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The Choice of Exchange Rate Regimes in Developing Countries: A Mulitnominal Panal Analysis

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The Choice of Exchange Rate Regimes in Developing Countries: A Multinomial Panel Analysis

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Abstract
This paper analyses the choices of exchange rate regimes in developing countries since 1980. Static and dynamic random-effects multinomial panel models are estimated using simulation-based techniques. Explanatory variables include OCA fundamentals, stabilization considerations, currency crises factors, and political and institutional features. The results reveal strong state dependence in regime choices.

Key Words: exchange rate regimes, developing country, multinomial logit model, static and dynamic panel, simulation
JEL Codes : F33, F41, C25

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1. Introduction

The choice of exchange rate regimes has long been a controversial topic among academic economists and policy makers. For most developing countries, it is commonly regarded as their single most important macroeconomic policy decision, which strongly influences the making and efficacy of other macroeconomic policies and is a centrepiece of macroeconomic policy prescriptions given by institutions such as the International Monetary Fund (IMF) or the World Bank. The collapse of the Bretton Woods System in 1973 provided many countries with a far wider range of choices than before. While a few leading currencies in the industrial world moved toward freely floating exchange rate regimes, most countries continued to apply some kind of exchange rate pegs. Since the mid-1980s a trend toward more flexible regimes emerged, and the share of pegged regimes has declined. However, independently floating exchange rates comparable to those of major international currencies remain rare in the developing world. Instead, various types of intermediate arrangements were adopted to combine exchange rate stability with policy flexibility.

The variation in exchange rate regimes invoked research interests to the determination of these choices. Theoretical investigation on the topic can be traced back to the Optimum Currency Area (OCA) theory of the 1960s, where the exchange rate is primarily viewed as an expenditure-switching device for aggregate demand management in general and for balance-of-payments adjustment in particular. This literature develops a list of criteria for favouring fixed-rate regimes against flexible-rate regimes, including high factor mobility (Mundell, 1961), small economic size and high economic openness (McKinnon, 1963), and high production diversity (Kenen, 1969), since exchange rate adjustment is unnecessary or unable to switch expenditures if these criteria are fulfilled. The literature of the 1970s focused on the automatic-stabilizer property of exchange rates in response of nominal and real shocks

(Boyer, 1978; McKinnon, 1981). The main conclusion is that, in terms of output stabilization, fixed-rate regimes perform better if domestic nominal shocks dominate, while flexible-rate regimes are preferable if real shocks are the main source of disturbances. Since both types of shocks tend to coexist and may vary in relative importance, various types of managed floating regimes are recommended. Following the analysis of Barro and Gordon (1983) on the credibility of monetary policy, the literature in the 1980s discusses the possibility of using exchange rates as nominal anchor. Many authors advocate fixing the exchange rate against a low-inflation foreign currency to improve the anti-inflation credibility of the domestic monetary authority (Goldstein, 1980; Melitz, 1988; Fratianni and von Hagen, 1992).

Empirical research on exchange regime choices started in the late 1970s, when more diverse regime choices began to be observed. The early studies selected potential regime determinants based mainly on the OCA criteria (Heller, 1978; Dreyer, 1978), and those in the 1980s added variables to reflect types of shocks and stabilization strategies (Melvin, 1985; Savvides, 1990). Some authors also include institutional and political variables as potential regime determinants (Edwards, 1996; Bernhard and Leblang, 1999; Méon and Rizzo, 2002). A comprehensive approach covering a wide range of regime determinants is adopted by many recent studies (Rizzo, 1998; Poirson, 2001; Juhn and Mauro, 2002; von Hagen and Zhou, 2002a). As summarized in Table 1 for a sample of selected papers, the empirical results seem to be sensitive to the sample composition, data construction, and model specification.[1]

[1] Many papers use various model specifications to analyse the choices of exchange rate regimes, for which Table 1 either reports the main results, which tend to be robust across specifications, or indicates the changing signs of the coefficients. Some papers use explanatory variables not very common in other studies, which are not included in the list of variables here. It should also be noted that some variables, especially real and nominal shocks, have different proxies in different studies. To ease comparisons across studies, Table 1 reports the qualitative impact of each variable on the probability of adopting a fixed or pegged exchange rate regime.

It is clear from Table 1 that many studies (ten out of fourteen under our review, denoted by "B" for regimes) use a simple binary structure to classify exchange rate regimes into either fixed or flexible ones, although the theoretical literature on optimal stabilization suggests that intermediate regimes between the two corner solutions are preferred in the presence of both real and nominal shocks. Seven studies include intermediate regimes as a separate option and use an ordered-choice classification (denoted by "O" for regimes), with the assumption that the degree of regime flexibility is monotone in the regime determinants. Only two studies use a multinomial choice structure (denoted by "M" for regimes), which is a general and flexible framework able to capture both the diversity in regime choices and the complexity in the response of regime choices to the changes in the determinants.

[Table 1 is about here.]

The main estimation methods are cross section and pooled panel analysis. In cross section analysis, exchange rate regime choices of a given year are typically explained by the average values of the independent variables over several previous years. Although it can dampen the effects of temporary disturbances in the regime determinants and attenuate endogeneity problems of these variables, this is less appropriate when substantial volatility is observed in the economic environment or the exchange rate regime itself undergoes frequent changes. Using past averages to explain current choices in such a constellation may result in misleading inferences on the role of some factors. In pooled panel analysis, country heterogeneity in unobserved factors as well as temporal correlation in the regime choices by the same country are ignored. This simplification overlooks the role of credibility and reputation for the desirability and sustainability of exchange rate pegs. In reality, state dependence is likely to play an important role in the choice of exchange rate regimes, since past experiences with a certain regime can influence its desirability and the probability of its being continued. Such a dynamic linkage requires either including lagged regime choices as

explanatory variables, or allowing for serial correlation in the error terms. However, due to technical difficulties in the estimation, especially the heavy computational burden of numerical integrations, panel discrete-choice models are rarely implemented for the explanation of exchange rate regime choices.

This paper aims at filling the blank by introducing a multinomial panel model for the analysis of exchange rate regime choices. We study regime choices in more than 100 developing countries, emerging market economies, and transition economies during the 1980s and the 1990s. The model allows three choices-fixed, intermediate, and flexible regimes-in a non-ordered way and can be easily extended to choice structures with more alternatives. The dynamic linkage among regime choices is modelled by including country-specific random effects to capture auto-correlation as well as lagged regime choices to account for state dependence. The technical difficulty involved in the numerical integrations is solved by adopting a simulation-based estimator (the GHK simulator, see discussion below).

The rest of the paper is organized as follows. Section 2 discusses the classification of exchange rate regimes as well as the potential regime determinants. Section 3 presents our multinomial panel model for exchange rate regime choices and sketch the estimation procedures. The estimation results are discussed in section 4, and section 5 concludes.

2. Exchange Rate Regimes: Choices and Determinants

2.1 The classification of exchange rate regimes

The classification of exchange rate regimes is a controversial task. The exchange rate regimes adopted by developing countries cover a wide range of alternatives, some of which do not fall neatly into the conventional fixed-or-flexible dichotomy. While the difference

between currency boards and freely floating regimes is obvious, that between adjustable pegs and managed floating regimes tends to be blurred, especially when the adjustment is frequent under the former or the management is tight under the latter. Therefore, whether a particular exchange regime should be classified as fixed or flexible is often debatable. To complicate the issue further, there is a general recognition nowadays that in many countries declared exchange rate regimes do not always correspond to the actual exchange rate policies. The discrepancies between *de jure* and *de facto* exchange rate regimes are well documented and have become a research topic in its own right.[2]

In this paper we focus on the official (*de jure*) exchange rate regimes, which countries declare as the regimes they find themselves in. Despite of the fact that a country may renege on the declared regime, the announcement itself reflects the view of the authority as to which exchange arrangement is the most appropriate for the country, and thus can influence market expectations about the behaviour of the exchange rate as well as of the monetary policy. Moreover, in order to understand why countries deviate from the chosen regimes one needs to understand how these choices are made in the first place. This is the aim of this paper.

Countries report their exchange arrangements to the International Monetary Fund (IMF), which publishes its regime classifications based on these reports in the *Annual Report on Exchange Arrangements and Exchange Restrictions* (*AREAER*). In the early years after the breakdown of the Bretton Woods System, the IMF classified all exchange arrangements under two broad rubrics: pegged regimes or more flexible regimes, with pegs to a single foreign currency, to the Special Drawing Rights (SDR), and to other composite currencies being finer categories under the former, and regimes with limited flexibility, with exchange-rate adjustments according to indicators, and with independently floating rates being sub-headings

[2] See Levy-Yeyati and Sturzenegger (2003), Calvo and Reinhart (2002), Reinhart and Rogoff (2003), von Hagen and Zhou (2002b).

under the latter. For the most part of the 1980s and the 1990s, the IMF identified eight exchange rate regimes based on official information (see the left column of Table 2). On January 1, 1999, the IMF switched to a new scheme to classify exchange rate regimes (see the right column of Table 2). The change reflects the IMF's efforts to keep its regime nomenclature a reasonably good labelling of actual exchange rate policies. The new classification system takes into account the actual behaviour of the exchange rate, but it is still heavily influenced by official declarations, and differs-in some cases substantially-from those regime classifications based purely on observed exchange rate movements (Levy-Yeyati and Sturzenegger, 2003; Reinhart and Rogoff, 2003). For this reason we still treat the new IMF classification as official regimes.[3]

[Table 2 is about here.]

Table 3 reports the evolution of exchange rate regimes in developing countries in the last quarter of the twentieth century. By "developing countries" we mean all the IMF member countries not classified as industrial countries. Emerging market economies and transition economies are included in our sample. Under the old IMF classification, the share of single-currency pegs and SDR pegs has been on the steady decline, from 69% in the late 1970s down to 29% in 1996-1997. The share of pegs to other composite currencies, in contrast, maintained its position at around 11%, although they seemed to be in favour in the late 1980s. Managed floating regimes have been rising in share since the late 1970s, and so did freely floating regimes since the early 1980s. The regimes with limited flexibility or rules-based adjustments form the smallest group and have been losing ground since the early 1980s. Under the new

[3] There are attempts to use the new IMF scheme backwards to classify exchange rate regimes in earlier years. Von Hagen and Zhou (2002a) apply it to a sample of 25 transition economies in the 1990s. Bubula and Ötker-Robe (2002) apply it to all the IMF member countries in the 1990s, but they call it a "de facto" classification.

IMF classification, the total share of managed and independently floating regimes is reduced, as some of them are reclassified into less flexible exchange rate regimes.[4]

[Table 3 is about here.]

For the multinomial analysis discussed below, we combine exchange arrangements to form three broad regimes. The basic classification treats exchange arrangements 1, 2, and 3 as fixed regimes, 4, 5, and 6 as intermediate regimes, and 7 and 8 as flexible regimes. We also use an alternative classification, with regimes 3 and 7 reclassified as intermediate ones, since these two regimes may bear more resemblance to intermediate regimes than to hard pegs or to freely floating regimes.

2.2 The determinants of regime choices

Based on theoretical suggestions and empirical findings we consider four groups of potential regime determinants: the OCA fundamentals, the stabilization considerations, the currency crises factors, and political and institutional features. The exact construction of the data and data sources are reported in the Appendix. For the OCA fundamentals, we include economic openness (OPEN, measured by the ratio of trade to GDP), geographical concentration of trade (GCON, measured by the share of the largest trading partner in total trade), economic size (SIZE, measured by GDP in logarithm), level of economic development (LEVEL, measured by per capita GDP in logarithm), and degree of financial development (FINDEV, measured by the ratio of broad money to GDP).

To reflect stabilization strategies, we consider three variables: inflation performance (CPINF, measured by the transformed consumer price inflation rates,[5] $\pi/(1+\pi)$), relative price shocks (RERVOL, proxied by the volatility of rear effective exchange rates), and

[4] This is consistent with the "fear of floating" phenomenon dubbed by Calvo and Reinhart (2002).

[5] This is aimed at avoiding bias caused by some hyperinflationary episodes. See Ghosh et al. (1997).

domestic monetary shocks (NOMSHK, proxied by volatility of broad money growth rates). Some factors can influence the risks of currency crises and therefore the chances for some regimes being adopted. These factors include international reserves adequacy (RESERVE, measured by the ratio of non-gold reserves to broad money), public finance performance (FISCAL, measured by the ratio of government budget surpluses (+) or deficits (-) to GDP), and current account positions (CA, measured by the ratio of current account surpluses (+) or deficits (-) to GDP). Finally, political and institutional features are also found to be influencing regime choices, so we consider three variables in this regard: financial openness (KCONTR, the degree of capital controls, inversely related to financial openness), overall freedom of the society (FREEIDX, an index of political freedom and civil liberty), and political instability (POLINST, proxied by frequency of changes in political powers).

[Table 4 is about here.]

Table 4 reports the means and standard deviations of the regime determinants over the full sample. Means of each variable across three regime groups are also reported, and *z*-tests for the null hypothesis of equal means across regimes are conducted. A rough impression is that on average the three regimes are similar in some perspectives, e.g. trade concentration, real exchange rate volatility, or public finance, but differ significantly from each other on other dimensions, including economic sizes, financial openness, and freedom scores (see the two far-right columns of Table 4). Moreover, the mean values of most variables are not monotonically increasing or decreasing in the rising flexibility of regimes, suggesting that these variables have qualitatively different impacts on intermediate and flexible regimes, both relative to fixed ones. This implies that a non-ordered multinomial approach should be more appropriate than either binary or ordered choice structures. We also check correlations among the potential regime determinants (see Table 5). Since the highest correlation in absolute

values is 0.39, and most of the correlations are below 0.30, Table 5 does not indicate any serious multicolinearity.

[Table 5 is about here.]

3. A Multinomial Random Effects Panel Model

3.1 The model specifications

We use $Y_{it}, i = 1, 2, ..., N, t = 0, 1, ..., T_i,$ to denote the exchange rate regime choice of country i in year t, with $Y_{it} = 0, 1, 2$ for fixed, intermediate, and flexible regimes, respectively.[6] Countries choose their regimes based on the principle of utility maximization, which implies that

$$\Pr(Y_{it} = j) = \Pr(U_{itj} > U_{itk}), \quad j, k = 0, 1, 2, \quad k \neq j, \tag{1}$$

where U_{itj} denotes the unobserved utility that country i derives in year t from regime j. We assume that the random utility U_{itj} consists of a predetermined component V_{itj}, which is linear in a vector of explanatory variables $\mathbf{x}_{it}$, and a random error u_{itj}, which has an error component structure. More specifically,

$$U_{itj} = V_{itj} + u_{itj}, \tag{2a}$$

$$V_{itj} = \beta_j \mathbf{x}_{it}, \tag{2b}$$

$$u_{itj} = \alpha_{ij} + \varepsilon_{itj}, \tag{2c}$$

where β_j is a row vector of coefficients, α_{ij} reflects country-specific, regime-dependent, and time-invariant heterogeneity, and ε_{itj} is independently and identically distributed (i.i.d.)

[6] Note that the panel is unbalanced as T_i varies across i.

across countries, years, and regimes. Because only the utility differences matter for regime choices, we normalize $U_{it0} \equiv 0$ for all *i* and *t*. Let $\alpha_i = (\alpha_{i1}, \alpha_{i2})'$ and assume that α_i has a bivariate normal distribution characterized by

$$\alpha_i \sim N(\mathbf{0}, \Sigma), \quad \text{with} \quad \Sigma = \begin{pmatrix} \sigma_{11} & \sigma_{12} \\ \sigma_{21} & \sigma_{22} \end{pmatrix}. \tag{3}$$

This leads to the static version of the random effect panel model. For simplicity we assume that α_i is i.i.d. across countries and years. Note that despite of this simplification, the random error u_{itj} is serially correlated due to the existence of α_{ij}, which provides one mechanism to account for the dynamic linkage in regime choices.

Another method to account for serial correlation is to assume that lagged regime choices enter the determination of current choices, which gives rise to state dependence in the decision-making process.[7] Let $d_{itj} = \mathbf{1}\{Y_{it} = j\}$ be the dummy for regime *j*, with $\mathbf{1}\{\}$ being an indicator function generating a value of unity if the statement in brackets is true, and define $\mathbf{d}_{it} = (d_{it1}, d_{it2})'$. Our specification of this dynamic model is

$$V_{itj} = \gamma_j \mathbf{d}_{it-1} + \beta_j \mathbf{x}_{it}, \quad t > 0. \tag{4}$$

Note that we drop the dummy for fixed regimes (d_{it0}) to avoid multicolinearity in the regressors. This specification corresponds to a first-order Markov chain in regime transition, with the coefficient vector $\gamma_j = (\gamma_{j1}, \gamma_{j2})$ measuring the direct influence of lagged regime choices on the current decision, after controlling for the influence of other factors as well as of country heterogeneity. The initial regime choices at $t = 0$ are treated as non-stochastic

[7] Heckman (1981a) defined spurious state dependence as that caused by unobservable common effects, while that due to past regime choices is true state dependence.

constants determined by pre-sample history, which substantially simplifies the likelihood function.[8]

3.2 Estimation procedure

In order to make the model operational, we assume that the distribution of the error term ε_{itj} is i.i.d. Type I extreme value, resulting in a logit specification of the model. Let the probability for $Y_{it} = j$ conditional on V_{itj} and α_i be denoted by $P_{itj} \mid \alpha_i$. We have

$$P_{itj} \mid \alpha_i = \Pr(Y_{it} = j \mid V_{itk}, \alpha_i) = \frac{\exp(V_{itj} + \alpha_{ij})}{\sum_{k=0}^{2} \exp(V_{itk} + \alpha_{ik})}, \quad j = 0, 1, 2, \quad \forall i, \tag{5}$$

with $V_{it0} \equiv 0$ and $\alpha_{i0} \equiv 0$ for normalization. Equation (5) applies for all *t* if (2b) is used, and for $t > 0$ if (4) is used.

The probability for $Y_{it} = j$ conditional only on observed V_{itj} is denoted by P_{itj}, which can be obtained by integrating out α_i from $P_{itj} \mid \alpha_i$. That is,

$$P_{itj} = \int_{\alpha_i} (P_{itj} \mid \alpha_i) f(\alpha_i) \, \mathrm{d}\alpha_i, \tag{6}$$

with f denoting the density of α_i. It is clear from (6) that P_{itj} is the expectation of $P_{itj} \mid \alpha_i$ over the domain of α_i. In the following estimation P_{itj} is approximated by a simulated mean of $P_{itj} \mid \alpha_i$. The simulation is conducted using the GHK simulator.[9] The basic approach is to draw random numbers α_i^r from the distribution (3), calculate $P_{itj} \mid \alpha_i^r$ for each draw using (5),

[8] A more complicated specification assumes that at the initial stage the data generating process is in equilibrium, so the probability for the initial choices is equal to the limiting marginal probability (Hsiao, 1986). An alternative specification is to model the initial probability as a reduced-form probability depending on all pre-sample exogenous explanatory variables (Heckman, 1981b).

[9] The GHK simulator gets its name from the works by Geweke (1991), Hajivassiliou and McFadden (1998), and Keane (1994).

repeat the process for R times, and then take the average over R draws as an approximation of P_{itj}. In short,

$$P_{itj}^{*} = \frac{1}{R}\sum_{r=1}^{R}(P_{itj} \mid \alpha_j^r). \tag{7}$$

Then the simulated log-likelihood function for the whole sample is given by

$$\log L^{*} = \sum_i \sum_t \sum_k d_{itk} \log P_{itk}^{*}, \tag{8}$$

which will be maximized to obtain estimation of the parameters of interest.[10]

4 Results and Discussions

We estimate both static and dynamic versions of the random effects panel model. Each version is estimated using the basic and the alternative regime classification. For each specification we estimate the model four times, adding one group of variables at each time. The sample sizes vary across estimations, with the number of countries ranging from 94 to 128 and the number of observations from 1189 to 2230. The time span is usually 1981 to 1999, except when political and institutional variables are added in the fourth estimation, for which the time span ends at 1994 due to lack of data on POLINST afterwards. For each estimation we generally set the number of random draws of α_i^r at $R = 30$.[11] In order to reduce the endogeneity bias, all explanatory variables (except for the regime dummies) are lagged by one year. We also include dummies for each five-year interval since 1986, with 1981-1985 as

[10] See Train (2002) for a detailed discussion on the estimation procedure.

[11] We also experiment with other values of R, e.g. 25 or 20, whose results are not very different from those reported here.

the omitted period.[12] Because we normalize the utility associated with fixed regimes to zero, the coefficients reported in Table 6 and Table 7 ($\beta_j, \gamma_j, j = 1, 2$) indicate the qualitative impacts on the utility associated with regime *j* relative to fixed regimes. Therefore, a positive (negative) coefficient means that an increase in the variable raises (reduces) the utility of regime *j*, and henceforth its probability of being adopted, relative to fixed regimes.

4.1 Results of the static model

Table 6a reports the results of the static model with the basic regime classification. It is clear from Table 6a that, from a static point of view, the OCA fundamentals play an important role in the determination of exchange rate regime choices, as most of them have significant coefficients in the estimations. The results suggest that countries more open to foreign trade are more likely to adopt flexible regimes, but less likely to choose intermediate ones. Moreover, the more geographically concentrated the foreign trade is, the more likely intermediate and flexible regimes are selected. This is consistent with the observation that developing countries are very concerned with their competitiveness in international markets, especially in their major trading partners, and countries prefer more flexible regimes since they can help avoid prolonged exchange rate misalignment.

[Table 6a is about here.]

Economic size and development level also influence regime choices in significant ways. In general, larger developing countries are less likely to peg, probably reflecting their reluctance to give up monetary autonomy. Richer developing countries favour intermediate regimes and will choose flexible regimes with the lowest probability. The positive association between LEVEL (per capita GDP) and intermediate regimes is mainly caused by the choice of

[12] We use period instead of annual dummies to increase degrees of freedom and to avoid convergence problems frequently encountered if annual dummies are used.

a handful of rich countries in the Gulf region and a few middle-income Latin American countries of intermediate regimes. A more general implication is that rich countries tend to have fixed regimes and poor countries ones have flexible regimes. One explanation is that rich countries have deeper and broader financial markets, which can help the nation to maintain stable exchange rates. This is consistent with negative coefficients for FINDEV, which imply that countries with more developed financial markets tend to favour fixed regimes over the other two options.

Among the stabilization variables, high inflation (CPINF) definitely raises the chances for intermediate and flexible regimes, and the higher the inflation rate, the more flexible the regimes will be. This is against the notion that countries use the exchange rate anchor to curb inflation, but consistent with the difficulties to keep exchange rates stable when inflation is rampant. As a proxy for real shocks, real exchange rate volatility (RERVOL) has-against our expectation-negative coefficients, indicating that countries tend choose fixed regimes in response to large real exchange rate variations. This is probably the case when exchange rate fluctuation is the main source of relative price movements, so fixing the nominal exchange rate eliminates one major source of real exchange rate variations.[13] The proxy for nominal shocks (NOMSHK), in contrast, bears expected signs, pointing to the direction of fixed regimes when the size of domestic monetary shocks is large.

The variables reflecting currency crises risks seem to be more relevant for intermediate regimes than for flexible regimes, consistent with the views that intermediate regimes are more vulnerable to currency crises than either fixed or flexible ones. But the results are somewhat sensitive to the addition of political and institutional variables. When these variables bear significant coefficients, the signs suggest that sufficient foreign exchange

[13] Another possibility, which hints on reverse causality, is that fixed regimes prevents inflation differentials from being absorbed by exchange rate movements, henceforth higher real exchange rate volatility.

reserves, large budget deficits (negative FISCAL), and current account surpluses make intermediate regimes more likely. The impacts of these variables for flexible regimes are-although less significant-qualitatively the same. While it is reasonable to associate public finance problems with increased risks of crises and, therefore, with lower probability for fixed regimes, it is a bit puzzling to see countries with large current account deficits choose fixed regimes instead of more flexible ones. It probably reflects a reverse causality: countries with more flexible exchange rates are more able to maintain external competitiveness and have fewer balance-of-payments problems.

The political and institutional variables seem to be less important than other variables. Intensive capital controls are more likely associated with intermediate regimes than with fixed or flexible regimes, but the results are not statistically significant. Countries with higher degree of political freedom and civil liberty have a preference for flexible regimes, which is significantly stronger than that for intermediate or fixed regimes. This is consistent with the findings of some empirical studies that countries with less democratic political regimes tend to adopt fixed exchange rate regimes.[14] However, political instability seems to make both fixed and flexible regimes more likely relative to intermediate regimes, while the empirical literature usually finds that fixed regimes tend to be significantly less favoured than flexible regimes in case of political instability.

To check the robustness of these findings, Table 6b reports results based on the alternative regime classification. In general the results are similar to those reported above, showing that these findings are robust to alternative regime classifications. However, there are several interesting differences. First of all, geographical concentration (GCON) now works strongly against intermediate and flexible regimes. A closer look at the data shows that countries with pegs to some self-defined composite currencies (regime type 3) have on

[14] See, for example, Méon and Rizzo (2002).

average very low values of GCON. When these composite currency pegs are reclassified from fixed regimes to intermediate ones, they pull down the average values of GCON for the intermediate group, and leave the fixed group consisting only of single currency pegs and SDR pegs, which tend to be associated with highly concentrated trade structure. As a result, based on the alternative regime classification, high degree of trade concentration makes fixed regimes more likely.

[Table 6b is about here.]

Moreover, the role of government budget deficits for regime choices seem to be sensitive to the inclusion of political and institutional variables. The changes in signs suggest that when political and institutional features are controlled for, countries have a tendency to use fixed regimes to help strengthen fiscal discipline, and this tendency is more obvious when the alternative regime classification is used. And the political and institutional variables themselves are also more important for regime choices under the alternative classification, as evidenced by more significant coefficients than before. In general the strong association between intermediate regimes and intensive capital controls is even more significant, and so is the case for the association between fixed regimes and low degree of overall freedom.

4.2 Results of the dynamic model

We now turn to the results of the dynamic model. The dummy for intermediate regimes in the previous year is LAGINT and that for flexible ones is LAGFLEX. It is clear form Table 7a that past regime choices enter significantly into the decision-making process for current regime choices, and the results are robust to the addition of explanatory variables. There is strong state dependence in regime choices: having a fixed regime in the previous year significantly reduces the probability of adopting other regimes in this year, and having an intermediate or a flexible regime previously makes it more likely to choose for the current

period either of these two regimes relative to fixed ones. Moreover, a comparison of the magnitudes of the relevant coefficients shows that being in an intermediate regime in the previous year raises the chance for the same regime this year by a larger margin than for flexible ones, and vice versa for flexible regimes. All these conform well with the fact that regime choices tend to be persistent and suggests that current regime choices depend crucially on past choices. Using Heckman (1981a)'s terminology, there exists "true" state dependence in the choice of exchange rate regimes, even after controlling for the existence of "spurious" state dependence due to unobserved common effects.

[Table 7a is about here.]

Some explanatory variables see their significance levels reduced in the dynamic model, reflecting the possibility that in the static model these variables also capture some part of the influence from lagged regime choices, and when these additional influences are controlled in the dynamic model, the impact of these variables tends to be weaker than before. The results are nevertheless similar to those of the static model in terms of the signs of the coefficients, suggesting that the qualitative implications derived above still hold. In general, countries more open to foreign trade, with more concentrated trade structures, or larger in economic sizes tend to have flexible regimes, while those with low income levels or less developed financial systems tend to have fixed regimes.

The stabilization variables still play significant roles in the determination of exchange rate regime choices, except for the proxy for nominal shocks (NOMSHK), which becomes insignificant in almost all cases but nevertheless still points to the direction that fixed regimes will be preferred when nominal shocks are substantial. As before, high inflation makes fixed regimes less tenable and, as a result, less attractive, while large real exchange rate volatility, in contrast, makes them more preferable. The variables related to currency crises risks and those reflecting political and institutional features appear to be playing only a limited role in

the determination of regime choices, as most of them are insignificant in the dynamic framework.

As a robustness check we estimate the dynamic model using the alternative regime classification (see Table 7b). The results are not sensitive to the reclassification of some controversial exchange arrangements. In general the coefficients reported in Table 7b are comparable to those listed in Table7a, and the significance levels are either unchanged or slightly higher than in previous estimations.

[Table 7b is about here.]

The explanatory power of the dynamic model is much higher than that of the static model, thanks to the persistence in regime choices. Based on the estimates of the static model, the share of correctly explained regime choices ranges from 57% to 74%. Based on the results of the dynamic model, in contrast, the ratio of right prediction is above 90%. Moreover, the sizes of the estimated variance and covariance of country-specific random effects $(\sigma_{11}, \sigma_{12}, \sigma_{22})$ are usually smaller in the dynamic model than in the static one. This is because in the static model the α_i terms capture not only the influence of unobserved country heterogeneity, but also part of the influence of true state dependence. In the dynamic model, the latter part of variance is captured by lagged regime dummies, so the estimated variance-covariance of α_i tends to be reduced accordingly. However, in general the variance and covariance of country-specific random effects are fairly small. Since the α_i terms capture country heterogeneity caused by all the potential regime determinants excluded from the model, small variance and covariance may be consistent with the view that, after including so many regime determinants, the problem of omitted variables as well as of country heterogeneity is finally not so important.

5 Conclusions

In this paper we apply simulation-based estimation techniques to the analysis of the choices of exchange rate regimes in developing countries since the fall of the Bretton Woods System. We expand the conventional fixed-vs.-flexible dichotomy into a trichotomous choice structure, with fixed, intermediate, and flexible regimes as three options. We use a non-ordered multinomial framework to allow the possibility that the influence of some variables on regime choices are not monotonically increasing or decreasing in the underlying regime flexibility. Moreover, we model the persistence in the regime choices of the same country by including country-specific time-invariant heterogeneity, or by including past regime choices in the decision on the current ones. We construct a random-effects multinomial panel model for the choices of exchange rate regimes and estimate the model using the GHK simulator.

We consider a wide range of potential regime determinants, including the OCA fundamentals, stabilization strategies, currency crises risks, and political and institutional features. In general, all these variables have more or less explanatory power for the determination of regime choices, but tend to be less significant in the dynamic model than in the static one. The regime persistence is well explained by lagged regime dummies, indicating that it is largely due to significant "true" state dependence in the decision process.

Appendix: Definition of Variables and Data Sources

We construct the variables from various sources. Five variables (CA, FISCAL, NOMSHK, OPEN, and RERVOL) are either directly taken from the CD-ROM attached to

Ghosh et al. (2002), or constructed based on the data from this source. The detailed information on data construction and sources are as follows:

CA: Current account balance, normalized by GDP. Data source is the IMF, *World Economic Outlook* Database.

CPINF: Transformed consumer price inflation rates (π^*). The transformation uses the formula $\pi^* = \pi/(1+\pi)$, with π denoting the raw data series. Data source is the IMF, *World Economic Outlook* Database.

FINDEV: Broad money, normalized by GDP. Broad money is the sum of "money" and "quasi-money". Data source is the IMF, *International Financial Statistics*.

FISCAL: Central government budget balance, normalized by GDP. Data source is the IMF, *World Economic Outlook* Database.

FREEIDX: Index of political freedom and civil liberty. The index is constructed by first averaging the scores of political rights and of civil liberties (each on a 1-7 scale) obtained from the Freedom House, and then subtracting the average scores from 8. The index is again on a 1-7 scale but with higher values representing higher degrees of freedom.

GCON: Share of trade with the largest trading partner in the total trade with the ten largest trading partners. Data source is the IMF, *Direction of Trade Statistics*.

KCONTR: Intensity of capital controls, defined as the sum of the dummies for (1) the existence of multiple or dual exchange rates, (2) the existence of restrictions on payments of current transactions, (3) the existence of restrictions on payments of capital transactions, and (4) the existence of surrender requirements for export proceeds. Data source is the IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions*.

LEVEL: Per capita GDP in US dollars and then in logarithms. Data source is the IMF, *World Economic Outlook* Database.

NOMSHK: Average absolute deviation of the transformed growth rate of broad money (m^*) from the four-year backward moving average. The transformation uses the formula $m^* = m/(1+m)$, with m denoting the raw data series. Data source is the IMF, *World Economic Outlook* Database.

OPEN: The sum of exports and imports of goods and services, normalized by GDP. Data source is the IMF, *World Economic Outlook* Database.

POLINST: A measure of political instability, defined as the sum of (1) the number of changes in effective executives of a country in each year, and (2) a dummy for the year in which legislative election takes place. Data source is the Polity III dataset from Harvard-CID database on political institutions.

RERVOL: Standard deviation of monthly changes of real effective exchange rate in each year. Data source is the IMF, *Information Notice System.*

RESERVE: Non-gold international reserves, normalized by broad money. Data source is the IMF, *International Financial Statistics*.

SIZE: Gross Domestic Products in current prices, expressed in billions of US dollars and then in logarithms. Data source is the IMF, *International Financial Statistics*.

References

Barro, R. J., and D. B. Gordon, 1983, "Rules, Discretion, and Reputation in a Model of Monetary Policy," *Journal of Monetary Economics* 12: 101-121.

Berger, H., J.-E. Sturm, and J. de Haan, 2000, "An Empirical Investigation into Exchange Rate Regime Choice and Exchange Rate Volatility," CESifo Working Paper No. 263.

Bernhard, W., and D. Leblang, 1999, "Democratic Institutions and Exchange-rate Commitments," *International Organization*, Vol. 53, No. 1 (Winter), pp. 71-97.

Boyer, R. S., 1978, "Optimal Foreign Exchange Market Intervention," *Journal of Political Economy*: 1045-1055.

Bubula, A., and İ. Ötker-Robe, 2002, "The Evolution of Exchange Rate Regimes Since 1990: Evidence from De Facto Policies," IMF Working Paper No. 02/155.

Calvo, A. G., and C. M. Reinhart, 2002, "Fear of Floating," *Quarterly Journal of Economics*, CXVII (2002): 379-408.

Dreyer, J. S., 1978, "Determinants of Exchange-Rate Regimes for Currencies of Developing Countries: Some Preliminary Results," *World Development*, Vol. 6 (April), pp. 437-445.

Edwards, S., 1996, "The Determinants of the Choice Between Fixed and Flexible Exchange-rate Regimes," NBER Working Paper No. 5756.

Edwards, S., 1998, "Exchange Rate Anchors and Inflation: A Political Economy Approach," in S. Eijffinger and H. Huizinga eds., *Positive Political Economy: Theory and Evidence* (Cambridge: Cambridge University Press).

Fratianni, M., and J. von Hagen, 1992, *The European Monetary System and European Monetary Union* (Boulder and Oxford: Westview Press).

Geweke, J., 1991, "Efficient Simulation from the Multivariate Normal and Student *t*-distributions Subject to Linear Constraints," *Computer Science and Statistics: Proceedings of the Twenty-Third Symposium on the Interface*, pp. 571-578.

Ghosh, A. R., A.-M. Gulde, J. Ostry, and H. Wolf, 1997, "Does the Nominal Exchange Rate Matter?" NBER Working Paper 5874.

Ghosh, A. R., A.-M. Gulde, J. Ostry, and H. Wolf, 2002, *Exchange Rate Regimes: Choices and Consequences* (Cambridge, MA, and London: The MIT Press).

Goldstein, M., 1980, "Have Flexible Exchange Rates Handicapped Macroeconomic Policy?" *Special Papers in International Economics*, No. 14, International Finance Section, Princeton University.

Hajivassiliou, V., and D. McFadden, 1998, "The Method of Simulated Scores for the Estimation of LDV Models," *Econometrica*, Vol. 66, No. 4, pp. 863-896.

Heckman, J., 1981a, "Statistical Models for Discrete Panel Data," in C. F. Manski and D. McFadden eds., *Structural Analysis of Discrete Data with Econometric Applications* (Cambridge, MA, and London: The MIT Press).

Heckman, J., 1981b, "The Incidental Parameters Problem and the Problem of Initial Conditions in Estimating a Discrete Time-Discrete Data Stochastic Process," in C. F. Manski and D. McFadden eds., *Structural Analysis of Discrete Data with Econometric Applications* (Cambridge, MA, and London: The MIT Press).

Heller, H. R., 1978, "Determinants of Exchange Rate Practices," *Journal of Money, Credit, and Banking*, Vol. 10 (August): 308-321.

Holden, P., M. Holden, and E. C. Suss, 1979, "The Determinants of Exchange Rate Flexibility: An Empirical Investigation," *The Review of Economics and Statistics*, Vol. LXI, No. 3 (August): 327-333.

Honkapohja, S., and P. Pikkarainen, 1994, "Country Characteristics and the Choice of the Exchange Rate Regime: Are Mini-skirts Followed by Maxis?" in J. Åkerholm and A. Giovannini eds., *Exchange Rate Policies in the Nordic Countries* (London: CEPR).

Hsiao, C., 1986, *Analysis of Panel Data* (Cambridge: Cambridge University Press).

Juhn, G., and P. Mauro, 2002, "Long-Run Determinants of Exchange Rate Regimes: A Simple Sensitivity Analysis," IMF Working Paper No. 02/104.

Keane, M., 1994, "A Computationally Practical Simulation Estimator for Panel Data," *Econometrica*, Vol. 62, No. 1, pp. 95-116.

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

Levy-Yeyati, E., and F. Sturzenegger, 2003, "A De Facto Classification of Exchange Rate Regimes: A Methodological Note," forthcoming in *American Economic Review*.

McKinnon, R., 1963, "Optimum Currency Areas," *American Economic Review* 53 (September): 717-725.

McKinnon, R., 1981, "The Exchange Rate and Macroeconomic Policy: Changing Postwar Perceptions," *Journal of Economic Literature* 19(2): 531-537.

Méon, P.-G., and J.-M. Rizzo, 2002, "The Viability of Fixed Exchange Rate Commitments: Does Politics Matter? A Theoretical and Empirical Investigation," *Open Economies Review*, Vol. 13, No. 2, pp. 111-132.

Melitz, J., 1988, "Monetary Discipline and Cooperation in the ERM: A Synthesis," in F. Giavazzi, S. Micossi, and M. Miller eds., *The European Monetary System* (Cambridge: Cambridge University Press).

Melvin, M., 1985, "The Choice of an Exchange Rate System and Macroeconomic Stability," *Journal of Money, Credit, and Banking*, Vol. 17, No. 4 (November, Part 1): 467-478.

Mundell, R., 1961, "A Theory of Optimal Currency Areas," *American Economic Review* 51 (September): 657-665.

Poirson, H., 2001, "How Do Countries Choose Their Exchange Rate Regime?" IMF Working Paper 01/46.

Reinhart, C., and K. Rogoff, 2003, "The Modern History of Exchange Rate Arrangements: A Reinterpretation," forthcoming in *Quarterly Journal of Economics*.

Rizzo, J.-M., 1998, "The Economic Determinants of the Choice of an Exchange Rate Regime: A Probit Analysis," *Economics Letters* 59 (1998): 283-287.

Savvides, A., 1990, "Real Exchange Rate Variability and the Choice of Exchange Rate Regime by Developing Countries," *Journal of International Money and Finance* (1990), 9: 440-454.

Savvides, A., 1993, "Pegging the Exchange Rate and the Choice of a Standard by LDCs: A Joint Formulation," *Journal of Economic Development*, Vol. 18, No. 2 (December): 107-125.

Train, K., 2002, *Discrete Choice Methods with Simulation* (Cambridge, MA : The MIT Press).

Von Hagen, J., and J. Zhou, 2002a, "The Choice of Exchange Rate Regimes: An Empirical Analysis for Transition Economies," ZEI Working Paper B02-03, University of Bonn.

Von Hagen, J., and J. Zhou, 2002b, "Official and De Facto Exchange Rate Regimes in Transition Countries," ZEI Working Paper B02-13, University of Bonn.

Table 1
Empirical Studies on the Choice of Exchange Rate Regimes: A Selected Overview[1]

Studies	**(I)**	**(II)**	**(III)**	**(IV)**	**(V)**	**(VI)**	**(VII)**	**(VIII)**	**(IX)**	**(X)**	**(XI)**	**(XII)**	**(XIII)**	**(XIV)**
Countries[2]	88[a]	64[b]	39[a]	43[a]	125[b]	63[b]	70[b]	125[a]	20[c]	65[a]	93[a]	125[b]	130[b]	25[d]
Years	1976	1979	1976-1984	1979-1986	1991	1980-1992	1979-1992	1977-1995	1974-1995	1980-1994	1999	1980-1994	1990, 2000	1990-1999
Regimes[3]	O	O	B	B, O	B,O,M	B	B	B, O	B	B	O	B	B, M	O
Methods[4]	CS	CS	PP	PP	CS	PP	CS	CS	PP	REP	CS	PP	CS	PP
Variables[5]														
Trade openness	+*	-	+	+*	+*/-			-*	+*	-*	+	-*	+*	+*
Com. Concentr.	+*		-*		+*						-*			-*
Geo. Concentr.	+*	-/+	-	+*	-*			+*			-	+*	+/-	+*
Economic size	-	-*		-*	-			-*			-	-*	-*	+
Dev. level			-*		+*	-*/+*	+*	+*			-/+	+*	+*/-	-*
Nominal shocks		+*	+*	+*		+*			-					
Real shocks					-	-*	-			+*	-*		-/+*	
Home inflation		-		-*		-*	-*	-*			-*		-*	+*
RER variation			-*			-*	-*							+/-
Foreign inflation		-*		-*						+*		+*		
Reserve						+*		-*		-	+*		-/+	+*
Fiscal balance								+*						+
Current account							+*	+/-*						
Capital mobility			+*	-*	-/+						+*		+/-	
Pol. instability						-*	-*		-*	-*	+	-*	-*	
Capital controls						+*			+*		+		+*/-	

Notes:
(1) The studies included in the table are: (I) Dreyer, 1978; (II) Melvin, 1985; (III) Savvides, 1990; (IV) Savvides, 1993; (V) Honkapohja and Pikkarainen, 1994; (VI) Edwards, 1996; (VII) Edwards, 1998; (VIII) Rizzo, 1998; (IX) Bernhard and Leblang, 1999; (X) Berger et al., 2000; (XI) Poirson, 2001; (XII) Méon and Rizzo, 2002; (XIII) Juhn and Mauro, 2002; (XIV) von Hagen and Zhou, 2002a.
(2) The sample covers (a) developing countries, (b) developed and developing countries, (c) developed countries, or (d) transition economies.
(3) Regimes are classified as binary choices (B), ordered choices with three regimes (O), or non-ordered multiple choices with three regimes (M).
(4) Methods of estimation include cross-section (CS), pooled panel (PP), and random-effect panel (REP).
(5) A positive (+) sign means that the variable is positively associated with the probability of adopting fixed or pegged exchange rate regimes. An asterisk (*) means that the coefficient is generally significant at 10% or higher levels.

Table 2
The IMF Classification of Exchange Rate Regimes

Code	Old Classification: before1998[1]	New Classification: since 1998[2]
1	Single currency peg	No separate legal tender
2	SDR peg	Currency board arrangements
3	Other composite currency peg	Other conventional fixed pegs
4	Flexibility limited vis-à-vis a single currency	Horizontal bands
5	Flexibility limited vis-à-vis a group of currencies	Crawling pegs
6	Exchange rate adjusted according to a set of indicators	Crawling bands
7	Other managed floating	Managed floating with no pre-announced path for the exchange rate
8	Independently floating	Independently floating

Source: IMF, *AREAER* (various issues).
Notes:
(1) For the period 1977-1981, regime types 1, 2, 3, 5, 6, and 8 can be identified. For the period 1982-1995, all the 8 regime types can be identified. For the period 1996-1997, regime type 6 is excluded from the classification.
(2) The new classification started on January 1, 1999, which was used as the classification for 1998 on December 31.

Table 3
Exchange Rate Regimes in Developing Countries: 1977-2000

Code[(1)]	1977-1980		1981-1985		1986-1990		1991-1995		1996-1997		1998-2000	
	Obs.	**%**	**Obs.**	**%**	**Obs.**	**%**	**Obs.**	**%**	**Obs.**	**%**	**Obs.**	**%**
1, 2	304	68.6	335	54.9	310	47.6	271	35.8	92	29.1	94	19.8
3	57	12.9	110	18.0	136	20.9	125	16.5	36	11.4	127	26.8
4, 5, 6	15	3.4	53	8.7	40	6.1	39	5.2	10	3.2	57	12.0
7	0	0.0	66	10.8	102	15.7	137	18.1	89	28.2	78	16.5
8	67	15.1	46	7.5	63	9.7	185	24.4	89	28.2	118	24.9
Total	443	100.0	610	100.0	651	100.0	757	100.0	316	100.0	474	100.0
Country	115		127		132		158		158		158	

Source: Own calculations based on the IMF, *AREAER* (various issues).
Note:
(1) For the meanings of the regime codes, see Table 2.

Table 4
Means and Standard Deviations of Regime Determinants

	Full Sample		**Fix[(1)]**	**Inter[(1)]**	**Flex[(1)]**	***z*-statistics**	
	Mean	**S.D.**	**Mean**	**Mean**	**Mean**	**Inter-Fix**	**Flex-Fix**
OPEN	0.813	0.650	0.856	0.768	0.741	-1.269	**-3.194**
GCON	0.361	0.136	0.358	0.393	0.358	0.500	-0.011
SIZE	1.539	2.060	0.889	2.995	2.450	**30.703**	**43.456**
LEVEL	6.970	1.243	6.903	7.985	6.885	**15.770**	-0.519
FINDEV	0.464	0.827	0.526	0.408	0.364	*-1.723*	**-4.494**
CPINF	0.148	0.190	0.111	0.145	0.217	0.505	**2.949**
RERVOL	0.035	0.094	0.032	0.041	0.038	0.131	0.152
NOMSHK	0.065	0.064	0.063	0.052	0.070	-0.170	0.193
RESERVE	0.341	0.411	0.342	0.347	0.337	0.074	-0.141
FISCAL	-0.049	0.080	-0.050	-0.043	-0.048	0.103	0.069
CA	-0.050	0.134	-0.059	-0.010	-0.043	0.714	0.439
KCONTR	2.417	1.265	2.483	1.949	2.386	**-7.789**	**-2.689**
FREEIDX	3.886	1.863	3.765	3.925	4.109	**2.337**	**9.576**
POLINST	0.351	0.655	0.326	0.282	0.420	-0.643	**2.610**

Notes:
(1) "Fix", "Inter", or "Flex" stands for fixed, intermediate, or flexible regimes, respectively, based on the basic regime classification. The *z*-statistics are for the null hypothesis of equal means across two regimes, with numbers in bold significant at 5% level and numbers in italic significant at 10% level.

Table 5
Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	OPEN	1.00													
2	GCON	0.06	1.00												
3	SIZE	-0.29	-0.09	1.00											
4	LEVEL	0.30	0.16	0.35	1.00										
5	FINDEV	0.06	-0.09	-0.01	0.08	1.00									
6	CPINF	-0.12	-0.07	0.12	-0.15	-0.03	1.00								
7	RERVOL	-0.08	-0.07	-0.02	-0.14	0.01	0.38	1.00							
8	NOMSHK	-0.02	-0.03	-0.14	-0.17	-0.10	0.34	0.13	1.00						
9	RESERVE	0.10	0.01	-0.15	0.00	-0.10	-0.02	0.01	0.06	1.00					
10	FISCAL	-0.04	0.10	0.15	0.20	-0.06	-0.10	-0.11	-0.10	0.16	1.00				
11	CA	-0.08	0.04	0.23	0.28	-0.01	-0.06	-0.06	-0.07	0.07	0.39	1.00			
12	KCONTR	-0.27	-0.09	0.02	-0.37	-0.01	0.25	0.13	0.04	-0.09	-0.10	-0.16	1.00		
13	FREEIDX	0.20	0.26	-0.05	0.34	-0.01	-0.02	-0.07	-0.11	0.07	0.07	0.03	-0.11	1.00	
14	POLINST	-0.03	0.06	0.11	0.03	-0.00	0.09	0.07	0.01	-0.04	-0.01	0.01	0.04	0.14	1.00

Table 6a
Static Random Effects Panel Model Estimations, with the Basic Regime Classification

	β_1	β_2	β_1	β_2	β_1	β_2	β_1	β_2
OPEN	-0.04 (0.19)	0.47** (0.12)	-0.13 (0.34)	0.52** (0.12)	-0.45* (0.26)	0.44** (0.11)	-0.15 (0.73)	1.40** (0.27)
GCON	1.83** (0.70)	1.11** (0.44)	2.06** (0.81)	1.80** (0.61)	1.98** (0.75)	1.88** (0.48)	0.68 (1.84)	1.19* (0.67)
SIZE	0.41** (0.07)	0.60** (0.05)	0.39** (0.07)	0.61** (0.08)	0.44** (0.07)	0.62** (0.05)	0.34** (0.15)	0.63** (0.07)
LEVEL	0.65** (0.09)	-0.35** (0.08)	0.71** (0.12)	-0.41** (0.08)	0.71** (0.11)	-0.38** (0.07)	0.87** (0.27)	-0.67** (0.13)
FINDEV	-2.14** (0.48)	-1.82** (0.26)	-2.09** (0.52)	-1.42** (0.32)	-1.55** (0.56)	-1.11** (0.30)	-2.18* (1.20)	-1.66** (0.56)
CPINF			5.22** (0.96)	6.39** (0.87)	5.57** (0.86)	6.59** (0.65)	6.13** (1.27)	6.33** (0.78)
RERVOL			-11.55** (4.33)	-6.65** (1.91)	-11.89** (4.29)	-6.99** (1.71)	-15.28** (5.31)	-7.48** (1.93)
NOMSHK			-3.78* (2.23)	-2.15* (1.21)	-5.92** (2.32)	-3.00** (1.21)	-2.17 (3.43)	-1.41 (1.63)
RESERVE					2.38** (0.43)	0.75** (0.28)	3.14** (0.75)	-0.79* (0.48)
FISCAL					-5.55** (1.45)	-1.95 (1.22)	-0.55 (2.41)	-0.45 (1.51)
CA					2.18** (0.92)	1.04 (0.86)	-1.09 (1.84)	1.62 (1.72)
KCONTR							0.14 (0.18)	-0.10 (0.07)
FREEIDX							-0.12 (0.13)	0.32** (0.05)
POLINST							-0.52** (0.26)	-0.05 (0.11)
σ_{11}	0.08 (0.20)		0.14 (0.56)		0.03 (0.12)		0.78 (0.81)	
σ_{12}	0.07 (0.17)		0.18 (0.46)		0.05 (0.13)		0.02 (0.44)	
σ_{22}	0.07 (0.25)		0.43 (0.70)		0.11 (0.23)		0.06 (0.21)	
Log-likelihood	-1589.77		-1414.45		-1328.06		-771.22	
Countries	128		124		118		94	
Obs.[(1)]	1266 / 170 / 794 / 2230		1200 / 163 / 769 / 2132		1150 / 158 / 735 / 2043		656 / 87 / 448 / 1191	
% pred.[(2)]	81.4 / 6.5 / 63.4 / 69.2		84.5 / 6.7 / 67.1 / 72.3		85.7 / 13.9 / 67.3 / 73.5		83.4 / 6.9 / 67.0 / 71.6	

Notes: * or ** indicates significance at 10% or 5% level, respectively. Constants and period dummies not reported. Standard errors in parentheses.
(1) Number of observations for Fixed / Intermediate / Flexible / All exchange rate regimes.
(2) Correct predictions for Fixed / Intermediate / Flexible / All exchange rate regimes.

Table 6b
Static Random Effects Panel Model Estimations, with the Alternative Regime Classification

	β_1	β_2	β_1	β_2	β_1	β_2	β_1	β_2
OPEN	0.53* (0.29)	0.64** (0.30)	0.12 (0.12)	0.24 (0.19)	0,03 (0,08)	0,24 (0,16)	2,66** (0,50)	3,00** (0,54)
GCON	-5.02** (1.38)	-3.66** (1.42)	-2.98** (0.48)	-1.11* (0.66)	-3,17** (0,48)	-1,05 (0,66)	-6,05** (1,27)	-3,04** (1,24)
SIZE	1.22** (0.31)	1.24** (0.31)	0.41** (0.06)	0.43** (0.07)	0,46** (0,04)	0,45** (0,07)	0,96** (0,16)	0,58** (0,15)
LEVEL	0.14 (0.14)	-0.38** (0.14)	0.11* (0.06)	-0.42** (0.08)	0,15** (0,06)	-0,38** (0,11)	-0,20 (0,14)	-0,94** (0,18)
FINDEV	-0.63* (0.32)	-2.13** (0.52)	-0.19** (0.09)	-1.37** (0.41)	-0,04 (0,06)	-1,95** (0,57)	-0,13 (0,26)	-2,70** (0,93)
CPINF			5.20** (0.71)	7.22** (0.79)	5,58** (0,66)	7,72** (0,83)	4,40** (0,94)	8,23** (1,04)
RERVOL			-16.74** (2.45)	-8.90** (2.09)	-16,05** (2,33)	-9,20** (2,09)	-14,68** (3,15)	-10,38** (2,32)
NOMSHK			-7.16** (1.33)	-7.73** (1.68)	-8,84** (1,33)	-9,61** (1,88)	-6,25** (2,20)	-6,26** (2,60)
RESERVE					1,96** (0,28)	1,33** (0,40)	0,51 (0,49)	-0,39 (0,63)
FISCAL					-3,54** (1,05)	-3,10* (1,86)	6,24** (1,86)	5,54** (2,41)
CA					1,61** (0,66)	2,55** (1,22)	-3,11** (1,26)	1,84 (1,65)
KCONTR							0,25** (0,12)	-0,35** (0,14)
FREEIDX							0,23** (0,07)	0,51** (0,08)
POLINST							0,20 (0,18)	0,08 (0,19)
σ_{11}	20.41* (12.24)		0.45 (0.59)		0.05 (0.16)		1.50 (1.49)	
σ_{12}	19.50 (12.09)		0.68 (0.62)		0.22 (0.42)		0.20 (0.91)	
σ_{22}	19.03 (12.33)		1.30 (0.85)		1.20 (0.99)		0.18 (0.34)	
Log-likelihood	-1947.30		-1735.16		-1603.45		-835.26	
Countries	128		124		118		94	
Obs.[(1)]	814 / 1025 / 391 / 2230		756 / 1003 / 373 / 2132		726 / 968 / 349 / 2043		431 / 561 / 199 / 1191	
% pred.[(2)]	49.6 / 72.5 / 32.0 / 57.0		62.3 / 75.0 / 27.9 / 62.2		66.4 / 77.2 / 22.9 / 64.1		75.4 / 79.7 / 34.7 / 70.6	

Notes: * or ** indicates significance at 10% or 5% level, respectively. Constants and period dummies not reported. Standard errors in parentheses.
(1) Number of observations for Fixed / Intermediate / Flexible / All exchange rate regimes.
(2) Correct predictions for Fixed / Intermediate / Flexible / All exchange rate regimes.

Table 7a
Dynamic Random Effects Panel Model Estimations, with the Basic Regime Classification

	γ_1 and β_1	**γ_2 and β_2**	**γ_1 and β_1**	**γ_2 and β_2**	**γ_1 and β_1**	**γ_2 and β_2**	**γ_1 and β_1**	**γ_2 and β_2**
LAGINT	7.59** (0.63)	3.18** (55)	7.96** (0.65)	3.44** (0.57)	8.19** (0.81)	3.60** (0.64)	8.63** (1.03)	3.48** (0.90)
LAGFLEX	4.68** (0.53)	5.93** (0.45)	4.75** (0.59)	5.87** (0.47)	4.96** (0.62)	5.79** (0.46)	4.25** (0.71)	5.30** (0.42)
OPEN	-0.18 (0.39)	0.15 (0.17)	-0.28 (0.61)	0.20 (0.19)	-0.57 (0.54)	0.23 (0.21)	0.04 (0.36)	0.94** (0.39)
GCON	0.81 (1.18)	0.73 (0.82)	0.68 (1.47)	1.04 (0.90)	0.65 (3.28)	0.75 (0.97)	-1.07 (2.45)	0.29 (1.65)
SIZE	0.15 (0.12)	0.34** (0.07)	0.12 (0.14)	0.30** (0.07)	0.14 (0.17)	0.31** (0.08)	-0.12 (0.23)	0.32** (0.12)
LEVEL	0.40** (0.18)	-0.32** (0.11)	0.36 (0.25)	-0.33** (0.13)	0.46** (0.23)	-0.22 (0.14)	0.81 (0.50)	-0.37 (0.31)
FINDEV	-1.42* (0.85)	-0.76* (0.40)	-1.53 (1.11)	-0.50 (0.40)	-1.29 (1.22)	-1.19* (0.67)	-3.31 (2.31)	-0.93 (1.21)
CPINF			2.73** (1.27)	3.07** (0.70)	2.32* (1.36)	2.74** (0.78)	2.15 (1.82)	2.90** (1.12)
RERVOL			-16.71** (6.74)	-1.81 (1.34)	-13.84** (6.60)	-1.72 (1.36)	-16.85** (8.08)	-1.69 (1.42)
NOMSHK			-1.63 (3.86)	-2.86 (2.19)	-1.92 (5.40)	-3.63* (2.19)	2.08 (4.25)	-3.66 (2.75)
RESERVE					1.21 (0.74)	-0.03 (0.20)	0.56 (1.40)	-1.15 (1.09)
FISCAL					0.49 (13.58)	-0.28 (2.97)	5.10 (6.95)	0.60 (6.30)
CA					-0.73 (2.31)	-0.60 (1.48)	-3.99 (4.08)	-0.85 (3.08)
KCONTR							0.08 (0.50)	0.02 (0.40)
FREEIDX							-0.00 (0.13)	0.23** (0.10)
POLINST							-0.08 (0.37)	0.19 (0.20)
σ_{11}	0.03 (0.41)		0.02 (0.30)		0.01 (0.11)		0.05 (0.38)	
σ_{12}	0.03 (0.27)		0.02 (0.23)		-0.01 (0.12)		0.03 (0.13)	
σ_{22}	0.23 (0.47)		0.18 (0.49)		0.04 (0.47)		0.11 (0.37)	
Log-likelihood	-592.64		-535.05		-506.71		-308.15	
Countries	128		124		118		94	
Obs.[(1)]	1259 / 170 / 794 / 2223		1193 / 163 / 769 / 2125		1143 / 158 / 735 / 2036		654 / 87 / 448 / 1189	
% pred.[(2)]	96.6 / 80.0 / 90.2 / 93.0		96.8 / 81.0 / 90.8 / 93.4		96.9 / 81.0 / 90.7 / 93.4		96.9 / 85.1 / 87.7 / 92.6	

Notes: * or ** indicates significance at 10% or 5% level, respectively. Constants and period dummies not reported. Standard errors in parentheses.
(1) Number of observations for Fixed / Intermediate / Flexible / All exchange rate regimes.
(2) Correct predictions for Fixed / Intermediate / Flexible / All exchange rate regimes.

Table 7b
Dynamic Random Effects Panel Model Estimations, with the Alternative Regime Classification

	γ_1 and β_1	γ_2 and β_2	γ_1 and β_1	γ_2 and β_2	γ_1 and β_1	γ_2 and β_2	γ_1 and β_1	γ_2 and β_2
LAGINT	7.00** (0.33)	4.01** (0.37)	6.98** (0.35)	4.08** (0.40)	7,00** (0,42)	4,15** (0,44)	6,53** (0,64)	3,14** (0,52)
LAGFLEX	5.04** (0.44)	7.09** (0.54)	4.96** (0.50)	6.89** (0.52)	4,96** (0,54)	6,87** (0,52)	4,56** (0,69)	6,16** (0,75)
OPEN	-0.13 (0.25)	-0.14 (0.28)	-0.27 (0.32)	-0.16 (0.46)	-0,47 (0,36)	-0,07 (0,52)	0,84 (0,57)	1,19* (0,68)
GCON	-1.13 (0.94)	-0.78 (1.07)	-1.30 (1.15)	-0.64 (1.30)	-1,48 (1,10)	-0,97 (1,28)	-3,78** (1,36)	-1,88 (1,43)
SIZE	0.16** (0.08)	0.23** (0.09)	0.13 (0.08)	0.20** (0.09)	0,13 (0,09)	0,20 (0,13)	0,31** (0,15)	0,10 (0,17)
LEVEL	0.06 (0.12)	-0.27* (0.14)	0.05 (0.13)	-0.25* (0.15)	0,15 (0,17)	-0,12 (0,24)	0,10 (0,23)	-0,37 (0,27)
FINDEV	0.12 (0.09)	-0.48 (0.35)	0.08 (0.09)	-0.44 (0.50)	0,09 (0,11)	-1,77** (0,77)	0,13 (0,41)	-2,01 (1,32)
CPINF			2.71** (0.94)	2.76** (0.84)	2,69** (0,98)	2,32** (0,90)	0,84 (1,23)	2,61** (1,11)
RERVOL			-12.10** (3.28)	-1.21 (1.05)	-12,00** (3,49)	-1,10 (1,02)	-10,57** (4,31)	-1,43 (1,26)
NOMSHK			-6.00** (2.53)	-6.34** (2.82)	-6,77** (2,68)	-7,12** (2,95)	-3,56 (2,99)	-6,71* (3,56)
RESERVE					0,49 (0,57)	-0,13 (0,75)	-0,23 (0,79)	-0,80 (0,85)
FISCAL					-0,28 (0,97)	-1,66 (1,62)	4,53* (2,62)	1,54 (3,15)
CA					-0,93 (1,27)	0,18 (1,12)	-3,87* (2,10)	0,78 (2,26)
KCONTR							0,27* (0,17)	0,08 (0,18)
FREEIDX							0,13 (0,11)	0,40** (0,12)
POLINST							0,54** (0,24)	0,22 (0,26)
σ_{11}	0.06 (0.15)		0.01 (0.12)		0.09 (0.25)		0.53 (0.71)	
σ_{12}	0.02 (0.02)		0.00 (0.07)		0.03 (0.16)		-0.28 (0.45)	
σ_{22}	0.25 (0.46)		0.09 (0.32)		0.01 (0.09)		0.27 (0.74)	
Log-likelihood	-676.07		-617.61		-588.27		-388.32	
Countries	128		124		118		94	
Obs.(1)	810 / 1022 / 391 / 2223		752 / 1000 / 373 / 2125		722 / 965 / 349 / 2036		431 / 559 / 199 / 1189	
% pred.(2)	97.0 / 91.2 / 81.8 / 91.7		97.2 / 91.6 / 81.8 / 91.9		97.1 / 91.5 / 81.7 / 91.8		96.1 / 90.2 / 74.4 / 89.7	

Notes: * or ** indicates significance at 10% or 5% level, respectively. Constants and period dummies not reported. Standard errors in parentheses.
(1) Number of observations for Fixed / Intermediate / Flexible / All exchange rate regimes.
(2) Correct predictions for Fixed / Intermediate / Flexible / All exchange rate regimes.

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