing sector's changes regarding the exchange rate regime in fact depended on the degree of protection, the share of manufactures in GDP would be expected to have a larger impact when trade is liberalized. This hypothesis is tested by interacting the LOWTARIFF dummy with a measure of the importance of manufacturing, expecting the coefficient for the interactive term to be positive—i.e., in more liberal, low trade barrier periods, manufacturers would support exchange rate policies associated with greater attention to competitiveness—and the coefficient for MANUFL to be insignificant, indicating indifference about the regime during highly protected periods.

It would have been desirable to include a variable that captured the degree of liability dollarization in the economy. Presumably, individuals and firms with dollar liabilities would be more supportive of fixed exchange rate regimes, since devaluations may hurt them considerably. Unfortunately, it was not possible to find a good measure of dollar liabilities.[28]

### *Political Variables*

Two variables were constructed using data on the composition of the legislature obtained from Nohlen (1993): the share of government seats in the legislature (GOVSEATS), and the effective number of parties in the legislature (EFPART).[29] GOVSEATS is expected to have a negative sign for two

[28] The tests included proxying dollar liabilities with the ratio of foreign liabilities of deposit money banks (lines 26c+26cl of the IFS) over quasi-money (line 35 of the IFS). This was expected to be a reasonable measure of the share of deposits denominated in foreign currency, which in turn could be a good proxy for dollar liabilities. However, in some countries this ratio was often greater than 1. In any case, the variable was not significant when included in the regressions.

[29] One problem with GOVSEATS is that there is not always complete information available regarding the coalitions in Congress. Where coalitions were known, the share corresponding to them was counted, as was that of the party of the president. This continuous variable is preferable to simply recording whether the government has a majority in the legislature, since it captures the substantial difference between respective shares of either 5 or 35 in terms of the government's ability to pass key legislation, particularly when the opposition is fairly fragmented. A majority variable was also used in the regressions, with fairly similar results.

reasons, both associated with the political cost of devaluing or abandoning a *tablita*. First, a higher share of seats means that the government faces less political competition, so a readjustment may be less costly. In addition, a stronger government may be in a better position to implement the necessary measures to prevent an exchange rate adjustment. This last idea is consistent with the findings of the literature on the political economy of fiscal policy, which suggests that stronger governments are associated with lower deficits.[30]

The effective number of parties is generally used to measure the fragmentation of the party system.[31] There is no clear prior of how this variable on its own would affect exchange rate policy, except for the fact that where fragmentation is greater, the government will probably have a smaller share of seats in the legislature.[32] As an indicator of the strength of government, the share of government seats is obviously much better. However, the effective number of parties has a simple interpretation once the share of government seats is accounted for: it measures the fragmentation of the opposition. Therefore, the effective number of parties in the legislature is expected to have an effect similar to that of the share of government seats. A weaker and more fragmented opposition diminishes the political cost of a devaluation and at the same time makes it easier for the government to achieve a winning coalition in support of the adjustment programs necessary to sustain a peg. The effective number of parties is expected to be more important whenever the government does not control a majority of seats. For this reason, EFPART is interacted with MINORITY, a dummy that takes a value of 1 when GOVSEATS<50%, in order to be able to test this conjecture.

Also included is a measure of political instability (POLINS), based on the number of government changes per year, as well as the occurrence of coups. The POLINS variable is a dummy that takes a value of 1 if a country has gone through three or more government changes in the last five years, or if it has gone through two or more government changes in the last three years.[33] It also takes a value of 1 in years in which there were successful coups, and in the first year following a successful coup.[34] More unstable political systems have been associated with larger government deficits, which would suggest a positive coefficient, indicating that more unstable systems will make it more difficult for the government to sustain a peg. On the other hand, governments in unstable situations tend to have a higher discount rate and therefore may not care as much about the long-term sustainability of the policies they follow. This may make it more likely for them to choose fixed regimes (see Edwards, 1996).

Finally, a dummy is included for dictatorship (DICT) based on the variable "democracy" from the Polity III database.[35] The expected sign of this variable is not clear. On the one hand, dictatorships could be more prone to choose fixed regimes, as the political cost of devaluing should be smaller for de facto governments. In addition, they tend to be strong governments and may find it easier to impose adjustment measures needed to sustain a fix. On the other hand, dictatorships tend to be comparatively more attuned to interest groups, from whom they derive rents, and less to the population at large, as they do not need to buy their votes.

Table 2.3 presents descriptive statistics for each of the explanatory variables. Table 2.4 presents the means of these variables for each of the four groups of exchange rate regimes, as previously defined.

## Empirical Results

The results of the ordered logit regressions are presented in Tables 2.5 through 2.7. Table 2.5 begins by using only macroeconomic/external/structural variables as regressors. Institutional, interest group and political variables are then introduced. The regressions in Table 2.6 explore the impact of trade liberalization in more detail. Finally, Table 2.7 presents some sensitivity analysis.

[30] See Grilli, Masciandaro and Tabellini (1991) and Roubini and Sachs (1989).

[31] The effective number of parties is defined as $EFPART = 1/\sum s_i^2$, where $s_i$ is the proportion of representatives party $_i$ has in the lower (or single) house.

[32] These two variables are in fact highly and negatively correlated.

[33] As an exception, countries are coded as politically stable if they are in the fourth year of a government, even if they have had three government changes in the past five years. For example, if a country had three government changes in 1970, and then had the same government for four years, it would be coded as politically unstable from 1970 through 1972, but stable in 1973.

[34] Data on government changes and coups was taken from Nohlen's *Enciclopedia Electoral Latinoamericana* (1992), and complemented for recent years by Zárate's database on political leaders, http://www.terra.es/personal2/monolith. Although other databases on government changes and coups exist, they did not have the desired coverage and were plagued by inaccuracies.

[35] The Polity III democracy variable is an index that takes values from 0 to 10, and captures the competitiveness of political participation, the openness and competitiveness of executive recruitment, and the existence of constraints on the power of the executive. Here, the dummy DICT is used, which takes a value of 1 when the index of democracy is 3 or below.

**Table 2.3. Summary Statistics of Explanatory Variables**

| Variable | No. of obsv. | Mean | Standard deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Log inflation | 812 | 0.248 | 0.537 | -0.1216 | 4.775 |
| Hyper | 837 | 0.016 | 0.128 | 0 | 1 |
| Open | 836 | 0.637 | 0.405 | 0.083 | 2.498 |
| Views | 910 | 0.715 | 0.230 | 0.391 | 0.992 |
| Capital controls 1 | 721 | 0.717 | 0.450 | 0 | 1 |
| Capital controls 2 | 720 | 2.512 | 1.293 | 0 | 4 |
| Reserves/m2 | 860 | 0.242 | 0.205 | 0.00042 | 1.552 |
| Reserves dummy | 860 | 0.059 | 0.236 | 0 | 1 |
| TOT volatility | 805 | 0.133 | 0.080 | 0.030 | 0.418 |
| Manufl | 815 | 0.183 | 0.057 | 0.069 | 0.321 |
| Agrl | 793 | 0.168 | 0.093 | 0.018 | 0.469 |
| Minl | 734 | 0.062 | 0.072 | 0.00047 | 0.331 |
| Low tariff | 645 | 0.184 | 0.388 | 0 | 1 |
| Polins | 907 | 0.196 | 0.397 | 0 | 1 |
| Dict | 745 | 0.474 | 0.500 | 0 | 1 |
| Efpart | 646 | 2.454 | 1.296 | 1 | 8.68 |
| Govseats | 647 | 0.597 | 0.197 | 0.039 | 1 |

The main results of Table 2.5 can be summarized as follows:

*Macroeconomic/external/structural factors*: The log of inflation (lagged) is never significant as a determinant of the exchange rate regime, probably reflecting two conflicting effects: while high inflation makes credibility more desirable, it reduces the sustainability of fixed exchange rates. The hyperinflation dummy is significant in all of the regressions and has a negative sign. This is consistent with the view that it is easier to get out of hyperinflation by providing a nominal anchor than it is to stabilize prices in this way under moderate or high inflation, as during hyperinflation the nominal exchange rate becomes a natural reference point for prices. The coefficient for openness was also negative and significant in all the regressions, indicating that more open economies, as expected, are more likely to adopt fixed exchange regimes.

Surprisingly, the coefficient for the reserves/M2 ratio was marginally significant but had a positive sign. Thus, the prior that countries with low reserve ratios would be less prone to fix due to sustainability issues was not confirmed by the data. This result was highly robust to a variety of definitions for the reserves variable. For example, the contemporaneous reserves ratio was used in place of the lagged one, as well as a



**Table 2.4. Summary Statistics: Means of Explanatory Variables under Different Exchange Rate Regimes**

| Variable | Fixed | Forward-looking | Flexible | Backward-looking |
|---|---|---|---|---|
| Log inflation | 0.162 | 0.639 | 0.535 | 0.436 |
| Hyper | 0.0095 | 0.069 | 0.043 | 0.023 |
| Open | 0.699 | 0.476 | 0.550 | 0.380 |
| Views | 0.772 | 0.494 | 0.506 | 0.577 |
| Capital controls 1 | 0.693 | 0.620 | 0.631 | 0.940 |
| Capital controls 2 | 2.354 | 2.310 | 2.190 | 3.656 |
| Reserves/m2 | 0.225 | 0.220 | 0.271 | 0.333 |
| Reserves dummy | 0.065 | 0.000 | 0.045 | 0.051 |
| TOT volatility | 0.135 | 0.168 | 0.141 | 0.103 |
| Manufl | 0.172 | 0.219 | 0.199 | 0.225 |
| Agrl | 0.176 | 0.118 | 0.149 | 0.153 |
| Minl | 0.067 | 0.066 | 0.052 | 0.042 |
| Low tariff | 0.060 | 0.517 | 0.586 | 0.272 |
| Polins | 0.227 | 0.000 | 0.159 | 0.070 |
| Dict | 0.534 | 0.482 | 0.215 | 0.391 |
| Efpart | 2.304 | 3.754 | 3.324 | 2.285 |
| Govseats | 0.633 | 0.448 | 0.447 | 0.557 |

dummy that takes a value of 1 when the ratio of reserves to M2 is below a certain threshold, defined as the sample mean of the ratio minus the standard deviation. Both cases produced similar results. The explanation for this apparent puzzle is that emerging countries tend to keep large stocks of reserves, even when formally floating their exchange rates.[36]

Perhaps even more puzzling is the effect of the volatility of the terms of trade. Countries subject to strong external shocks were expected to prefer more flexible regimes, yet the coefficient came out negative and significant. There are, however, some concerns about the measurement of this volatility. The variable used adopts the same value for the whole period in each country, ignoring the fact that many countries have substantially altered the composition of exports and imports during the sample period. Similar results were obtained by using the interaction of the coefficient of variation of terms of trade and openness in place of volatility.

[36] This behavior, which has been documented by Calvo and Reinhart (2000) and by Hausmann, Panizza and Stein (2000), has prompted Calvo to say that emerging countries that float do so "with a lifejacket."

**Table 2.5. Ordered Logit Regressions for REGIME with Economic, Institutional, Sectoral and Political Factors**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Log inflation | 0.079 | 0.022 | 0.13 | -0.052 | -0.11 | -0.12 |
| | (0.44) | (0.08) | (0.63) | (-0.26) | (-0.48) | (-0.52) |
| Hyper | -1.47 | -2.59 | -1.78 | -1.57 | -1.79 | -1.80 |
| | (-2.22) | (-2.50) | (-2.56) | (-2.24) | (-2.38) | (-2.39) |
| Open | -2.43 | -6.68 | -2.37 | -2.76 | -3.49 | -3.44 |
| | (-5.29) | (-6.37) | (-4.90) | (-5.42) | (-5.95) | (-5.84) |
| Reserves/m2 | 0.73 | | | | | |
| | (1.78) | | | | | |
| TOT volatility | -4.06 | | | | | |
| | (-1.97) | | | | | |
| Capital controls1 | 0.21 | | | | | |
| | (0.92) | | | | | |
| CBI | | 1.67 | | | | |
| | | (0.77) | | | | |
| Manufl | | | 10.96 | 8.28 | 11.95 | 12.42 |
| | | | (3.87) | (3.65) | (4.20) | (4.30) |
| Agrl | | | 0.0057 | | | |
| | | | (0.004) | | | |
| Minl | | | 1.28 | | | |
| | | | (0.61) | | | |
| Polins | | | | -1.10 | | -0.92 |
| | | | | (-3.39) | | (-1.97) |
| Govseats | | | | | -2.58 | -3.06 |
| | | | | | (-2.77) | (-3.04) |
| Efpart | | | | | -0.29 | -0.098 |
| | | | | | (-2.31) | (-0.57) |
| Efpart * Minority | | | | | | -0.19 |
| | | | | | | (-1.61) |
| Dict | | | | -0.49 | -1.07 | |
| | | | | (-2.15) | (-2.29) | |
| Trend | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 616 | 323 | 679 | 670 | 562 | 562 |

*Notes:* A positive sign means that the variable increases the probability of adopting "pro-competitiveness" regimes. z-statistics in parentheses.



The dummy for the restrictions on capital account transactions, included in the first regression of Table 2.5, was not significant, while the composite capital controls variable (not shown) was positive and significant. This result is also surprising, as fixed exchange rate regimes were expected to be more likely when restrictions on the capital account were present. This result is very likely due to the important shortcomings of the capital controls dataset. As discussed above, this dataset provides information on the existence of controls, rather than the severity or the nature of the controls. Careful examination of the dataset revealed that, contrary to what was expected, capital controls in the world, according to this measure, have not had a declining trend, and, in the case of Latin America, they have increased over time. This casts serious doubts on the quality of the capital controls data. In fact, since 1996 the IMF has published much more detailed data on capital account restrictions, which take into account a large variety of dimensions. Unfortunately, this dataset is not available for the period under study.[37] In addition to the variables discussed above, all regressions in Table 2.5 include a time dummy, which was positive and highly significant.

*Institutional factors*: The coefficient for central bank independence, measured by the legal index of independence (which is included in regression 2 in Table 2.5) had a positive sign, suggesting that CBI is to some extent a substitute for a fixed exchange rate as a way to provide credibility. The coefficient, however, was not significant.

*Interest group factors*: Column 3 presents the regression where all three tradables sectors are included. As expected, the share of mining in GDP was not significant, since mining generally is a highly capital-intensive activity with a large proportion of imported inputs. Contrary to the priors, the share of agriculture in GDP did not have a significant effect on the choice of regime either. One possible explanation is that the share in GDP is an imperfect indicator of the lobbying power of this sector, more so than in the other sectors studied. This could be due to the important heterogeneity found across countries in terms of the composition of the agricultural sector. While in some countries this sector is composed mainly of very small farms, whose owners are not organized as a group, in others the sector is highly concentrated, and the landown-

[37] Miniane (2000) has extended the new IMF methodology backwards, and his more disaggregated capital control indices now cover the period 1983-98. Unfortunately, the coverage of Latin American countries in his sample is somewhat limited. Although his results are preliminary, his indices show a clear downward trend in capital account restrictions, a result that is consistent with the priors.

ers are a strong class with important influence on government policy. The immobile character of land may be another factor that limits the leverage of this sector. The coefficient corresponding to the share of manufacturing in GDP, in contrast, was positive and significant, a result that is robust to a variety of specifications. Thus, economies with a larger share of manufacturing tended to choose more flexible, pro-competitiveness regimes. As will be discussed in more detail below, this result is even stronger during periods of liberalized trade.

*Political factors*: These are introduced in regressions 4 through 6 in Table 2.5. Column 4 introduces the political instability dummy, as well as the dictatorship dummy. The dictatorship dummy has a negative and significant coefficient, suggesting that authoritarian governments tend to rely more heavily on regimes that cater to the anti-inflation objective, even after controlling for the rate of inflation.[38] It is important to note that a time trend is included in the regression, so this result is not simply explained by the coinciding trends toward more democracy and more backward-looking and flexible exchange rate regimes. Political instability also seems to increase the likelihood of adopting fixed exchange rate regimes.[39]

Column 5 introduces the share of government seats in the legislature, as well as the effective number of parties. Both variables have negative and significant coefficients. This confirms the priors that strong governments tend to fix, as do governments with a weak opposition. Our interpretation is that government strength relative to the opposition diminishes the political cost associated with devaluation, and at the same time makes the need for a devaluation less likely, as it is easier for the government to achieve a winning coalition in support of the necessary adjustment programs.

Column 6 provides further support for this interpretation. In addition to the effective number of parties, this regression included an interactive term of the effective number of parties, with a slope dummy which takes a value of 1 when the government does not have majority in Congress, and 0 otherwise. Although the coefficients for the number of parties and the interactive term are not significant by themselves, a

[38] Similar results were obtained when the Polity III democracy index was used instead of the dictatorship dummy.

[39] This result contrasts to that in Edwards (1996), who finds that political instability reduces the likelihood of adopting pegs. In his work, Edwards used political instability measures (such as government changes and government transfers) for the 1970s to explain the exchange rate regimes of the 1980s and early 1990s. This variable more accurately captures the existence of the type of political instability that would matter for the adoption of an exchange rate regime.



test of the hypothesis that the sum of the coefficients is 0 is rejected at the 5 percent significance level, indicating that EFPART was significant when the government did not have a majority of seats in the legislature, but not otherwise. This suggests that the weakness of the opposition is particularly important when the government does not have a majority of legislative seats, but is not crucial when it does.

It should be noted that the dictatorship variable is not included together with the variables based on the composition of the legislature. The reason is that in a very significant portion of the observations classified as dictatorships (index of democracy smaller than or equal to three), there is no data for the composition of the legislatures because in most cases there *is* no legislature.[40]

### *Role of Trade Liberalization*

Table 2.6 explores the role of trade liberalization in the choice of exchange rate regime. Column 1 adds the trade liberalization dummy to the specification shown in column 5 of the preceding table.[41] The coefficient for this dummy is positive and significant. This is consistent with the hypothesis that pressures for a competitive exchange rate, and for a regime that delivers it, are smaller during periods when trade barriers are very high. This result is also consistent with anecdotal evidence from other countries.[42] The third column incorporates, in addition to the low tariff dummy, an interaction term of low tariffs and the share of manufacturing in GDP. Neither of the coefficients is significant. Columns 2 and 4 present regressions similar to those in columns 1 and 3 but exclude the time trend, which is very highly correlated with the trade liberalization dummy.[43] When the time trend is excluded, both the liberalization dummy and the interactive term become significant. Therefore, the result that trade liberalization matters for the choice of regime is even stronger when the time trend is excluded from the regressions.

[40] When all four political variables were included together, the dictatorship variable lost significance, and the political instability variable became only marginally significant. None of the other results changed.

[41] The specification that includes the dictatorship dummy and not the political variables based on the composition of the legislature was used, since the combination of these last variables and the trade liberalization dummy together reduce the size of the sample to less than half of the total observations.

[42] See the chapter on Colombia.

[43] The correlation coefficient between these two variables is 0.58. It is likely that at least part of the time effect is explained by the move toward trade liberalization in the region.

**Table 2.6. Impact of Trade Liberalization (Ordered logit regressions. Dependent variable: REGIME)**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Log inflation | -0.079<br>(-0.41) | 0.25<br>(1.35) | -0.043<br>(0.22) | 0.31<br>(1.68) |
| Hyper | -1.30<br>(-1.89) | -1.04<br>(-1.50) | -1.37<br>(-1.96) | -1.16<br>(-1.65) |
| Open | -2.83<br>(-5.36) | -1.83<br>(-3.99) | -2.83<br>(-5.36) | -1.88<br>(-4.05) |
| Manufl | 5.27<br>(2.08) | 5.29<br>(2.23) | 4.93<br>(1.93) | 4.65<br>(1.94) |
| Manufl*Low tariff | | | 1.55<br>(0.72) | 3.89<br>(1.82) |
| Low tariff | 0.52<br>(1.97) | 1.75<br>(8.14) | 0.29<br>(0.69) | 1.13<br>(2.75) |
| Polins | -1.11<br>(-3.17) | -1.28<br>(-3.77) | -1.13<br>(-3.22) | -1.29<br>(-3.81) |
| Dict | -0.47<br>(-2.00) | -0.81<br>(-3.70) | -0.47<br>(-1.99) | -1.81<br>(-3.67) |
| Trend<br>N | Yes<br>552 | No<br>552 | Yes<br>551 | No<br>551 |

*Note:* z-statistics in parentheses.

### *Sensitivity Analysis*

Table 2.7 explores whether the main results are robust to different definitions of the left-hand side variable, as well as to different sample periods. Column 1 simply reproduces regression 5 in Table 2.5. The second column excludes observations prior to 1973 so as to see whether the results change if the Bretton Woods years are excluded. During those years, more than 90 percent of the observations correspond to the fixed exchange rate regime (see Table 2.1). All the variables included, with the exception of the log of inflation, are significant. The next subsection will use this regression in order to interpret the economic significance of the explanatory variables. Columns 3 and 4 test the robustness to small changes in the specification of the regime variable. Column 3 excludes the observations in which the arrangement was fixed but with frequent adjustments. The reason is that it is not obvious in which grouping one should include this arrangement. Results are very similar to those in column 1, with the single exception of political instability, which loses significance.



**Table 2.7. Sensitivity Analysis (Ordered logit regressions. Dependent variable: different definitions of regime)**

| | (1)<br>REGIME | (2)<br>REGIME<br>(1973-1994) | (3)<br>REGIME2<br>(Excluding adjustable pegs) | (4)<br>REGIME3<br>(forward-looking before fixed) |
|---|---|---|---|---|
| Log inflation | 0.11<br>(-0.48) | -0.009<br>(-0.04) | -0.19<br>(-0.83) | 0.16<br>(0.82) |
| Hyper | -1.79<br>(-2.38) | -1.98<br>(-2.54) | -1.47<br>(-1.86) | -1.86<br>(-2.32) |
| Open | -3.49<br>(-5.95) | -3.46<br>(-5.63) | -3.56<br>(-6.08) | -1.17<br>(-3.69) |
| Manufl | 11.96<br>(4.20) | 11.12<br>(3.50) | 13.51<br>(4.62) | 8.54<br>(3.64) |
| Polins | -0.91<br>(-1.98) | -1.38<br>(-2.59) | -0.75<br>(-1.59) | -0.30<br>(-0.90) |
| Govseats | -2.58<br>(-2.77) | -1.88<br>(-1.87) | -3.06<br>(-3.23) | -2.01<br>(-2.64) |
| Efpart | -0.30<br>(-2.31) | -0.26<br>(-1.99) | -0.37<br>(-2.53) | -0.23<br>(-2.10) |
| Trend<br>N | Yes<br>562 | Yes<br>380 | Yes<br>538 | Yes<br>562 |

*Note:* z-statistics in parentheses.

Column 4 inverts the order of the dependent variable. As discussed above, there are arguments in favor of placing the fixed variable at the beginning of the order, as done throughout the chapter. But there are also arguments that would suggest placing the preannounced crawling pegs and bands at the beginning of the order. In particular, countries may fix for different reasons, but they only adopt preannounced crawls in order to reduce the rate of inflation, even at the expense of competitiveness. For this reason, column 4 orders the regimes in the following way: 1) forward-looking (or preannounced) crawling pegs and bands; 2) fixed; 3) flexible; and 4) backward-looking crawling pegs and bands.[44] As in the previous regression, the only change is that political instability loses significance.

[44] It is worth noting that, since the dependent variable is ordinal rather than cardinal, this does not imply important changes, given the scarcity of observations in the forward-looking grouping. There are only 29 observations in this grouping out of a total of 910.

In summary, Table 2.7 suggests that the results are quite robust to changes in the specification of the model.

### *Economic Interpretation of the Results*

While the tables presented above show the statistical significance of the variables of interest, they do not express the economic significance of these variables. In order to explore their economic significance under the ordered logit model, more calculations are needed. This contrasts with OLS models, in which the impact of the different explanatory variables can be directly seen from the size of the coefficients. This section provides the economic interpretation for one of the regressions shown above: the second column of Table 2.7, which excludes the Bretton Woods years, a period when there is very little variation regarding the exchange rate regime.

The exercise carried out is the following: for each non-dummy variable, the change in the probability of each regime is calculated when the variable of interest increases by one standard deviation, centered on the mean, and all the other variables remain at their means. For the dummy variables, the change in the probabilities is calculated when the dummy goes from 0 to 1.[45] The results of the calculations are presented in Table 2.8.

The first column in the table presents the changes in the probability of each regime when the log inflation variable changes by one standard deviation around its mean.[46] This change of one standard deviation around the mean is equivalent to an increase in inflation from around 2 percent to 90 percent. Consistent with the results of the regressions, the effect of this variable on the probability of the different regimes is minimal. In contrast, hyperinflation has a large effect on the probabilities. Having inflation greater than 1,000 percent increases the probability of adopting a fixed exchange rate regime by nearly 21 percentage points. Openness also has important effects. A change in openness from 47 to 86 percent (representing a one standard deviation increase, centered on the mean) increases the probability of adopting a fixed exchange rate regime by 25 percentage points.

The effect of the share of manufacturing in GDP is quite substantial as well. A 5.5 percentage point increase in the share of manufacturing, centered on its mean, reduces the probability of a fixed regime by 11 percentage points. This means that each percentage point increase in the share

[45] While the marginal effects are often used to interpret the effects of explanatory variables in the logit models, Long (1997) argues in favor of looking at the impact of discrete changes instead, given that the effects are non-linear.

[46] The mean and standard deviations correspond to the 1973-94 period.



**Table 2.8. Economic Interpretation: Change in the Probability of the Different Exchange Rate Regimes in Response to Changes in Explanatory Variables (Using regression 2, Table 2.7)**

| | Log inflation | hyper | open | manufl | polins | govseats | efpart |
|---|---|---|---|---|---|---|---|
| Mean of variable | 0.336363 | 0.0254 | 0.66505 | 0.1857 | 0.1503 | 0.595 | 2.4429 |
| Change in variable[1] | 0.629907 | 1 | 0.3968 | 0.0553 | 1 | 0.2009 | 1.3122 |
| Δp(fixed) | 0.0012 | 0.2076 | 0.2503 | -0.1129 | 0.1928 | 0.0695 | 0.0632 |
| Δp(forward-looking) | -0.0002 | -0.0487 | -0.0437 | 0.0209 | -0.0416 | -0.0129 | -0.0118 |
| Δp(flexible) | -0.0006 | -0.1016 | -0.1200 | 0.0547 | -0.0942 | -0.0337 | -0.0307 |
| Δp(backward-looking) | -0.0004 | -0.0574 | -0.0866 | 0.0373 | -0.0571 | -0.0228 | -0.0207 |

[1]The magnitude of the change in the explanatory variable is one standard deviation around the mean, in the case of the non-dummy variables, and 1 in the case of dummy variables.

of manufacturing in GDP reduces the probability of fixing by around two percentage points. As will be seen below, the effect of the share of manufacturing has changed substantially across time, in line with the predictions above regarding the impact of trade liberalization. Political instability increases the probability of fixing by 19 percentage points, while an increase of one standard deviation in the share of government seats in the legislature, and the effective number of parties, increase the probability of a fixed regime by 7 and 6 percentage points, respectively.

Since these effects are non-linear, and vary depending on the value of the explanatory variables at which they are measured, it is worthwhile to look at some of them in more detail. Particular attention will be paid to the effects of the manufacturing share, the share of government seats in the legislature, and the effective number of parties. It is worthwhile to further explore the differential impact that the share of manufacturing can have under highly protected trade policy and liberalized trade conditions. The probabilities of each regime are therefore presented as a function of the share of manufacturing for 1975 and 1992. In 1975, all countries for which data were available were highly protectionist. In 1992, almost all countries in the sample had liberalized their trade flows substantially. Comparing Figures 2.1 and 2.2, which show the cumulative

**Figure 2.1. Effect of Share in Manufacturing on Regime Choice, 1975**

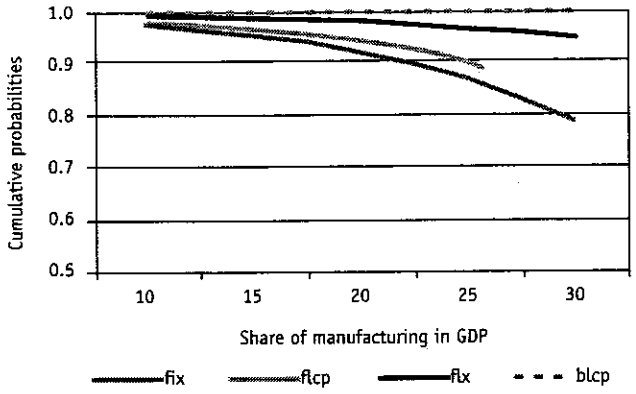
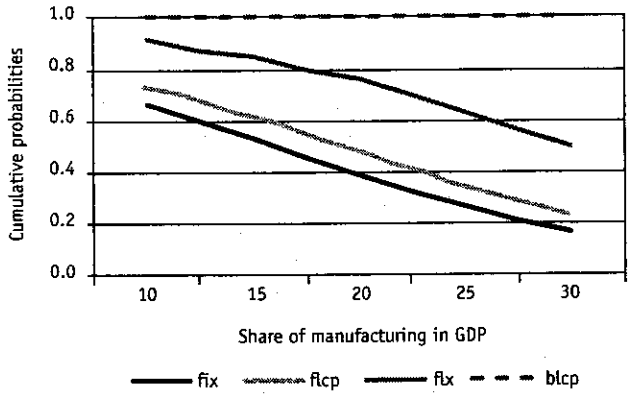


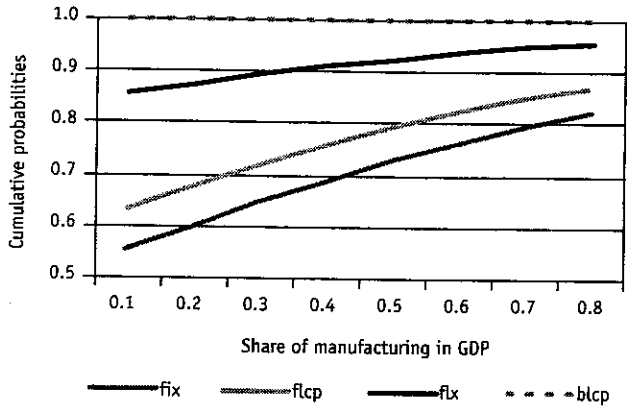

**Figure 2.2. Effect of Share in Manufacturing on Regime Choice, 1992**




probabilities for the different regimes, it is easy to see that the effects of the manufacturing share on regime choice are much larger during periods of liberalization. For example, a change in the share of manufacturing from 15 percent to 25 percent in 1975 would have been associated with a reduction in the probability of choosing a fixed regime of around 8.5 percentage points. In contrast, in 1992, a similar change would have led to a reduction in the probability of adopting a fixed regime of nearly 25.8



**Figure 2.3. Effect of Share of Government Seats on Regime Choice**




percentage points. Similarly, the probability of adopting a backward-looking crawl would have increased by 2 and 21 percentage points in 1975 and 1992, respectively.

The effect of changes in the share of government seats on the probability of the different regimes is shown in Figure 2.3. The probability of a fixed regime increases with the share of government seats. Furthermore, while there are non-linearities in the effects, these do not seem to be that important. For example, an increase of one standard deviation (equivalent to 20 percentage points) in the share of government seats starting from 10 percent increases the probability of a fixed regime by 9 percentage points, while a similar increase starting from 60 percent raises the probability of a fixed regime by 6.2 percentage points.

Figures 2.4 and 2.5 show the effects of the number of parties on the choice of regime. As discussed above, the strength of the opposition could be an important variable when the government does not control the legislature, since it may be easier to form coalitions when different small groups are competing for the perks that may be involved in forming an alliance with the government. However, this variable is not expected to be as important when the government already has control of the legislature. This hypothesis has already been explored in the first set of regressions, but in that case no information was obtained about the magnitude of the effects. Figure 2.4 shows the impact of the effective number of parties when the share of government seats in the legislature is 30 percent, while Figure 2.5 shows the same when the share of government

**Figure 2.4. Effect of Effective Number of Parties on Regime Choice (govseats=0.30)**

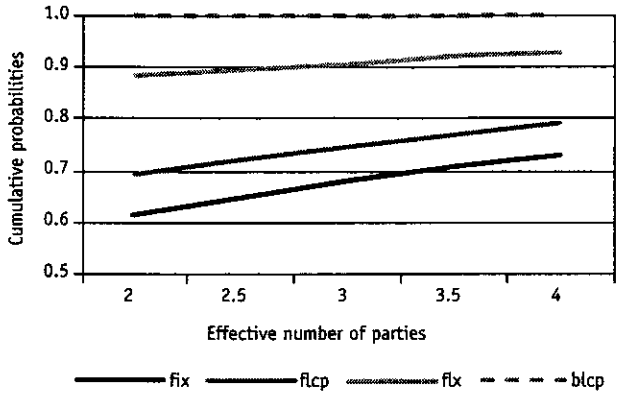
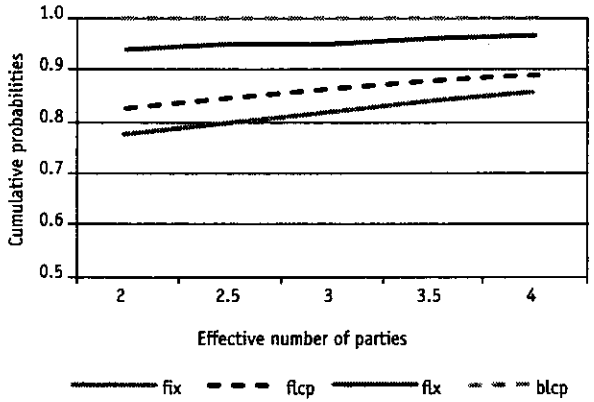



**Figure 2.5. Effect of Effective Number of Parties on Regime Choice (govseats=0.7)**




seats is 70 percent. Comparing both figures reveals that the effects are larger when the government does not control the legislature. In this case, for example, an increase from two to three parties results in an increase in the probability of a fixed regime of 6 percentage points. By comparison, when the government controls 70 percent of the seats, a similar increase in EFPART results in an increase in the probability of a fixed regime of 4.3 percentage points. This complements the results of the last regression in



Table 2.5, which suggested that the effective number of parties is not significantly different from 0 when the government controls the legislature, but is significant when it does not.

## Elections, Changes in Government, and the Timing of Devaluations[47]

In addition to the more structural variables that can affect the choice of regime, the timing of shifts in exchange rate policy may also be affected by the timing of political events such as elections and changes in government. If there is in fact a political cost associated with devaluation, as suggested by Cooper (1971), at no time should that cost be more salient than before elections. The run-up to an election is the time when the gap between the politician's discount rate and that of the public is at its peak. Governments may be willing to let the economy incur large costs in the long term (here the long term starts immediately after the election, or, at most, after the change in government) in exchange for (real or apparent) benefits in the short run. In contrast, at no time should the political cost of devaluation be smaller than immediately after the transfer of government, as the incoming government can blame the outgoing one for making the devaluation necessary.

This has led to many episodes of electorally motivated delays in devaluations, including the Cruzado Plan in Brazil in 1986, the failed Primavera Plan in Argentina in 1989, and the 1994 Mexican Peso crisis. Under the Cruzado Plan, the exchange rate peg gave rise to mounting current account deficits. But "in the best Brazilian political tradition," according to Cardoso (1991), corrective actions were put on hold until right after the legislative elections. The main element of the Primavera Plan in Argentina was the reduction of the rate of crawl in an attempt to moderate inflation in the run-up to the 1989 presidential elections (Heymann, 1991). However, a speculative attack led to a sharp devaluation that ended the stabilization attempt before the elections, with disastrous electoral results for the ruling party. Regarding the Mexican experience in 1994, Obstfeld and Rogoff (1995) have noted that the skepticism over exchange rate commitments prevailing at the time was compounded by the government's previous track record of devaluing in presidential election years.[48]

[47] This section draws on Stein and Streb (1999).

Why are devaluations politically costly? First, devaluations can have a negative effect on real income, particularly in the short term, through a variety of channels. On the one hand, they increase the demand for domestic output by increasing the price of foreign goods relative to domestic goods. This is the substitution effect, which is expansionary. On the other hand, they reduce real wealth, provided that some of it is in domestic currency. This is a contractionary income effect. In addition, devaluations shift income from wage earners with a high propensity to spend to profit recipients with a low propensity to spend. As this shift involves many losers and few winners, it can be particularly costly around elections.[49] For a long time, it has been argued that in the case of developing countries, devaluations are contractionary (see Díaz Alejandro, 1963, and Krugman and Taylor, 1978), which means that the income effect is larger than the substitution effect. The most recent empirical evidence is not conclusive, but it suggests that the effect is likely to be contractionary in the short term but more neutral in the long term.[50] Before elections, naturally, the predominant focus is on what happens in the short term.

Stein and Streb (1998, 1999) identify another channel through which devaluations can be politically costly in the context of a rational political budget cycle model in the Rogoff (1990) tradition. Voters dislike devaluation (which, in the context of the one-sector model used by the authors, coincides with the rate of inflation) because it acts as a tax on money balances. Governments face a tradeoff between devaluation today and tomorrow, and, with incomplete information, they exploit this tradeoff for electoral purposes, using a low rate of devaluation before elections as a signal of their competence, thus increasing their chances of reelection. Hence, the pattern of devaluations around elections is part of a political budget cycle, a feature that has been overlooked in conventional stories of political budget cycles that concentrate on a closed economy.[51] The model in Stein and Streb (1999) has very clear-cut empirical implications: governments do not always have incentives to manipulate exchange rates around elections.

[48] Until 1994, the exact timing in Mexico had been after elections, but before the change in government. In this way, the outgoing president would spare his successor (who was actually named by the incumbent) the political cost of devaluing. This pattern changed in 1994, when the devaluation occurred after the change in government.

[49] There are, of course, other important channels through which a devaluation affects real income. For a comprehensive account, see Agenor and Montiel (1996).

[50] The counterpart of this is the expansionary effects associated with exchange rate-based stabilization in the short run, characterized by the real appreciation of the currency (see Kiguel and Liviathan, 1993). This is one reason why stabilization programs put in place shortly before elections tend to be based on the use of the exchange rate as a nominal anchor (Stein and Streb, 1998).

[51] See Rogoff (1990), Rogoff and Sibert (1988) and Persson and Tabellini (1990). An exception to the focus on the closed economy is Clark (1998).



But when they do, it is always in the same direction: postponement of devaluations until after elections.

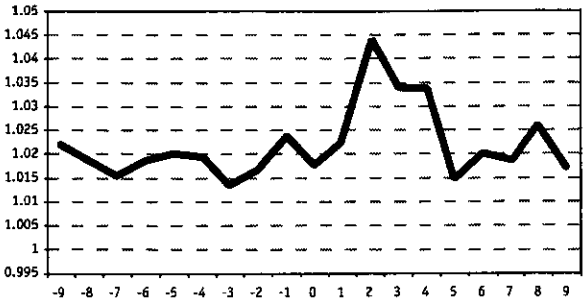
Even if one were to rule out manipulative theories, an alternative source of exchange rate movements in electoral years is uncertainty regarding the election results. Not only is it uncertain who the winner will be, but there is also uncertainty regarding the policies each candidate will follow. In this case, however, the pattern of the exchange rate around elections is not as clear. Part of the devaluation could occur before the elections take place, reflecting increased uncertainty, and the chances of the different candidates. After the elections, the exchange rate would appreciate or depreciate, depending on who the winner was and which economic policies were followed. In expected value, one should not anticipate a devaluation immediately after elections through this channel.

What does the existing evidence say? There are a few more systematic empirical studies that look at the relationship between elections, changes in government, and the timing of devaluations. This incipient literature appears to support the hypothesis that devaluations tend to be delayed until after elections or government changes. A recent study of fiscal policy in Latin America by Gavin and Perotti (1997) examines the determinants of shifts in exchange rate regimes from fixed to flexible. They find that the likelihood of such a shift increases significantly right after an election. Klein and Marion (1994) study the duration of exchange rate pegs to the U.S. dollar for a sample of 17 Latin American countries over 1956-91. In contrast with Gavin and Perotti, who focus only on regime shifts, these authors consider step devaluations as the end of one spell and the beginning of another. They find that the likelihood a peg will be abandoned increases immediately after an executive transfer. Edwards (1993) studies the timing of 39 large devaluations (15 percent or more) in democratic regimes, and finds that they tend to occur early on in the term in office. Edwards suggests that governments tend to follow the classic rule of "devalue immediately and blame it on your predecessors."

The purpose of this chapter is to extend the empirical literature regarding the pattern of nominal and real exchange rates around political events such as elections and changes in government. The data on elections and changes in government is based on Nohlen (1992) and on the Lijphart Elections Archive.[52]

[52] See http://dodgson.ucsd.edu/lij/

**Figure 2.6. Nominal Exchange Rate Depreciation around Elections (Presidential and Parliamentary) - 242 Episodes**




## The Evidence

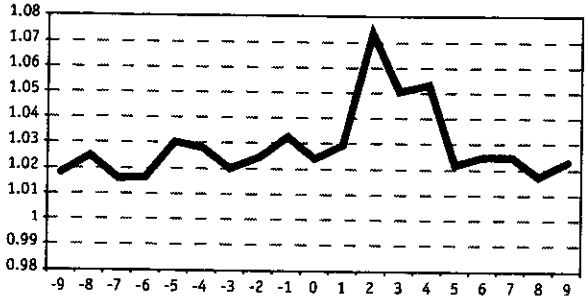
The methodology used is a very simple one. It involves studying the pattern of nominal and real exchange rates around major political events (elections and government changes) by averaging the behavior of the relevant exchange rate variables around these events, covering all the episodes of each type. It is easiest to describe the method by using an example such as the pattern of nominal exchange rate changes around elections. First, all election episodes in the database are pulled together (a total of 242, counting both presidential and parliamentary elections). The behavior of nominal exchange rates is considered by looking at a 19-month window centered on elections. For each episode, month 0 corresponds to the month of the election, month -1 the month prior to the election, and so on. The rate of nominal depreciation across all episodes is then averaged for each of the 19 months in the window (-9 through 9). The average nominal rate of depreciation, month by month, is presented in Figure 2.6.

The pattern in the figure is striking and provides strong support for the hypothesis that devaluations are delayed until after elections. In months 2, 3 and 4 after an election, the average rate of nominal depreciation is 2 percentage points higher than it is for other months, and the average rate of depreciation is more than doubled. The larger effect occurs two months after the election. (It should be stressed that geometric rather than arithmetic averages were used in order to lessen the effects of outliers.[53])

[53] The figure calculated with arithmetic averages was even more striking.



**Figure 2.7. Nominal Exchange Rate Depreciation around Elections (Presidential) - 131 Episodes**




The pattern is even stronger when only presidential elections are considered, as shown in Figure 2.7. In this case, the average rate of nominal depreciation in month 2 reaches 7 percent, around 4.5 percentage points higher than in other months. The behavior of the nominal exchange rate around parliamentary (non-presidential) elections, in contrast, did not show any interesting pattern.

Are devaluations delayed until after elections, or after government changes? The previous pictures do not provide a clear answer, since different countries at different times have different lags between the dates of elections and those of government changes. It is clear from Figure 2.8 that the most relevant event is the change in government. In this case, all the effect is concentrated in month 1, when the depreciation is some 5.5 percentage points higher than in other months. The fact that devaluations occur two to four months after elections reflects the fact that the lag between the election and the change in government in most cases is between one and three months. This suggests that, while in some cases such as Mexico pre-1994, the outgoing government implemented the devaluation, in most cases the incumbent does not want to endure the political cost of the devaluation, even once the election has taken place. An interesting topic for future research is whether the pattern differs for the cases where one government is followed by another government of the same party.

Figure 2.9 restricts the episodes to constitutional government changes. The effect is even stronger: the average devaluation one month after elections is now greater than 10 percent, and around 7 percentage points higher than in other months. In contrast, Figure 2.10 shows that that the effects in the case of non-constitutional changes in government

**Figure 2.8. Nominal Exchange Rate Depreciation around Governmental Changes - 187 Episodes**

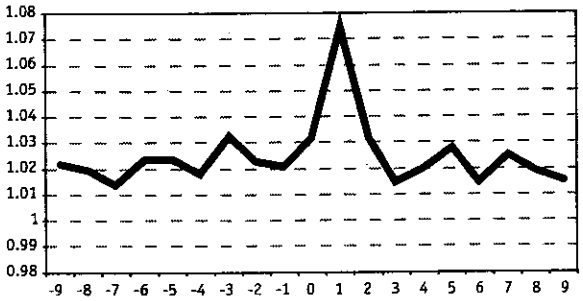



**Figure 2. 9. Nominal Exchange Rate Depreciation around Constitutional Changes - 118 Episodes**

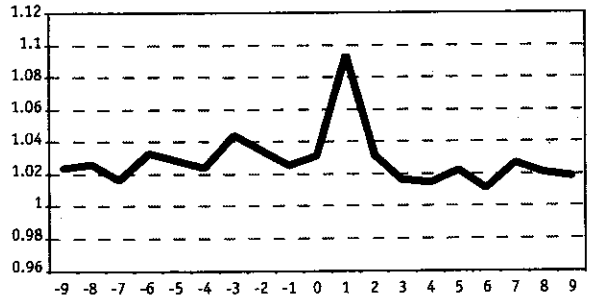



**Figure 2.10. Nominal Exhange Rate Depreciation around Nonconstitutional Changes - 69 Episodes**

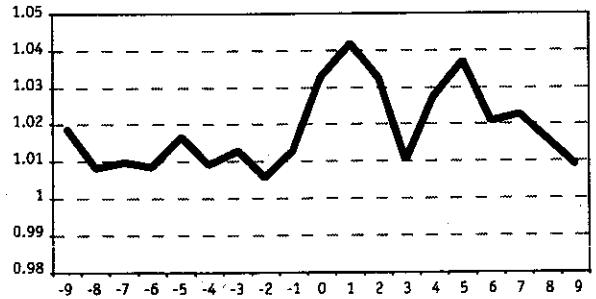





**Figure 2.11. Real Exchange Rate around Elections (Presidential) - 106 Episodes**

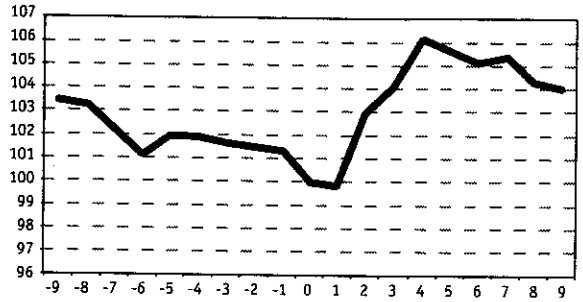
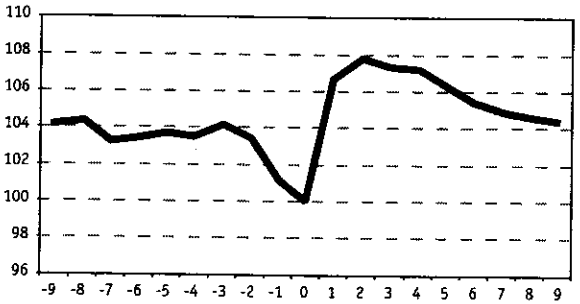



**Figure 2.12. Real Exchange Rate around Constitutional Changes - 86 Episodes**




are much smaller. In this case the depreciation starts in month 0, which would suggest that, at least in some cases, the changes in government are endogenous to exchange rate crises. This is a matter which, again, is left for future research.

The real exchange rate shows a similar pattern. In this case, to make the level of the exchange rate comparable across countries, the real exchange rate in each country is normalized so that the (geometric) average would be 100. For the purposes of the figures, the month-by-month averages are normalized so that they would be 100 at time 0 (the date of the election or the change in government). Figure 2.11 shows the pattern of the real exchange rate around presidential elections. There is a gradual 3 percent appreciation in the months preceding an election, followed by a much steeper depreciation after elections have taken place. As with the nominal

**Table 2.9. Probabilities of Changes in Real Exchange Rate between t and t+6**

| Size of real depreciation | All cases | Recently inaugurated constitutional govt. | Impending presidential elections |
|---|---|---|---|
| <-25% (app) | 1.18 | 1.63 | 2.18 |
| -25% to -20% | 1.27 | 2.09 | 0.24 |
| -20% to -15% | 2.28 | 2.09 | 4.36 |
| -15% to -10% | 4.57 | 5.81 | 6.05 |
| -10% to -5% | 12.86 | 9.53 | 15.74 |
| -5% to 5% | 60.89 | 56.51 | 53.51 |
| 5% to 10% | 7.47 | 6.74 | 7.75 |
| 10% to 15% | 2.84 | 3.72 | 3.63 |
| 15% to 20% | 1.82 | 2.09 | 2.91 |
| 20% to 25% | 0.98 | 0.00 | 0.97 |
| >25% | 3.84 | 9.76 | 2.66 |
| No. of observations | 7,247 | 430 | 413 |

exchange rate, the real depreciation, which totals 6 percent, occurs in months 2 through 4. From month 5 onwards, the real exchange rate returns to the pattern of gradual appreciation. As with the nominal exchange rate, the pattern is even more clear around constitutional government changes (see Figure 2.12), when most of the depreciation (almost 7 percent) occurs in month 1, and the appreciation resumes in month 3.

The preceding figures show a very clear picture of the average behavior of nominal and real exchange rates around major political events. However, it is interesting as well to know something about the distribution of the behavior of the exchange rate around these events. In order to see this, we look at the probability at any given time that the real exchange rate will appreciate or depreciate by certain pre-specified amounts during the following six months. These probabilities are presented in the first column of Table 2.9. The last figure in the column indicates that, at any point in time, the probability of a real depreciation of 25 percent or more within six months is 3.84 percent.

A subsequent question is how these probabilities change around major political events. More specifically, what are these probabilities if there is a constitutional government change sometime between t+1 and t+5? A government change in the middle would be expected to increase the probability of a large real depreciation. The probabilities, which appear in column 2 of the table, confirm the priors. The probability of a large real depreciation of at least 25 percent is now close to 10 percent. Thus, the change in government



increases the probability of a large devaluation by a factor of 2.5.

How do these probabilities change when there is a presidential election immediately after t+6 (or more precisely, if the election occurs between t+7 and t+10)? The resulting probabilities are listed in column 3. An impending presidential election, as expected, reduces the probability of a large real depreciation by more than 30 percent. The most interesting comparison, however, is between columns 2 and 3 in the table. Compared to the "impending presidential election" situation, the "recently inaugurated constitutional government" case is 3.7 times more likely to have produced a large real depreciation (of 25 percent or more). In contrast, the "impending election" scenario is 2.4 times more likely to have produced a real appreciation (larger than 5 percent).

## Conclusions

This chapter has explored the political economy determinants of exchange rate policy in Latin America, finding that political economy factors have in fact played a role in shaping exchange rate policy. In particular, there is evidence that governments with strong support in the legislature tend to choose fixed regimes, as do governments that face a fragmented opposition. This is in line with the idea that sustaining a fixed rate may require politically difficult fiscal adjustment, and that strong governments are in a better position to engineer such an adjustment. At the same time, these findings may be capturing the fact that governments with strong support in Congress suffer a smaller political cost in case of devaluation.

Economies with an important manufacturing sector are more prone to adopt either floating regimes or backward-looking crawling pegs, both of which tend to deliver more competitive exchange rates. The influence of the manufacturing sector on the exchange regime appears more important in periods when trade was liberalized, so that this sector had to face the competition of foreign producers. This result is complemented by similar findings in the country studies in this book on Peru and Colombia.

Finally, there is strong evidence that major political events such as elections and government changes affect the path of nominal and real exchange rates. More specifically, devaluations tend to be delayed in the run-up to elections, and only occur immediately after the new government takes office.

## References


Agenor, P. and Montiel, P. 1996. *Development Macroeconomics.* Princeton: Princeton University Press.

Aghevli, B., M. Khan, and P. Montiel. 1991. *Exchange Rate Policy in Developing Countries: Some Analytical Issues.* IMF Occasional Paper No. 78. International Monetary Fund, Washington, DC.

Bernhard, W., and D. Leblang. 1999. Democratic Institutions and Exchange-Rate Commitments. *International Organization* 53(1): 71-97.

Blomberg, S.B., and G.D. Hess. 1997. Politics and Exchange Rate Forecasts. *Journal of International Economics* 43: 189-205.

Calvo, G.A., and C.M. Reinhart. 2000. Fear of Floating. University of Maryland, College Park, MD. Mimeo.

Calvo, G., C. Reinhart, and C. Végh. 1995. Targeting the Real Exchange Rate: Theory and Evidence. *Journal of Development Economics* 47: 97-133.

Cardoso, E. 1991. From Inertial to Megainflation: Brazil in the 1980s. In M. Bruto et al. (eds.), *Lessons of Economic Stabilization and its Aftermath.* Cambridge, MA: MIT Press.

Clark, W., and U. Reichert. 1998. International and Domestic Constraints on Political Business Cycles in OECD Economies. *International Organization* 52(1).

Collins, S. 1996. On Becoming More Flexible: Exchange Rate Regimes in Latin America and the Caribbean. *Journal of Development Economics* 51: 117-38.

Cooper, R. 1971. *Currency Devaluations in Developing Countries.* Essays on International Finance 86. Princeton University, Princeton, NJ.

Cottarelli, C., and C. Giannini. 1998. Credibility Without Rules? *Monetary Frameworks in the Post-Bretton Woods Era.* IMF Occasional Papers 154. International Monetary Fund, Washington, DC.

Cukierman, A. 1992. *Central Bank Strategy, Credibility and Independence: Theory and Evidence.* Cambridge, MA: MIT Press.

Díaz Alejandro, C.F. 1963. A Note on the Impact of Devaluation and the Redistributive Effect. *Journal of Political Economy* 71: 577-80.

Edison, H., and M. Melvin. 1990. The Determinants and Implications of the Choice of an Exchange Rate System. In W. Haraf and T. Willett (eds.), *Monetary Policy for a Volatile Global Economy.* Washington, DC: American Enterprise Institute.

Edwards, S. 1996. *The Determinants of the Choice of Between Fixed and Flexible Exchange Rate Regimes.* NBER Working Paper 5576. National Bureau of Economic Research, Cambridge, MA.





_____. 1994. The Political Economy of Inflation and Stabilization in Developing Countries. *Economic Development and Cultural Change* 42(2).

Eichengreen, B. 1995. The Endogeneity of Exchange Rate Regimes. In P. Kenen (ed.), *Understanding Interdependence: The Macroeconomics of the Open Economy.* Princeton, NJ: Princeton University Press.

Frieden, J. 1998. The Political Economy of European Exchange Rates: An Empirical Assessment. Harvard University. Mimeo.

_____. 1994. Exchange Rate Politics: Contemporary Lessons from American History. *Review of International Political Economy* 1(1): 81-103.

Gavin, M., and R. Perotti. 1997. Fiscal Policy in Latin America. In B.S. Bernanke and J. Rotemberg (eds.), *NBER Macroeconomics Annual.* Cambridge, MA: MIT Press.

Giavazzi, F., and M. Pagano. 1988. The Advantage of Tying One's Hands: EMS Discipline and Central Bank Credibility. *European Economic Review* 32(2): 1055-75.

Goldfajn, I., and R. Valdés. 1999. The Aftermath of Appreciations. *Quarterly Journal of Economics* 114(1): 229-62.

Green, W. 1997. *Econometric Analysis.* Upper Saddle River, NJ: Prentice Hall.

Grilli, V., D. Masciandaro, and G. Tabellini. 1991. Institutions and Policies. *Economic Policy* 6: 341-91.

Hausmann, R., M. Gavin, C. Pagés, and E. Stein. 1999. Financial Turmoil and Choice of Exchange Rate Regime. Inter-American Development Bank Research Department Working Paper 400, Washington, DC.

Hausmann, R., U. Panizza, and E. Stein. 2000. *Why Do Countries Float the Way They Float?* Inter-American Development Bank Research Department Working Paper 418, Washington, DC.

Hefeker, C. 1997. *Interest Groups and Monetary Integration.* Boulder, CO: Westview Press.

Heymann, D. 1991. From Sharp Disinflation to Hyperinflation, Twice: The Argentina Experience. In M. Bruno et al. (eds.), *Lessons of Economic Stabilization and its Aftermath.* Cambridge, MA: MIT Press.

Kenen, P.B. 1969. The Optimum Currency Area: An Eclectic View. In R.A. Mundell and A. Swoboda (eds.), *Problems of the International Economy.* Chicago: University of Chicago Press.

Kiguel, M., and N. Ghei. 1993. *Devaluations in Low-Income Countries.* Policy Research Working Paper 1224. World Bank, Washington, DC.

Klein, M., and N. Marion. 1997. Explaining the Duration of Exchange-Rate Pegs. *Journal of Development Economics* 54: 387-404.

Krugman, P., and L. Taylor. 1978 Contractionary Effects of Devaluation. *Journal of International Economics* 8: 445-56.

Lijphart, A. Lijphart Elections Archive. http://dodgson.ucsd.edu/lij/

Lizondo, J.S. 1993. *Real Exchange Rate Targeting under Imperfect Asset Substitutability.* IMF Staff Papers 40: 829-51.

_____. 1991. Real Exchange Rate Targets, Nominal Exchange Rate Policies and Inflation. *Revista de Analisis Económico* 6: 5-22.

Long, J.S. 1997. Regression Model for Categorical and Limited Dependent Variables. Advanced Quantitative Techniques in the Social Sciences, No. 7. Sage Publications, Thousand Oaks, CA.

McKinnon, R.I. 1962. Optimum Currency Areas. *American Economic Review* 53: 717-25.

Miniane, J. 2000. New Measures of Capital Account Restrictions. Unpublished.

Montiel, P.J., and J. Ostry. 1992. *Real Exchange Rate Targeting under Capital Controls: Can Money Provide a Nominal Anchor?* IMF Staff Papers 39: 58-78.

_____. 1991. *Macroeconomic Implications of Real Exchange Rate Targeting in Developing Countries.* IMF Staff Papers 38: 872-900.

Mundell, R.A. 1961. A Theory of Optimum Currency Areas. *American Economic Review* 51: 657-64.

Nohlen, D. 1993. *Enciclopedia Electoral Latinoamericana y del Caribe.* San José, Costa Rica: Instituto Interamericano de Derechos Humanos.

Obstfeld, M., and K. Rogoff. 1995. The Mirage of Fixed Exchange Rates. *Journal of Economic Perspectives* 9: 73-96.

Persson, T., and G. Tabellini. 1990. *Macroeconomic Policy: Credibility and Politics.* London: Harwood Academic Publishers.

Posen, A. 1995. *Central Bank Independence and Disinflationary Credibility: A Missing Link?* Federal Reserve Bank of New York Staff Reports, No. 1 (May).

Rogoff, K. 1990. Equilibrium Political Budget Cycles. *American Economic Review* 80: 21-36.

Rogoff, K., and N. Sibert. 1988. Elections and Macroeconomic Policy Cycles. *Review of Economic Studies* 55(1): 1-16.

Roubini, N. 1991. Economic and Political Determinants of Budget Deficits in Developing Countries. *Journal of International Money and Finance* 10: S49-S72.

Roubini, N., and J. Sachs. 1989. Political and Economic Determinants of the Budget Deficits in the Industrial Democracies. *European Economic Review* 33: 903-38.

Sachs, J. 1985. *External Debt and Macroeconomic Performance in Latin America and East Asia.* Brookings Papers on Economic Activity: 2.



Stein, E., and J.M. Streb. 1999. Elections and the Timing of Devaluations. Inter-American Development Bank Research Department Working Paper 396, Washington, DC.

_____. 1998. Political Stabilization Cycles in High Inflation. *Journal of Development Economics* 56(1): 159-80.

Tavlas, G. 1994. The Theory of Monetary Integration. *Open Economies Review* 5(2).

Tornell, A., and A. Velasco. *Fixed versus Flexible Exchange Rates: Which Provides More Fiscal Discipline?* NBER Working Paper 5108. National Bureau of Economic Research, Cambridge, MA.

Weber, A. 1991. Reputation and Credibility in the European Monetary System. *Economic Policy* 12.

Zárate, R. Zárate's Political Collections. http://www.terra.es/personal2/monolith.