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Long-Run Determinants of Exchange Rate Regimes: A Simple Sensitivity Analysis

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Long-Run Determinants of Exchange Rate Regimes: A Simple Sensitivity Analysis

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Abstract

Many studies have attempted to uncover empirical regularities in how countries choose their exchange rate regimes. We survey previous studies showing that, taken as a whole, the literature is inconclusive. Drawing on a large dataset with many potential explanatory variables and a variety of exchange rate regime classifications, we test old and new theories and confirm that no robust empirical regularities emerge.

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I. INTRODUCTION

Do countries deliberately choose the exchange rate regime that best suits their economic and institutional characteristics? Or do countries attempt to live with the exchange rate regimes they inherit from the accidents of history or from the complex interactions that took place between the economic and political conditions that were prevailing when a major shock struck in the distant past? The determinants of exchange rate regime choice have been extensively analyzed by both theoretical and empirical studies, and some studies have found systematic empirical relationships. However, our review of the existing evidence shows that different empirical studies have often obtained different results, suggesting that it is very difficult to make simple generalizations about how countries choose their exchange rate regimes. Nevertheless, in the present study, we attempt to give a fair hearing to old and new theories by testing them on the basis of both old and new exchange rate regime classifications. Existing theories (for example, optimum currency area theory) primarily relate to the long-run determinants of exchange rate regime choice, focusing on variables (for example, size and openness) that do not change much over time. In order to keep that focus on long-run determinants, we rely on cross-country regressions in our empirical analysis. Our results confirm that very little is known about how countries choose their exchange rate regimes.

Empirical studies on the determinants of exchange rate regimes in a cross section of countries have been abundant ever since many countries moved to floating rates in the aftermath of the breakup of the Bretton Woods system.[2] We review them in Section II, showing that different studies have produced vastly different results for each given potential determinant of exchange rate regime choice, depending on their sample of countries, period analyzed, methodology, and other determinants included in the estimation. In our own empirical analysis, we consider a large number of such potential determinants.

A set of ever-present difficulties in empirical studies of exchange rate regime choice relates to regime classification. Most previous studies have analyzed an official classification of exchange rate regimes entirely based upon countries' self-reporting, published by the International Monetary Fund in its annual report on *Exchange Arrangements and Exchange Restrictions*. However, many countries' actual behavior diverges considerably from the descriptions reported to the IMF: in particular, the exchange rates of many "floaters" are de facto maintained within very narrow bands vis-à-vis a major currency, such as the U.S. dollar, through active management of reserves and interest rates (see, for example, Calvo and Reinhart, 2002). Beginning with the 1999 issue (which presents end-1998 data), the IMF classification has begun incorporating the IMF staff's views, "correcting" some cases in which the de facto system was clearly different than what had been reported by the authorities. We present results based on the IMF classifications for the end of 2000 and the end of 1990 (revised), which make adjustments

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[2] An excellent survey of the pre-1990 literature on the causes and consequences of exchange rate regime choice is Edison and Melvin (1990).

based upon the IMF staff's views.[3] In addition, we use the classification produced by Levy-Yeyati and Sturzenegger (2000), which is entirely based upon the observed behavior of exchange rates and reserves. To facilitate comparison with earlier studies, we also use the original IMF classification for end-1990 data.

This is by no means the first "skeptical" paper on this topic. Its closest precursor in spirit is by Honkapohja and Pikkarainen (1994), who use a similar empirical strategy and report that country characteristics such as openness, development, geographical diversification of trade, and fluctuations in the terms of trade have hardly any power in explaining exchange rate regime choice. They find only tentative support for the view that small countries with low commodity diversification of foreign trade tend to peg their exchange rates. Our study benefits not only from a decade of additional data but also from new exchange rate classifications. In particular, we are able to use measures of de facto exchange rate flexibility constructed by other researchers. Moreover, the last decade has seen the emergence of new testable hypotheses, such as the view that only extreme regimes are sustainable. Such hypotheses provide a more solid theoretical rationale for using non-ordered estimation techniques, though these techniques had already been used by Honkapohja and Pikkarainen (1994). At a broader methodological level, our approach is similar to that of Levine and Renelt (1992), who conducted a sensitivity analysis of cross-country growth regressions.

Finally, we introduce two small technical innovations into this literature: in some specifications, (i) we address the potential endogeneity of openness to exchange rate regime choice by using country characteristics such as land area and a landlocked dummy as instrumental variables;[4] and (ii) we restrict our cross-country regressions to those countries that have not changed their exchange rate regime for a number of years, to focus on countries that appear to be in a "long-run equilibrium" with respect to their exchange rate regime.

The remainder of this paper is structured as follows. Section II provides a very selective overview of old and new theories of exchange rate regime choice. Section III reviews previous empirical findings. Section IV presents the data and methodology. Section V reports the results. Section VI concludes.

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[3] The same type of classification is now published in the IMF's *Annual Report* and has been used by Fischer (2001).

[4] This follows Frankel and Romer (1999) in a different context.

II. A WORD ON THEORIES OF EXCHANGE RATE REGIME CHOICE

The theoretical literature on the long-run determinants of exchange rate regime choice is vast, and often controversial.[5] Some authors argue that variables such as large size and low openness are likely to be associated with floating exchange rates, as predicted by the literature on optimum currency areas that originated in the 1960s.[6] Other authors, beginning in the 1970s, have emphasized the size and nature of economic shocks as potential determinants of exchange rate regime choice.[7] Some have argued that, for example, higher volatility of terms of trade might be associated with floating regimes, which help cushion such real external shocks. There is a debate, however, even regarding the potential impact of some of these variables with a longer tradition in the literature, or at least regarding the interpretation of any empirical findings related to them. For example, while some authors argue that openness may provide an incentive to maintain fixed rates, others point out that foreign shocks are more important in countries that are more open, increasing the appeal of floating rates as a shock absorber; or that higher openness provides greater scope for a deep market for foreign exchange, making it easier to have a floating regime. Moreover, it has been argued that openness itself might be endogenous to the exchange rate regime, casting doubt on whether an association between openness and— say—fixed exchange rate regimes could be given an unambigious causal interpretation.

Several authors have recently placed renewed attention on the consequences of heightened capital mobility, pointing out that the policy requirements to maintain exchange rate pegs have become more stringent. According to this "hollowing of the middle" hypothesis, greater capital mobility prompts countries to move toward either extreme end of the spectrum between hard pegs such as currency unions or currency boards, and pure floats.[8] Taken to the data, this hypothesis implies that countries with an open capital account should tend to have either hard pegs or pure floats. As always, the interpretation of the empirical findings will only be clear to the extent that the relevant measure of capital account openness is used. For example, capital controls are likely to be subject to reverse causality: controls might make it easier to sustain a fixed exchange rate regime (though they may not be needed by countries with hard pegs such as currency unions and currency boards). De facto capital openness, measured by the ratio of inflows plus outflows to GDP, might be a better candidate as an exogenous regressor to test this recent hypothesis.

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[5] For a survey see, for example, Tavlas (1994).

[6] The optimum currency area literature began with Mundell (1961). A review of this literature is provided, for example, by Ricci (1997).

[7] An early contribution is Fischer (1977).

[8] See, for example, Obstfeld and Rogoff (1995) and Eichengreen (1994, 1998).

A final set of potential long-run determinants of exchange rate regime choice relates to the institutional and historical characteristics of a country. Even in this case neither theory nor casual observation provides unambiguous answers. Lack of institutional strength or political instability may make it more difficult to sustain a peg, but may also increase the attractiveness of tying one's hands through a currency board, as was done by many transition or post-chaos countries, or countries with a history of high inflation. In a similar vein, some currency boards and currency unions that were established by the colonial powers have survived to this day, whereas others were jettisoned by the new authorities soon after gaining independence.

III. REVIEW OF PREVIOUS EMPIRICAL FINDINGS

Several empirical studies have analyzed the determinants of exchange rate regime choice in a cross section of countries. Among the first studies of this kind are Heller (1978), who analyzed the determinants of exchange rate regimes with data from the mid-1970s, soon after the generalized floating that followed the breakup of the Bretton Woods system, Dreyer (1978), Holden, Holden, and Suss (1979), Melvin (1985), Bosco (1987), Savvides (1990), and Cuddington and Otoo (1990 and 1991). More recent efforts in this direction include Rizzo (1998) and Poirson (2001).

Some studies, such as those by Collins (1996), Edwards (1996 and 1998) and, more recently, Frieden, Ghezzi, and Stein (2000), have used random effects panel data to analyze also the determinants of *changes* in exchange rate regime. As such, they can be seen as somewhat related to the recent literature on predicting exchange rate crises. We include these studies in our review because they report findings on the role of country characteristics that are relatively stable over time (such as openness) in determining exchange rate regime choice.[9] Another recent study, by Berger, Sturm, and de Haan (2000), uses panel data in an attempt to identify the long-run determinants of exchange rate regime choice.

A detailed review of existing studies including an explanation of their methodological differences is beyond the scope of this paper. Suffice it to say that these are original and useful contributions to the literature, and that they have used sensible methodologies. This merely reinforces our key point that it is genuinely very difficult to explain how countries choose their exchange rate regimes.

The vast majority of previous studies have attempted to explain exchange rate regime choice as self-described by countries in the IMF's *Exchange Arrangements and Exchange Restrictions* annual report. A few studies have constructed and used measures of the degree of de facto floating on the basis of the actual observed volatility of exchange rates and reserves: these include Holden, Holden and Suss (1979) and, more recently, Poirson (2001). As mentioned

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[9] We nevertheless recognize that this was a by-product of estimations whose main objective was different than the key question examined in the present paper.

above, in some of our estimates we rely on the recently-developed but already well-known de facto exchange rate regime classification drawn from Levy-Yeyati and Sturzenegger (1999).[10] Table 1 summarizes the approaches and findings of these studies with regard to the impact of several variables on observed exchange rate regime choice. Most studies considered some of the optimum currency area variables, such as trade openness (typically measured as imports plus exports, divided by GDP), the size of the economy (gross domestic product in common currency), the degree of economic development (GDP per capita), and geographical concentration of trade (the share of trade with the country's main partner). Among macroeconomic variables, several studies included inflation (whether the country's own inflation, or inflation in excess of partner countries) and foreign exchange reserves. Many studies included an indicator of either capital controls (typically also drawn or constructed from the IMF's *Exchange Arrangements and Exchange Restrictions* report) or de facto capital openness (e.g., the ratio of foreign assets of the banking system to the money supply). Some studies included measures of volatility of domestic output, exports, domestic credit, or the real exchange rate, although no two studies seem to have looked at the same measure of volatility. A few studies considered variables related to political economy or institutional strength. Most studies analyzed some variables that were not included in any preceding (or subsequent) studies. Collectively, the studies considered more than 30 potential determinants of exchange rate regime choice. (We include in our table only the variables considered by more than one study.)

No result appears to be reasonably robust to changes in country coverage, sample period, estimation method, and exchange rate regime classification. For example, openness—the most frequently analyzed variable—is found to be significantly associated with floating regimes by three studies, significantly associated with fixed exchange rates by three studies, and not significantly associated with any particular exchange rate regimes by another five studies. Per capita GDP is found to be significantly associated with floating regimes by three studies, significantly associated with fixed exchange rates by two studies, and not significantly associated with any particular exchange rate regime by another three studies. And so on.

There are a few possible exceptions, notably size of the economy and inflation. Size of the economy turns out to be positively associated with floating in almost all studies, though not always significantly. Inflation is almost always positively and significantly associated with floating. However, in the case of inflation there are serious questions regarding the functional form of the relationship. In a number of studies, the authors use the inflation rate or the inflation differential (rather than their logarithms or similar transformations), leaving open the possibility that the results might be driven by a few influential observations. Moreover, Collins (1996) finds

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[10] The LYS classification has already been used not only by Levy-Yeyati and Sturzenegger (2001), but also by other researchers: for example, Masson (2001) uses it, in addition to the IMF classification, to analyze exchange rate regime transitions. Our goal is not to assess the relative merits of the IMF and LYS classifications, but simply to show that our main conclusions hold with either classification.

Table 1. Studies on Determinants of Exchange Rate Regimes (Likelihood to Float)

Author	Heller (1978)	Dreyer (1978)	Holden, Holden & Suss (1979)	Melvin (1985)	Savvides (1990)	Cuddington & Otoo (1990, 1991)	Honkapohja & Pikkarainen (1994)
Sample	86 countries	88 developing countries	76 countries	64 countries	39 developing countries	66 countries	125 countries
Time frame	1976	1976	1974-75	1976-78	1976-84	1980, 83, 86	1991
Methodology	Discriminant analysis	Probit	OLS on a continuous measure	Multinomial logit	Two-stage probit	Ordered/non-ord. Mult./bin. logit	Logit and probit

Explanatory variables

(OCA factors)

	Heller (1978)	Dreyer (1978)	Holden, Holden & Suss (1979)	Melvin (1985)	Savvides (1990)	Cuddington & Otoo	Honkapohja & Pikkarainen
Openness	−	− ^^	− ^^	•	−	+/− ^	− ^
Economic development			+ ^^		+ ^^		− ^
Size of economy	+	+		+ ^^		+	+
Inflation differential	+		+ ^^	+		+ ^	
Capital mobility			−		− ^^		
Geographical trade concentration	−	− ^^	−	−	+		
International financial integration	+						+/−

(Other macro/external/structural factors)

Growth							
Negative growth							
Inflation							
Moderate to high inflation							
Reserves							
Capital control							
Terms of trade volatility							+
Variability in export growth							
External variability * Openness							
Real exchange rate volatility					+ ^^		
Product diversification		− ^^			− ^^		
Current account							
External debt							
Growth of domestic credit							
Money shocks				− ^^	−		
Foreign price shocks				+ ^^	+ ^		

(Political/historical factors)

Political instability							
Central bank independence							
Party in office has majority							
Number of parties in coalition							
Coalition government							

+ indicates that the coefficient of explanatory variable is positive and − that is negative.

+/- indicates the coefficient is either positive or negative depending on the specification or method used.

^^ indicates the coefficient is statistically significant in most cases.

^ indicates the coefficient is statistically significant in some specifications.

• indicates not significant but sign not reported by the author.

Table 1 (Concluded). Studies on Determinants of Exchange Rate Regimes (Likelihood to float)

Author	Collins (1996)	Edwards (1996)	Edwards (1998)	Rizzo (1998)	Frieden, Ghezzi & Stein (2000)	Berger, Sturm & de Haan (2000)	Poirson (2001)
Sample	24 Latin American and Caribbean	63 countries	49 developing & middle–income	123 countries	26 Latin American countries	65 developing countries	93 countries
Time frame	1978-92	1980-92	1980-92	1977-95	1960-94	1980-94	1990-98
Methodology	Probit (panel)	Probit (panel)	Probit (panel)	Probit	Ordered logit (panel)	Probit (panel)	Ordered probit

Explanatory variables

(OCA factors)							
Openness	+ ^			+ ^	− ^^	+ ^^	−
Economic development	•	+ ^	− ^^	+/− ^			+/−
Size of economy	+ ^^			+ ^^			+ ^
Inflation differential							
Capital mobility							
Geographical trade concentration					− ^^		+
International financial integration							

(Other macro/external/structural factors)							
Growth		+ ^^	+ ^^			+	
Negative growth	− ^						− ^^
Inflation		+ ^^	+ ^^	+ ^^			+ ^
Moderate to high inflation	+ ^^				− ^^		
Reserves		− ^^	− ^	+/− ^^	+ ^^	+ ^	− ^
Capital control		+/− ^			+ ^		− ^
Terms of trade volatility				+ ^^	− ^^		+ ^
Variability in export growth		+ ^^	+				
External variability * Openness		− ^^	− ^^				
Real exchange rate volatility		+ ^	+ ^^				
Product diversification							+ ^
Current account	− ^^			+/− ^^			
External debt				+ ^		+ ^^	
Growth of domestic credit		+ ^^	+ ^				
Money shocks							
Foreign price shocks							

(Political/historical factors)							
Political instability		+ ^^	+ ^^		− ^^	+ ^	+ ^^
Central bank independence					+	+ ^	
Party in office has majority		− ^	− ^				
Number of parties in coalition		+	+				
Coalition government		−	−				

+ indicates that the coefficient of explanatory variable is positive and − that is negative.

+/- indicates the coefficient is either positive or negative depending on the specification or method used.

^^ indicates the coefficient is statistically significant in most cases.

^ indicates the coefficient is statistically significant in some specifications.

• indicates not significant but sign not reported by the author.

that high inflation affects exchange rate regime choice in the opposite direction than low/moderate inflation does, and significantly so.

Abstracting from the issue of functional form, there are serious questions about possible causal interpretations of the association between inflation and exchange rate regimes. First, causality might run in both directions: high inflation may make it difficult to sustain exchange rate pegs, but exchange rate pegs (especially hard pegs) might also help curb inflation. Second, both inflation and exchange rate regime are intimately connected as part of the overall monetary policy package chosen by the country. And it does not seem appropriate to think of a country's monetary policy as a long-run, structural feature of a country. Rather, inflation and the exchange rate regime are likely determined by other long-run country characteristics. In our preferred specifications we therefore omit the inflation rate. Nevertheless, to permit comparability with other studies, we show that the association between inflation and floating can be reproduced at least in some specifications using our sample. Similarly, we are concerned that causality does not run only from reserves to exchange rate regimes: countries that decide to float will not need large reserves. We include reserves in our list of regressors, but again only for comparability with other studies.

A number of the variables related to volatility also turn out to be significant in the individual studies that consider them. Leaving aside the issue of robustness across more than one study, it is not clear whether these volatilities can be assumed to be exogenous to the exchange rate system, when theory suggests that a floating exchange rate operates as a shock absorber.[11] In our own estimation, we only analyze terms of trade volatility, for which concerns about possible endogeneity may be somewhat mitigated.

The lack of robust findings across studies for practically all variables does not bode well for attempts to find systematic determinants of exchange rate regime choice. Nevertheless, we strive to search for the potential determinants in a thorough manner, using many of the variables that have been used by previous researchers, and some that have not. When we exclude variables that have been used by previous researchers, we explain our rationale for omitting them. We apply standard estimation methods to a variety of country samples and exchange rate regime classifications.

IV. EXCHANGE RATE REGIME CLASSIFICATIONS, DATA, AND ESTIMATION STRATEGY

A. Exchange Rate Regime Classification

Like the majority of previous studies, we begin with the IMF classification drawn from the annual report on *Exchange Arrangements and Exchange Restrictions*. As mentioned above, while still beginning from the countries' self-reporting, the IMF has recently begun "correcting"

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[11] The paper by Savvides (1990) makes an admirable attempt to take into account the joint determination of real exchange rate volatility and the exchange rate regime.

this classification on the basis of the IMF staff's views on de facto exchange rate regimes for cases where deeds are clearly different from words.[12] Most of the corrections relate to countries that state they are floating, despite de facto stability of their exchange rate vis-à-vis a major currency such as the U.S. dollar.

For the IMF classification at end-2000, we group exchange rate regimes as follows: (i) "hard pegs," including currency unions, currency boards, and countries with no separate legal tender; (ii) "floats", including managed floats and independent floats; and (iii) "intermediates," including all other, i.e., conventional pegs, crawling pegs, crawling bands, and basket pegs. As a variant on this approach, we define a group of "pure floats" consisting of independent floats only, and shift managed floats into the residual group of "intermediates." For end-1990 (whether using the original classification, or a revised classification incorporating the staff's views on de facto regimes at the time), we group exchange rate regimes as: (i) "pegs," including not only hard pegs, but also conventional pegs; (ii) floats, including managed floats and independent floats; and (iii) "intermediates," including all other, i.e. crawling pegs, crawling bands, and basket pegs. We define group (i) more broadly for end-1990 to ensure that we have enough countries with available data in this group, and also to make our approach somewhat more similar to that of studies using data from 1990. Again, we consider a variant where we define a group "pure floats" consisting of independent floats only.

An alternative classification, entirely based upon deeds rather than words, has been produced by Levy-Yeyati and Sturzenegger (LYS, 1999), who apply cluster analysis to countries' observed volatility of exchange rates and international reserves. The cluster with high volatility of reserves and low volatility of exchange rates identifies the group of fixers, and the cluster with low volatility of reserves and high volatility of exchange rates identifies the group of floaters. For the LYS classification (1999), we use their 3-way classification (fix, float, and intermediate) yielded by their "second round" estimates, and leave as "not available" those countries where their "second round" results are inconclusive. We consider both the 1999 and the 1990 classifications produced by LYS. The database has been generously made available by the authors at www.utdt.edu/~ely/papers.html.

To summarize, we consider the following five classifications/years: (1) IMF for end-2000; (2) IMF for end-1990, revised on the basis of the IMF staff's views on de facto regimes; (3) IMF for end-1990, original classification based upon self-reporting only; (4) LYS for 1999; and (5) LYS for 1990.

B. Sample of Countries

Our sample includes all countries for which data are available. For some variables we have data for up to 184 countries, but the sample declines when we include several explanatory variables in our estimates. Depending on the set of explanatory variables, our main regressions include

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[12] See Johnston et al. (1999).

between 75 and 130 countries for the IMF classification and between 45 and 75 countries for the LYS classification. We also estimate regressions (available upon request) for subsets of countries such as all non-advanced countries, including both developing and transition economies. One advantage of restricting some of the estimates to non-advanced countries is that we can abstract from the case of EMU, where it has often been argued that the choice to move to monetary union was based upon political as much as economic considerations.

Many countries seem to change their exchange rate regime often, and many have adopted their current exchange rate regime only recently. In these cases it might be particularly difficult to argue that the exchange rate regime observed at end-2000 is necessarily a long-run solution. We therefore present a number of regressions in which we only include those countries with the same exchange rate regime in 1990, 1995, and 2000.

C. List of Potential Determinants of Exchange Rate Regimes

The potential determinants of exchange rate regimes we include in our analysis are the following. (Unless indicated otherwise, these are averages of available data over 1990-99 in regressions with the end-2000 classification as a dependent variable; and over 1980-89 in regressions with the end-1990 classification as a dependent variable.) The data are drawn from the IMF's *International Financial Statistics* (IFS) unless indicated otherwise.

Optimum Currency Area Variables

- Trade openness: ratio of imports plus exports to GDP.
- Share of trade with the largest trading partner: exports to the largest trading partner as a share of total exports, from the IMF's *Direction of Trade Statistics*.
- Economic size: the logarithm of total GNP in U.S. dollars at purchasing power parity, from the World Bank's *World Development Indicators* (WDI).
- Per capita GNP: Total GNP in U.S.dollars at purchasing power parity in 1999 from the WDI, divided by population.
- Standard deviation of terms of trade: from the United Nations Conference on Trade and Development (UNCTAD) for non-advanced countries, and IFS for advanced countries.
- Fuel exporters: dummy variable taking the value of 1 if the country is a major fuel exporter according to the IMF's *World Economic Outlook* database (findings not reported for the sake of brevity).

The instrumental variables intended to control for potential endogeneity of openness to the exchange rate regime are land area (from WDI) and a dummy variable for whether the country is landlocked.

Capital Openness Variables

- Capital controls: (on a 0-4 scale) the sum of four dummy variables that take the value of one if the country has (a) multiple exchange rates, (b) current account restrictions, (c) capital account restrictions, and (d) export proceeds surrender requirements, respectively, all from *Exchange Arrangements and Exchange Restrictions*, IMF.
- *De facto* openness to capital flows: absolute value of inward and outward flows of financial assets and liabilities (the sum of the absolute values, if available, of IFS lines 78bdd, 78bed, 78bfd, 78bgd, 78bhd, and 78bid),[13] as a ratio to GDP.
- Emerging markets: dummy for whether a country is included in the J.P. Morgan bond index, that is, for whether the country can issue bonds on international markets (findings not reported for the sake of brevity).

Macroeconomic Variables

- Inflation: the logarithm of one plus the (percent) inflation rate.
- Reserves: reserves as a share of imports.

Historical and Institutional Variables

- Post-1945 independence: dummy for whether the country became independent after 1945.
- Years since independence: date of independence minus 1945 when independent after 1945; zero otherwise.
- Political instability: on a 0-12 scale; the average of (a) government stability; (b) external conflicts; and (c) political violence and internal conflicts; from the *International Country Risk Guide* (ICRG) issued by the *Political Risk Services Group*.
- Transition countries: dummy for whether a country is defined as a transition economy in the IMF's *World Economic Outlook* database.

D. Estimation Strategy

We adopt a variety of approaches, in an effort to establish that our failure to find convincing relationships does not result from overlooking a particular approach. The upshot of this is a very large number of regression results, which we report in summary form in the main tables. The full detail is provided in the appendix tables (available upon request as a pdf file). We estimate cross-country regressions for a variety of years (either end-2000 or end-1990), estimation techniques (bivariate probits or multinomial logits), regime classifications (see section IV.A), and sets of right-hand-side variables (see Section IV.C).

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[13] If the data are missing for more than four of these lines, then the observation for the country in question is recorded as not available.

Our interest in long-run determinants of exchange rate regime choice leads us to confine our estimation to cross-country regressions. Using panel data to analyze the long-run determinants of exchange rate regime choice would be problematic, as many potential determinants do not change much over time for many countries. Unobserved factors for a given country in a given year are highly likely to be correlated with the same unobserved factors for the same country in previous years, casting doubt on the assumptions needed to use random effects. Few observed factors change sufficiently over time to make fixed effects panels attractive; in any case, those variables that do change over time, such as inflation or perceptions of political instability, might even be more likely to be endogenous in a time series context than they are in a cross-country context; and the use of lags to correct for this problem would not be fully satisfactory as these variables are highly autocorrelated.

We begin by reporting the summary statistics of the potential determinants of exchange rate regime choice, by regime group, and test whether the means of such potential determinants are significantly different across regime groups. We then turn to regression analysis. In cases where we collapse the exchange rate regimes into two groups (hard pegs versus all other; floats versus all other; or pure floats versus all other) we use probits. In cases where we collapse the exchange rate regimes into three groups (hard pegs, floats, and all other; or hard pegs, pure floats, and all other) we use multinomial logits.[14]

We initially run regressions of exchange rate regimes on a large set of potential determinants, including trade openness, share of trade with the main trading partner, size of the economy, degree of economic development, capital controls, de facto capital openness, post-war independence, number of years since independence, political stability, inflation, and reserves. This is not the full list of variables for which we have data, but adding variables would force us to restrict the sample. In our judgement, this is as large a set of variables as is compatible with having a full data set for a reasonably large number of countries.

As shown below, we find that, with a few exceptions in some specifications but not others, basically no variable turns out individually significant in these initial regressions. It might be argued that, with all these variables in the regression, one would be unlikely to get significant results. Moving to a more parsimonious baseline specification by applying a formal "general to the specific" procedure would be difficult on the basis of the generally insignificant results we obtain. Instead, we select the three variables for our baseline regression on the basis of the

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[14] We do not estimate multinominal logits for classifications into more than three regime groups. As is well known, the *independence-of-irrelevant-alternatives* property renders multinomial logits inappropriate when two or more of the alternatives are close substitutes, because the relative probabilities of choosing two existing alternatives are unaffected by the addition of an irrelevant category. We are comfortable that—say—hard pegs, intermediate regimes, and floats are not close substitutes, but worry that with further subdivisions (e.g., of intermediate regimes into crawling pegs, crawling bands, etc...) some categories would become excessively close substitutes.

following criteria: (i) they have been used by many previous studies; (ii) they have a solid theoretical underpinning, though as noted above there is no consensus on the direction of their effects; and (iii) they are available for a large number of countries. These variables are trade openness, the logarithm of gross national product at purchasing-power-parity, and the share of trade with the countries' largest trading partner.[15] We then run regressions including four explanatory variables, by adding to the baseline, in turn, each of the variables for which we have data. Our exercise is similar to that undertaken by Levine and Renelt (1992), but substantially simplified, as in our case it is relatively easy to drive the point home.

V. RESULTS

We begin by reporting the means of a number of potential determinants of exchange rate regimes for hard pegs, intermediate regimes, and floats, based upon the IMF end-2000 classification of regimes (Table 2). Using one-way analysis of variance, we find several instances in which the means of possible determinants of exchange rate regimes are significantly different across groups of countries: at the 5 percent level of significance, large countries, countries with a low share of trade in GDP, countries with high inflation, politically stable countries, and transition countries are all more likely to float than to have hard pegs or intermediate regimes; and countries with low capital controls are more likely to have hard pegs than intermediate or floating regimes. However, as shown below, most of these bivariate relationships are no longer significant when controlling for other variables in the context of regression analysis.

Before moving to regression analysis, we report the correlation matrix for the potential determinants of exchange rate regimes we consider (Table 3). Even though many of such potential determinants are correlated with each other, there do not seem to be obvious signs that multicollinearity underlies the absence of significant and robust results we find in our regressions.

Turning to regression analysis, we begin with probit regressions of exchange rate regimes on the largest number of possible determinants that is consistent with having a reasonably large sample of countries (Table 4). For the five classifications/years listed above, we consider, in turn, hard pegs (or pegs, or fixed rates, depending on the exact classification) versus all other types of exchange rate regime; floating regimes versus all others; and pure floats versus all others. Although a few variables turn out to be significant, none is significant with the same sign in a reasonable number of specifications.

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[15] We also experimented with a baseline including gross national product per capita at purchasing power parity in addition to the three variables mentioned above, and obtained essentially the same results.

Table 2. Summary Statistics of Explanatory Variables Under Different Exchange Rate Regimes

	IMF 2000			P-value for Comparison of Means[1]
	Fixed	Intermediate	Float	
	Mean (Number of observations)			
Share of trade with largest trading partner	29.88 (39)	28.74 (51)	29.47 (74)	0.9523
Economic size	23.45 (37)	23.46 (53)	24.53 (71)	0.0063
Per capita GNP	9018.38 (37)	6926.90 (52)	5917.81 (70)	0.1062
Standard deviation of terms of trade	17.48 (23)	24.32 (31)	22.45 (47)	0.1891
Trade openness	93.05 (36)	87.20 (49)	67.27 (57)	0.0089
Capital control	1.37 (43)	1.95 (61)	1.93 (76)	0.0291
De facto openness to capital flows	19.81 (39)	143.99 (52)	10.86 (71)	0.2722
Inflation	0.10 (37)	0.12 (55)	0.35 (71)	0.0001
Reserves	0.22 (36)	0.35 (47)	0.27 (59)	0.0565
Years since independence	16.55 (42)	16.02 (59)	16.56 (75)	0.9801
Political instability	8.74 (25)	8.69 (36)	7.94 (50)	0.0293
Fuel exporters	0.07 (46)	0.16 (61)	0.05 (77)	0.0601
Emerging markets	0.11 (46)	0.13 (61)	0.18 (77)	0.4992
Transition countries	0.09 (46)	0.07 (61)	0.25 (77)	0.0045
Post-1945 independence	0.70 (46)	0.72 (61)	0.68 (77)	0.8459

[1] P-value is from the one-way analysis of variance framework.

Table 3. Potential Determinants of Exchange Rate Regimes: Correlation Matrix

	shmajtrd	loggnp	gnpppc	totsd	dfuel	open	kcontrol	em	kaopen	loginf	resimp	dtrans	dind1945	depyr	icrg3
Share of trade with largest trade partner (shmajtrd)	1.00														
Economic size (loggnp)	-0.28*	1.00													
Per Capita GNP (gnpppc)	-0.20*	0.47*	1.00												
Standard deviation of terms of trade (totsd)	0.03	-0.30*	-0.39*	1.00											
Fuel Exporters (dfuel)	0.07	0.00	0.01	0.45*	1.00										
Trade openness (open)	0.00	-0.40*	0.15	0.02	0.03	1.00									
Capital control (kcontrol)	0.05	-0.23*	-0.56*	0.30*	0.08	-0.16	1.00								
Emerging markets (em)	-0.09	0.38*	-0.06	-0.08	0.03	-0.16	0.08	1.00							
De facto openness to capital flows (kaopen)	0.09	-0.10	0.22*	-0.11	-0.01	0.41*	0.03	-0.04	1.00						
Inflation (loginf)	0.13	0.08	-0.23*	0.04	0.04	-0.10	0.21*	0.14	-0.05	1.00					
Reserves (resimp)	-0.10	0.03	-0.06	0.09	0.01	-0.13	0.12	0.15	-0.04	-0.06	1.00				
Transition countries (dtrans)	0.00	0.06	-0.08	-0.15	-0.13	0.18*	0.05	0.05	-0.04	0.37*	-0.11	1.00			
Post-1945 independence (dind1945)	0.00	-0.42*	-0.40*	0.27*	0.05	0.25*	0.37*	-0.29*	0.06	0.01	-0.07	0.07	1.00		
Years since independence (depyr)	0.06	-0.42*	-0.25*	0.33*	-0.02	0.48*	0.22*	-0.26*	0.05	0.18*	-0.16	0.50*	0.67*	1.00	
Political instability (icrg3)	-0.21*	0.38*	0.70*	-0.27*	-0.02	0.33*	-0.43*	0.00	0.19	-0.39*	0.07	n.a.	-0.25*	-0.14	1.00

* indicates that the coefficient is significant at the 5% level.

Table 4. Probits

	Pegs vs. All others					Floats vs. All others					Pure floats vs. All others	
	(1) Hard pegs IMF2000	(2) Pegs IMFREV90	(3) Fix LYS1999	(4) Fix LYS1990	(5) Hard pegs IMFREP90	(1) Floats IMF2000	(2) Floats IMFREV90	(3) Floats LYS1999	(4) Floats LYS1990	(5) Floats IMFREP90	(1) Pure floats IMF2000	(2) Pure floats IMFREV90
Trade openness	-0.013 (1.38)	-0.002 (0.29)	-0.063 (2.28)*	-0.015 (0.81)	-0.055 (1.74)	0.004 (0.49)	-0.010 (1.28)	0.024 (1.54)	-0.022 (1.49)	-0.012 (0.84)	-0.002 (0.29)	-0.060 (2.89)**
Share of trade with the largest trading partner	0.003 (0.29)	-0.006 (0.52)	-0.016 (0.69)	-0.017 (0.84)	-0.257 (2.15)*	-0.008 (0.80)	0.002 (0.24)	0.011 (0.66)	0.002 (0.17)	0.040 (2.16)*	0.001 (0.13)	0.011 (0.82)
Economic size	-0.199 (1.12)	-0.231 (1.37)	-1.106 (2.37)*	0.062 (0.19)	-3.628 (2.15)*	0.287 (1.88)	0.037 (0.26)	0.722 (2.43)*	-0.565 (2.09)*	0.467 (1.66)	0.267 (1.67)	-0.395 (1.70)
Per capita GNP	0.000 (0.17)	-0.000 (1.19)	-0.000 (0.15)	-0.000 (1.51)	0.000 (0.45)	0.000 (0.09)	-0.000 (0.42)	0.000 (0.32)	0.000 (1.85)	-0.000 (1.88)	0.000 (0.35)	0.000 (1.01)
Standard deviation of terms of trade	-0.004 (0.28)		-0.006 (0.21)	0.024 (0.74)	0.028 (0.48)	0.005 (0.38)		-0.034 (1.34)	-0.046 (1.78)	0.016 (0.65)	-0.017 (1.06)	
De facto openness to capital flows	0.027 (1.48)	0.006 (0.54)	0.050 (0.76)	0.159 (1.66)	0.026 (1.00)	-0.026 (1.10)	-0.001 (0.11)	-0.107 (1.66)	-0.020 (0.25)	-0.017 (0.55)	-0.004 (0.22)	0.020 (1.30)
Capital control	0.019 (0.08)	0.107 (0.57)	-0.083 (0.20)	-0.659 (1.66)	1.338 (1.53)	0.083 (0.41)	-0.219 (1.22)	0.009 (0.04)	0.568 (1.79)	-0.658 (1.94)	-0.047 (0.22)	-0.774 (2.16)*
Post-1945 independence	-0.250 (0.41)	-0.801 (1.40)	2.905 (1.80)	-0.962 (0.92)	-3.207 (1.41)	-0.080 (0.15)	0.669 (1.39)	-2.955 (2.87)**	1.042 (1.41)	-0.109 (0.17)	0.518 (0.93)	1.086 (1.34)
Years since independence	-0.007 (0.17)	0.067 (2.22)*	-0.108 (1.16)	0.177 (1.97)*	0.225 (2.18)*	0.033 (0.93)	-0.042 (1.41)	0.181 (2.45)*	-0.152 (2.09)*	-0.093 (1.82)	0.018 (0.51)	-0.052 (0.92)
Political instability	-0.025 (0.11)		1.009 (1.86)	0.143 (0.82)	0.530 (1.41)	-0.081 (0.42)		-0.271 (0.92)	0.074 (0.48)	-0.044 (0.23)	-0.214 (1.09)	
Inflation	-2.945 (1.76)	-5.735 (3.55)**	-3.525 (1.20)	-3.556 (0.97)	-49.487 (2.54)*	2.133 (1.85)	0.202 (0.38)	-2.053 (1.65)	-2.138 (1.66)	6.112 (2.18)*	1.655 (1.48)	-0.021 (0.03)
Reserves	-1.368 (1.07)	-0.264 (0.25)	-0.458 (0.18)	-2.449 (1.11)	-0.464 (0.13)	-0.037 (0.03)	-0.399 (0.34)	1.928 (1.07)	4.470 (2.43)*	-4.038 (1.98)*	0.966 (0.88)	0.097 (0.06)
Observations	75	106	47	55	74	75	106	47	55	74	75	106

Absolute value of z statistics in parentheses
* significant at 5%; ** significant at 1%

IMF2000 is the IMF classification for 2000, which begins with countries' self-reporting but incorporates the IMF staff's views. IMFREV90 is the original IMF classification for 1990, purely based on countries' self-reporting. IMFREP90 is a revision of the original IMF classification for 1990, incorporating the IMF staff's views.
LYS1999 and LYS1990 are the Levy-Yeyati Sturzenegger classifications for 1999 and 1990, respectively.

As noted above, the correlation matrix for the potential determinants of exchange rate regimes does not lead us to suspect that multicollinearity underlies the absence of significant and robust results. Nevertheless, it seems desirable to narrow down the set of potential determinants to a baseline consisting of trade openness, the share of trade with the largest trading partner, and economic size, adding a fourth potential variable, one at a time. Tables 5A-5C report the results obtained starting from our more parsimonious, baseline specification. For each exchange rate classification (and point in time), we run 11 regressions: one with just the baseline, and 10 with the baseline adding a fourth variable. For each baseline variable we report the minimum and maximum z statistic obtained in the 11 regressions, and the number of times that the variable is significant. For the additional variables, we report the z statistic and highlight whether it is significant. The coefficient on size is significant in several specifications: the larger the country, the more likely it is to float—or to have a pure float—and the less likely it is to have a hard peg. There are also indications that trade openness is negatively associated with floats, and pure floats. The share of trade with the country's main trading partner does not turn out to be significant in more than a few specifications. Among the additional variables, higher inflation is often positively and significantly associated with floats (and negatively and significantly with pegs, or hard pegs), though in the case of this final result causality is especially dubious. Other potential determinants of exchange rate regimes enter significantly in very few specifications.

Turning to multinomial logit regressions, again we do not find robust regularities in the data, despite signs that larger economies are more likely to have floating rates than intermediate regimes, and less likely to have hard pegs than intermediate regimes (Table 6A-B). Of particular interest with this technique, neither de facto capital openness nor capital controls are a robust predictor of whether countries tend to have floats (or pure floats) or hard pegs, rather than intermediate regimes. This suggests that newly popular (and eminently sensible) theories of the determination of exchange rate regimes do not have much predictive power when applied to the data using available indicators.

The absence of robust and significant relationships does not seem to be due to endogeneity of the potential determinants of exchange rate regimes, to the extent that we are able to control for this problem through instrumental variables. We include land area and a landlocked country dummy as instrumental variables, in an attempt to control for the possibility of reverse causality between openness and exchange rate regimes. Table 7 reports the results for the IMF end-2000 classification. Using instrumental variables, openness becomes always positively associated with hard pegs (and negatively associated with floats and pure floats), with a larger coefficient than in the regressions without instruments. At the same time, the relationship between economic size and exchange rate regime becomes much less clear.

Finally, in an attempt to consider only those countries that seem to have reached their "long-run" exchange rate regime, we restrict the sample to those countries that belong to the same exchange rate regime category in 2000, 1995, and 1990. The results are broadly similar to those obtained for the full sample of countries, with large countries more likely to have floats and less likely to have hard pegs (Table 8)

Table 5A. Probit: IMF Classification

Year/Classification Dependent Variable	IMF2000 1 if hard peg, 0 otherwise			IMFREV90 1 if peg, 0 otherwise			IMF2000 1 if float, 0 otherwise			IMFREV90 1 if float, 0 otherwise			IMF2000 1 if pure float, 0 otherwise			IMFREV90 f pure float, 0 otherwi	
Baseline Variables	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig	min. z	#sig
Trade Openness	-0.29	1.01	0	-1.95	1.87	0	-2.5*	-0.87	5	-2.28*	-1.39	6	-2.39*	-1.19	7	-3.47**	11
Share of trade with largest trading partner	-0.28	0.53	0	-1.28	0.49	0	-0.48	0.88	0	0.52	1.18	0	0.31	0.79	0	0.53	0
Economic size	-2.51*	-0.84	2	-4.99**	-1.25	10	0.84	3.06**	6	0.29	1.46	0	1.48	2.13*	2	-1.8	0
Additional Variables	z value	significance		z value	significance		z value	significance		z value	significance		z value	significance		z value	significance
Per capita GDP	2.44	*		-1.65			-2.69	**		-0.15			-0.88			2.71	*
Standard deviation of terms of trade	-1.49			3.26	**		0.73			-0.33			-0.98			-1.19	
De facto openness to capital flows	-0.69			0.24			-0.79			-0.05			-0.21			0.72	
Capital controls	-1.76			2.94	**		1.56			-1.36			-0.79			-3.25	*
Post-1945 independence	-1.65			1.93			2.09	*		0.5			1.06			-0.57	
Years since independence	-1.34			3.01	**		2.63	**		-1.08			0.54			-1.09	
Political instability	1.33			-2.45	*		-1.3			0.1			-1.24			1.79	
Inflation	-1.8			-4.26	**		2.58	**		0.45			1.31			0.57	
Reserves	-1.96			0.41			-0.18			-0.55			0.38			-0.34	
Transition countries	-0.55						2.13	*					-0.7				

* significant at 5%; ** significant at 1%

IMF2000 is the IMF classification for 2000, which begins with countries' self-reporting but incorporates the IMF staff's views. IMFREV90 is a revision of the original IMF classification for 1990, incorporating the IMF staff's views. The three baseline variables are included in all regressions. Additional variables are added one at a time as the fourth regressor in the other regressions. For the baseline variables we report the minimum (min. z) and maximum (max. z) z statistic obtained in any of the 11 regressions, and the number of cases in which the variable is significant (#sig).

Table 5B. Probit: LYS Classification

Year / Dependent Variable	LYS1999 1 if fix, 0 otherwise			LYS1990 1 if fix, 0 otherwise			LYS1999 1 if float, 0 otherwise			LYS1990 1 if float, 0 otherwise		
Baseline Variables	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig
Trade Openness	-1.21	0.07	0	1.25	2.3*	6	-0.62	0.55	0	-1.69	-0.53	0
Share of trade with largest trading partner	-2.56*	-1.68	8	-0.34	0.04	0	0.98	2.11*	6	-0.86	-0.48	0
Economic size	-3.61**	-2.19*	10	-2.73**	0.41	5	3.03**	2.03*	10	-0.32	1.18	0
Additional Variables	z value	significance		z value	significance		z value	significance		z value	significance	
Per capita GDP	1.86			-0.12			0.76			1.77		
Standard deviation of terms of trade	-0.28			0.14			-1.68			-1.61		
De facto openness to capital flows	0.58			0.49			-0.99			0.53		
Capital controls	-0.48			0.38			0.07			-0.81		
Post-1945 independence	1.13			1.08			-0.63			-0.48		
Years since independence	0.96			2.34	*		0.09			-1.36		
Political instability	1.85			1.88			-0.45			1.07		
Inflation	-0.72			-0.86			-1.31			-1.89		
Reserves	-0.68			-0.56			0.32			1.52		
Transition countries	0.39						-0.77					

* significant at 5%; ** significant at 1%

LYS1999 and LYS1990 are the Levy-Yeyati Sturzenegger classifications for 1999 and 1990, respectively. The three baseline variables are included in all regressions. Additional variables are added one at a time as the fourth regressor in the other regressions. For the baseline variables we report the minimum (min. z) and maximum (max. z) z statistic obtained in any of the 11 regressions, and the number of cases in which the variable is significant (#sig).

Table 5C. Probit: Original 1990 IMF Classification

Year Dependent Variable	IMFREP90 Hard Pegs			IMFREP90 Floats		
Baseline Variables	min. z	max. z	#sig	min. z	max. z	#sig
Trade Openness	-1.74	1.57	0	-3.35**	-1.72	9
Share of trade with largest trading partner	-2.09*	-0.5	1	2.49*	1.15	3
Economic size	-4.57**	-1.64	10	-0.93	2.14*	2
Additional Variables	z value	significance		z value	significance	
Per capita GDP	-0.44			-1.48		
Standard deviation of terms of trade	1.45			-0.87		
De facto openness to capital flows	0.29			-0.02		
Capital controls	2.68	**		-1.54		
Post-1945 independence	2.23	*		-1.47		
Years since independence	2.49	*		-2.8	*	
Political instability	0.12			-0.49		
Inflation	-2.97	**		2.69	**	
Reserves	-0.12			-1.26		

* significant at 5%; ** significant at 1%

IMFREP90 is the original IMF classification for 1990, purely based on countries' self-reporting. The three baseline variables are included in all regressions. Additional variables are added one at a time as the fourth regressor in the other regressions. For the baseline variables we report the minimum (min. z) and maximum (max. z) z statistic obtained in any of the 11 regressions, and the number of cases in which the variable is significant (#sig).

Table 6A. Multinomial Logit: IMF Classification

Year	IMF2000						IMFREV90					
	Fix			Float			Fix			Float		
Baseline Variables	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig
Trade Openness	-1.1	-0.18	0	-2.39*	-0.12	4	-2.84**	0.8	1	-2.05*	-0.96	1
Share of trade with largest trading partner	-0.37	0.62	0	-0.86	0.96	0	-1.88	0.86	0	-0.01	1.14	0
Economic size	-1.08	0.26	0	0.44	2.21*	2	-4.58**	-1.09	10	-0.91	0.21	0

Additional Variables	z value	significance	z value	significance	z value	significance	z value	significance
Per capita GDP	1.22		-1.77		-1.67		-0.45	
Standard deviation of terms of trade	-1.31		-0.07		3.3	**	1.67	
De facto openness to capital flows	-0.91		-0.97		0.24		0.06	
Capital controls	-1.01		0.84		2.56	*	-0.12	
Post-1945 independence	-0.69		1.43		2.4	*	1.54	
Years since independence	0.02		2.23	*	2.85	**	0.78	
Political instability	0.71		-0.7		-2.52	*	-0.76	
Inflation	-0.77		1.8		-3.91	**	-1.27	
Reserves	-2.4	*	2	*	0.09		-0.55	
Transition countries	0.69		2	*	0		0	

* significant at 5%; ** significant at 1%

Intermediate regimes are the third regime in the multinomial logit estimation. IMF2000 is the IMF classification for 2000, which begins with countries' self-reporting but incorporates the IMF staff's views. IMFREV90 is a revision of the original IMF classification for 1990, incorporating the IMF staff's views. The three baseline variables are included in all regressions. Additional variables are added one at a time as the fourth regressor in the other regressions. For the baseline variables we report the minimum (min. z) and maximum (max. z) z statistic obtained in any of the 11 regressions, and the number of cases in which the variable is significant (#sig).

Table 6B. Multinomial Logit: LYS Classification

Baseline Variables

Year	LYS1999 Fixed			LYS1999 Float			LYS1990 Fixed			LYS1990 Float		
	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig
Trade Openness	-1.81	0.03	0	-0.84	0.65	0	-2.00*	2.15*	7	-1.88	0.67	0
Share of trade with largest trading partner	-1.9	-0.31	0	0.09	1.1	0	-0.2	-0.93	0	-0.96	-0.06	0
Economic size	-2.98**	-1.23	8	0.23	1.54	0	-2.65**	0.5	3	-2.19*	0.37	1

Additional Variables

	LYS1999 Fixed		LYS1999 Float		LYS1990 Fixed		LYS1990 Float	
	z value	significance	z value	significance	z value	significance	z value	significance
Per capita GDP	2.33	*	1.82		0.96		1.96	*
Standard deviation of terms of trade	-1.25		-1.99	*	-0.62		-1.65	
De facto openness to capital flows	0.44		-0.94		1.26		1.27	
Capital controls	-0.49		-0.16		0.01		-0.53	
Post-1945 independence	0.94		-0.1		1		0.25	
Years since independence	1.15		0.72		2.18	*	0.46	
Political instability	1.79		0.46		2.58	**	2.08	*
Inflation	-1.18		-1.62		-1.25		-1.86	
Reserves	-0.72		-0.13		0.22		1.37	
Transition countries	0.08		-0.61					

* significant at 5%; ** significant at 1%

Intermediate regimes are the third regime in the multinomial logit estimation. LYS1999 and LYS1990 are the Levy-Yeyati Sturzenegger classifications for 1999 and 1990, respectively. The three baseline variables are included in all regressions. Additional variables are added one at a time as the fourth regressor in the other regressions. For the baseline variables we report the minimum (min. z) and maximum (max. z) z statistic obtained in any of the 11 regressions, and the number of cases in which the variable is significant (#sig).

Table 7. Probit: IMF 2000 Classification

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Dependent Variable	Hard Pegs			Floats			Pure Floats		
	min. z	max. z	#sig	min. z	max. z	#sig	min. z	max. z	#sig
Baseline Variables									
Trade Openness	0.17	1.03	0	-1.47	-1.1	0	-1.44	-0.78	0
Share of trade with largest trading partner	0.17	0.58	0	-0.74	0.04	0	-0.52	0.5	0
Economic size	-0.27	0.75	0	-1.13	-0.37	0	-0.95	0.29	0
Additional Variables	z value significance			z value significance			z value significance		
Per capita GDP	-0.48			0.85			1		
Standard deviation of terms of trade	-1.41			0.57			-0.83		
De facto openness to capital flows	-1.12			0.69			0.68		
Capital controls	0.36			-0.86			-1.08		
Post-1945 independence	-1.23			0.96			0.77		
Years since independence	-1.26			1.75			1.15		
Political instability	0.41			0.58			0.76		
Inflation	-1.25			0.9			0.34		
Reserves	0.15			-1.26			0.87		
Transition countries	-0.96			1.74			0.31		

* significant at 5%; ** significant at 1%

IMF2000 is the IMF classification for 2000, which begins with countries' self-reporting but incorporates the IMF staff's views. The three baseline variables are included in all regressions. Additional variables are added one at a time as the fourth regressor in the other regressions. For the baseline variables we report the minimum (min.z) and the maximum (max.z) statistic obtained in any of the 11 regressions, and the number of cases in which the variables is significant (#sig).

Table 8. Multinomial Logit: IMF Classification---Countries That Have Not Changed Their Exchange Rate Systems

Year	IMF2000					
	Hard Peg			Float		
Baseline Variables	min. z	max. z	#sig	min. z	max. z	#sig
Trade Openness	-1.98*	-0.25	1	-2.10*	-1.52	3
Share of trade with largest trading partner	-0.06	1.73	0	0.71	1.38	0
Economic size	-3.16**	-2.00*	11	0.8	1.31	0
Additional Variables	z value	significance		z value	significance	
Per capita GDP	-1.68			-0.67		
Standard deviation of terms of trade	0.47			0.56		
De facto openness to capital flows	-0.62			-0.09		
Capital controls	1.40			-0.26		
Post-1945 independence	1.65			1.01		
Years since independence	0.18			0.33		
Political instability	-1.04			-0.42		
Inflation	-1.82			0.88		
Reserves	-2	*		-1.67		
Transition countries	0			0		

* significant at 5%; ** significant at 1%

Sample includes only those countries with the same exchange rate regime in 1990, 1995, and 2000. IMF2000 is the IMF classification for 2000, which begins with countries' self-reporting but incorporates the IMF staff's views. The three baseline variables are included in all regressions. Additional variables are added one at a time as the fourth regressor in the other regressions. For the baseline variables we report the minimum (min. z) and maximum (max. z) z statistic obtained in any of the 11 regressions, and the number of cases in which the variable is significant (#sig).

VI. CONCLUDING REMARKS

This paper shows that very little is known about the positive determinants of exchange rate regime choice, despite a vast literature on the normative determinants. We show that, viewed as a whole, the existing empirical literature is inconclusive. Our own estimates confirm that neither the variables identified by old theories, including optimum currency area theory, nor other economic or political variables identified by newer theories, including the "hollowing of the middle" hypothesis, are robust predictors of exchange rate regimes in cross sections of countries. If we had to pick one variable that seems to bear some relationship to exchange rate regime choice, size of the economy (total GNP) may be positively associated with floats, and pure floats, and negatively associated with pegs, and hard pegs. But even in that case the relationship is not fully robust.

Our generally negative findings do not necessarily imply that it would be impossible to trace how a given country arrived at its current exchange rate regime, nor do they imply that the choices made along the way were unwise. Rather, particular circumstances may have led the authorities to choose a new regime for good reasons; subsequently they may have maintained it, regardless of whether it could be viewed as the optimal choice in a long-run framework, because within a limited time horizon the costs of changing an exchange rate regime may outweigh the benefits of doing so.

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