Money-Based vs. Exchange-Rate-Based Stabilization: Is There Room for Political Opportunism?

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In response to high and chronic inflation, countries have adopted different stabilization policies. However, the extent to which these stabilization programs were designed for political motives is not clear. Because exchange-rate-based stabilizations (ERBS) create an initial consumption boom followed by a contraction, whereas money-based stabilizations generate a consumption bust followed by a recovery, policymakers may take into account the timing of elections when determining the nominal anchor for stabilization. This paper finds strong evidence that the choice of nominal anchor depends on elections, implying the existence of political opportunism. ERBS are, on average, launched before elections, whereas MBS are set after them. [JEL C25, C82, E65, F41, P16]

It is clear that politics influences economic policy. Determining the extent to which this happens is quite a challenge, particularly for researchers studying developing countries. It is a challenge worth meeting, however,

because failing to design the appropriate policy may have a major negative impact on the welfare of these societies.

An example of a policy with a high political dimension and strong welfare impact is the choice of nominal anchor to stabilize inflation. In response to high and chronic inflation, many countries have adopted stabilization policies. These policies differ in their design, but it is not clear to what extent these differences arise from political, rather than economic, motives. Nor is it known whether and to what extent policymakers take advantage of the consumption cycles derived from the different stabilization strategies in order to further their political career.[1]

There are two possible anchors available for policymakers to stabilize inflation: the exchange rate and a monetary aggregate.[2] These alternatives lead to two different consumption paths even if they lead to the same end result in terms of welfare. Exchange-rate-based stabilization (ERBS) programs generate an initial consumption boom and later a recession in the economy, whereas money-based stabilizations (MBSs) generate an early consumption bust followed by a recovery.[3] A benevolent dictator might be indifferent to the differences between these two strategies, but elected officials must be sensitive to the reaction of voters. If voters are not perfectly forward looking, then the timing of elections might matter, and knowledge of these consumption patterns allows politicians to use both nominal anchors opportunistically. In particular, an opportunistic politician might use ERBSs prior to elections, and monetary anchors after elections.[4]

This paper tests for the existence of political opportunism in the choice of nominal anchor to stabilize inflation, thereby contributing to the existing political economy literature and shedding some light on the decision-making process behind a country's choice of a particular stabilization strategy. The results derived from fairly simple econometric models using data on 34 full-fledged stabilization episodes clearly indicate that the timing of elections

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[1]The terms policymakers and politicians are used interchangeably throughout the paper for simplicity. Even though policymakers may not be politicians, it is assumed that they have the same aspirations regarding victory in the next elections against the opposition.

[2]Inflation targeting is not considered as an option to anchor inflation expectations in countries with high and chronic inflation. Case studies presented in Bernanke and others (1999) indicate that inflation targeting regimes have most often been introduced at times when inflation was already low or falling. This may suggest that the basic communication policy, which gives credibility to an inflation targeting regime, is likely to be ineffective in lowering double- and triple-digit inflation to normal levels.

[3]Even though there is some debate in the literature over the empirical regularities of stabilization strategies in high- and chronic-inflation countries, there is enough convincing evidence that supports the existence of consumption cycles after stabilization. The results of this paper will shed some light on this controversy, providing a rationale for consumption boom-bust cycles. This debate and the related literature will be described in more detail below.

[4]Political opportunism is broadly defined throughout the paper as the policymaker's choice of a particular policy, taking into account the timing of elections. This policy, in turn, favors a particular candidate, enhancing that individual's probability of winning.

affects the choice of anchor for stabilization. In particular, policymakers assess how distant the next elections are before making their choice of nominal anchor in the inflation stabilization program they have decided to embark on.

Estimates strongly suggest that the probability that policymakers will adopt an ERBS is higher when they are closer to the date set for future elections. The probability of adopting a MBS, on the other hand, is higher when future elections are far away and previous elections are closer. Moreover, the results show that the stock of international reserves available for policymakers, and the extent of the openness of the economy and fragmentation of the political power, affect not only the choice of anchor to stabilize inflation but also the degree to which policymakers may be more or less opportunistic in their choice of anchor. For example, three different policymakers who decide to launch a stabilization program at different moments of their election cycle will have, respectively, a 45 percent probability of choosing the exchange rate as the anchor three years before elections, 78 percent two years before elections, and 99 percent one year prior to elections, for a case in which reserves cover 10 percent of M3. Likewise, other things being equal, a difference of about three years in the time remaining to the next elections implies a difference of 24 percentage points in the probability of adopting an ERBS (76 percent five years before elections and 100 percent two years prior to elections).

The political economy literature has documented the impact of elections on different economic variables ranging from public budget deficits to inflation and real exchange rate.[5] In particular, theoretical and empirical papers have established that the existence of political opportunism in developing countries creates a common pattern, with these different variables cycling around elections. This paper contributes to the existing literature documenting the impact of elections and political opportunism on a very important policy variable that for decades has occupied the attention of economists interested in developing countries—namely, the nominal anchor to stabilize inflation.

This paper contributes to the understanding of interaction between political and economic phenomena. A similar methodology could be used to study the determination of many other economic policy variables documenting the effects of elections and whether or not political opportunism lies behind their determination. An interesting question would be to assess whether the effect of electoral politics on economic policy is different in developed and developing countries. If so, it might be suggested that strengthening the institutions that oversee politicians in

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[5]See Persson and Svensson (1989), Tabellini and Alesina (1990), and Lambertini (2003) on the relationship between elections and the budget cycle; Stein and Streb (1998) on inflation cycles around elections; and Stein and Streb (1999); Ghezzi, Stein, and Streb (2000) and Bonomo and Terra (1999 and 2000) on exchange rate cycles around elections.

developing countries might reduce the degree of existing political opportunism, which, in turn, may improve the quality of economic policy in these countries.

I. Money-Based vs. ERBS

Chronic inflation was a major problem in the late 20th century for many countries in the developing world and especially in Latin America. The diverse stabilization attempts pursued in Latin America, Israel, Turkey, and Iceland have allowed some economists to identify unique stylized facts for each type of stabilization strategy.[6] The debates over which strategy to adopt in order to stabilize the economy have been intense, and have centered around whether ERBS is superior to MBS.[7] Formally, the difference between these programs lies in the selection of the nominal anchor to bring inflation down to normal rates. ERBS chooses the exchange rate as its nominal anchor, whereas MBS traditionally adopts a monetary aggregate, such as M1, or the monetary base. The consequences of the choice of nominal anchor differ considerably and have important implications.

Traditionally, disinflation has been treated in the literature as contractionary. For example, Okun (1978) relies on the trade-off between inflation and unemployment from the Phillips-curve literature to conclude that any attempt to disinflate would result in costly unemployment for the economy. The main contribution of this literature is the development and application of the sacrifice ratio, which enables economists to calculate how much employment, and therefore output, the economy would have to sacrifice for every percentage point reduction in the inflation rate. Thus, the primary problem faced by policymakers attempting to stabilize the economy has traditionally been the contractionary effects disinflation has on output. However, disinflation does not need to be contractionary, as the hyperinflation episodes in Germany, Hungary, Austria, and Poland in the 1920s and 1930s have shown. Some experiences in Latin American countries and Israel in the past few decades also contradict the results predicted by the

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[6]Stabilization programs in economies in transition from central planning will not be analyzed in this paper. Even though political opportunism in the choice of anchor to stabilize inflation might have been present in countries such as Russia, Poland, Estonia, Latvia, Lithuania, and others, inflation was a *byproduct* of their transition to become market-oriented economies without higher price flexibility. Policies in these countries were not meant simply to reduce inflation. They were specifically designed to organize economic activity and establish private ownership, so it is almost impossible to assess under these circumstances whether or not there was political opportunism in the choice of anchor to stabilize inflation.

[7]It should be pointed out that there is no such thing as a pure and perfect MBS program. Most MBS programs did not rely only on a monetary anchor but adopted a wide mixture of policies. Nevertheless, they tend to differ markedly from ERBS programs because of a lack of an explicit de facto pegged exchange rate. In most of the cases of MBS considered, a floating exchange rate regime was adopted. Even though this paper will continue to use the term MBS, it might be more appropriate to use the term non-ERBS.

Phillips curve-based literature. Many stabilization plans, such as the Southern Cone tablitas of the late 1970s, the Austral Plan in Argentina (1985), the Cruzado Plan in Brazil (1986), and the New Shekel Plan in Israel (1985) have had a positive impact on output and employment, at least in the short run. Because these plans were ERBS programs, ERBS has been perceived as having a smaller sacrifice ratio than MBS.[8]

The different experiences from the stabilization programs mentioned above have generated a very controversial literature regarding the effects of disinflation programs on consumption and output. Easterly (1996) in a study of a sample of stabilization programs has concluded that they are always expansionary. Kiguel and Liviatan (1992) and Végh (1992) study the business cycles associated with ERBS in countries with chronic inflation, concluding that they differ greatly from those associated with MBS.[9] In particular, their study of a sample of stabilization episodes shows that the business cycle associated with ERBS begins with a boom and ends with a recession. Calvo and Végh (1999) analyze stabilization programs adopted in Latin America and Israel. The theoretical work and empirical results of their paper are important because of the stylized facts they help to establish. Table 1 shows the most relevant empirical regularities of ERBS and MBS considered in their paper.

The most striking difference between the two stabilization strategies is the real effects on economic activity. In particular, as described above, ERBS exhibits a consumption boom early on in the program followed by a later contraction. In contrast, MBS exhibits an initial consumption bust followed by a later recovery. The literature exploring these boom-bust cycles has concentrated on theoretical models replicating the empirical regularities in consumption following stabilization programs. The empirical literature sought to test what is known as the "recession now vs. recession later" hypothesis, making reference to the possibility of delaying the disinflation costs (recession) using the exchange rate as the nominal anchor. It is important to note that ERBS attempts often lead to balance-of-payments crises, loss of international reserves, and major devaluations. Therefore, ex ante, it is not a simple task to determine which stabilization strategy should be pursued, because initial consumption booms are definitely an advantage of ERBS over MBS. This might be especially true if the economy is in a recession prior to the launching of the program.

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[8]Because ERBS usually raises output while reducing inflation, ERBS should have a negative rather than a positive sacrifice ratio.

[9]The consumption cycles associated with inflation stabilizations are valid for countries with chronic inflation. Countries with high inflation, such as Nicaragua, or even hyperinflation, like Bolivia, are not included in Kiguel and Liviatan (1992) or Calvo and Végh (1999), and it can be argued that they do not necessarily present the same consumption cycles as in chronic-inflation countries. Nonetheless, because these cases are full-fledged inflation stabilization programs, they will be considered in this paper.

Table 1. Empirical Regularities of Stabilization Programs in Chronic-Inflation Countries

Exchange-Rate-Based Stabilization	Money-Based Stabilization
Slow convergence of the inflation rate to the rate of devaluation	Slow convergence of the inflation rate to the rate of growth of the money supply
Initial increase in real GDP and private consumption followed by a later contraction	Initial contraction in economic activity
Real appreciation of the domestic currency	Real appreciation of the domestic currency
Deterioration of the trade balance and current account deficit	No definite response of the trade balance and the current account
Ambiguous impact response of domestic real interest rates	Initial increase in domestic real interest rates

Source: Calvo and Végh (1999).

Calvo and Végh (1999) also provide theoretical models to explain consumption boom-bust cycles.[10] For the purposes of this paper and in the spirit of the literature (which emphasizes differences over time in the real effects rather than differences in the present discounted value of consumption), it is assumed that both stabilization strategies yield the same present discounted value of consumption; hence, one strategy should not be preferred over the other.[11] The only difference between them depends on when the stabilization costs will be paid—earlier in the case of an MBS and later in the case of an ERBS. In other words, in an infinite-horizon economy, the present value of consumption after the adoption of either stabilization strategy can be assumed to be equal.

Despite the distinctive empirical regularities following ERBS and MBS described by Calvo and Végh (1999), some studies in the recent literature dispute their validity. Echenique and Forteza (1997) reexamine the existence of consumption and output cycles after ERBS and conclude that they occur

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[10]This paper can rely on every theoretical explanation in the survey presented in Calvo and Végh (1999) except one: "lack of credibility." According to this explanation, the exchange rate is not fully credible as a nominal anchor, implying that consumers anticipate a future devaluation, which increases consumption of tradables and results in a consumption boom. This motivation undermines the political opportunism in the choice of nominal anchor to stabilize inflation. Therefore, inflation inertia and durable goods consumption as a result of the stabilization can be used as theoretical explanations for the existence of consumption booms (and later busts) in an ERBS. The use of sticky prices can explain the patterns in an MBS. The key conclusion is that it is possible to create consumption boom-bust cycles in a perfectly credible model with forward-looking agents consistent with the basic idea presented in this paper.

[11]This is true only if it is assumed that there are no wealth effects involved in the process. If, for example, a consumption boom after an ERBS favors the political approval of fiscal and structural reforms that mean higher growth in the near future, then an ERBS is strongly preferred over an MBS to stabilize the economy. This happens because, under the latter, the reforms would have taken one or two years more to be implemented (in the recovery), negatively affecting the total output produced by the infinite-horizon economy.

because an ERBS is generally launched when the world economy is booming and a country has experienced positive terms-of-trade shocks. Therefore, they conclude that the consumption booms after ERBS were more the direct result of positive macroeconomic shocks than of a particular choice of nominal anchor. Gould (1999) argues that the initial consumption boom and bust in ERBS and MBS are endogenously determined by initial conditions such as initial GDP and the level of international reserves of the different economies and bear no relation to the choice of anchor to stabilize inflation. The results of this paper, however, seem to support the existence of the boom-bust cycles in the aftermath of stabilization consistent with Calvo and Végh (1999).

II. Political Opportunism and Inflation Stabilization

Table 2 shows how voting intentions in the 1994 Brazilian presidential campaign changed in favor of Fernando Henrique Cardoso, the candidate who launched the Real Plan (an ERBS) in July of the same year.

The Mexican ERBS is another case in which the elections occurred after the plan was launched, in December 1987. In July 1988, Carlos Salinas was elected, and the Institutional Revolutionary Party (PRI) strategic choice to stabilize the economy was praised by voters enthusiastic about the ongoing consumption boom. Programs such as Austral 1985, Cruzado 1986, and Convertibility 1991 seemed to be more related to congressional elections, which were usually held months after the stabilization was launched. On the other hand, MBS seem to have occurred after elections took place. The Bonex plan in Argentina was launched by the newly elected government headed by Carlos Menem. The Collor Plan in Brazil was launched in March 1990 right after Fernando Collor de Melo was elected as president. Other money-based programs, such as in Peru in 1990 and in the Dominican Republic in 1990, were also launched after elections. The consumption busts that follow from MBS represent a great political cost to be avoided before important elections; rather, incumbents prefer that the cost be paid as soon as the new government is in charge, so that the economic recovery can take place later in the same presidential term. Furthermore, MBS launched soon after elections may serve the purpose of blaming the previous administration for the harsh recession that inevitably follows.

The choice of stabilization strategy might also be related to the level of support enjoyed by the politicians. MBS programs were usually launched right after the newly elected governments took power.[12] As a result, their stock of political capital was very high, allowing them to adopt a short-term strict strategy to stabilize inflation, even at a cost of a deep recession.

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[12]The exceptions are the Turkish program and the Bonex program in Argentina. It took Carlos Menem six months to adopt the program after trying different policies to stabilize the rate of inflation. All other MBS programs were adopted right after the elected president took power.
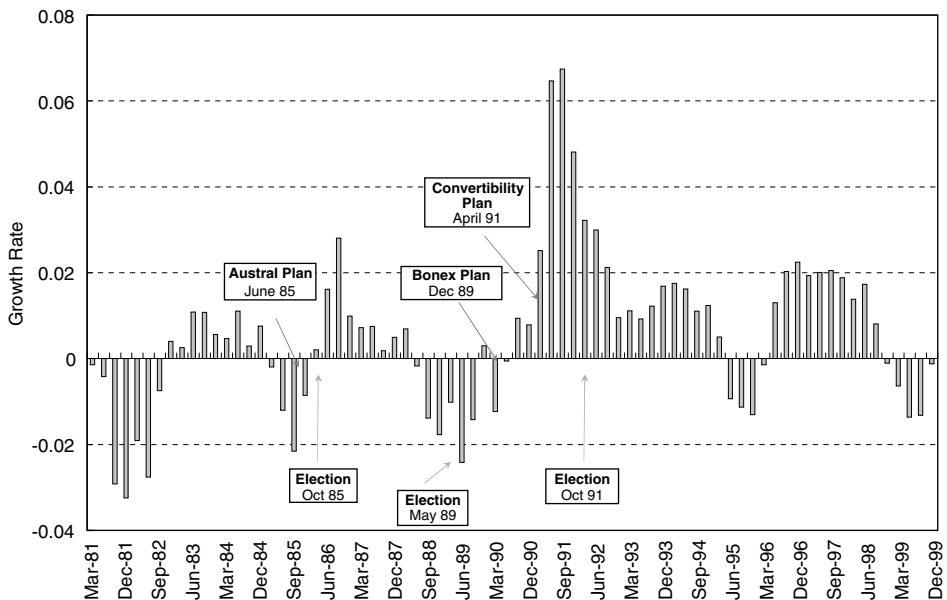
Table 2. Real Plan: Voting Intentions *(In percent)*		
	Cardoso	Lula da Silva
June	17	39
July	27	30
August	45	23
September	43	22
October (results)	54	27

Source: Stein and Streb (1998, p. 162).
Note: Lula da Silva and Cardoso were rival candidates in the 1994 presidential elections in Brazil.

Figure 1. Argentina Quarterly GDP Growth (Moving Average)

Sources: IMF, International Financial Statistics Yearbook; various authors for stabilization dates; and Lijphart Elections Archives for elections.

Conversely, ERBS could be thought of as an instrument to increase political capital prior to elections.

Figures 1 and 2 show the relationship between GDP growth and the timing of the stabilization attempts and elections for Argentina and Brazil. The figures indicate that the Austral Plan (Argentina, June 1985) and the Cruzado Plan (Brazil, February 1986) are examples of ERBS programs launched before elections. As shown in the figures, they succeeded in promoting growth at least up to the October 1985 elections in Argentina and
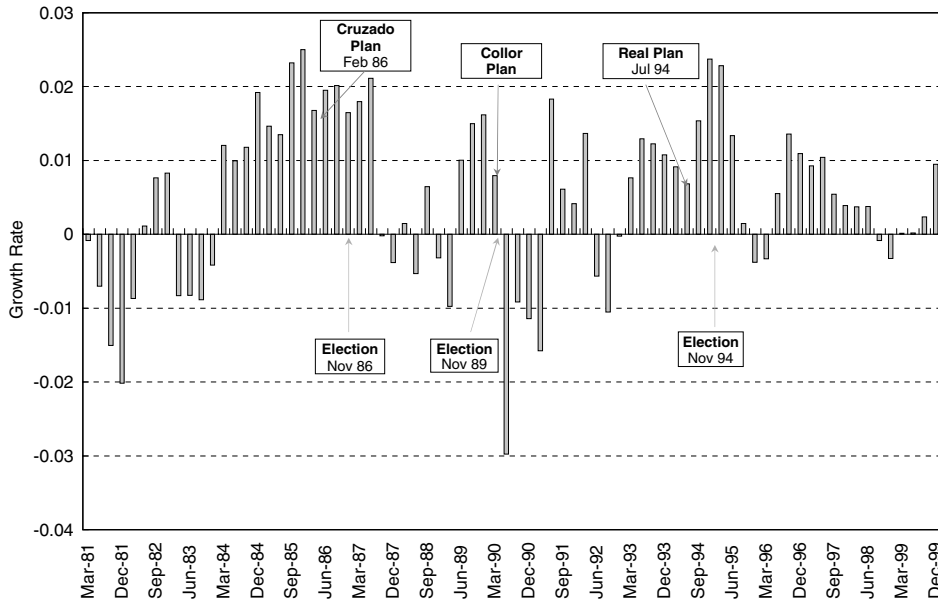
Figure 2. Brazil Quarterly GDP Growth (Moving Average)

Sources: IMF, International Financial Statistics Yearbook; various authors for stabilization dates; and Lijphart Elections Archives for elections.

Table 3. Stabilization Plans and Timing of Elections

Nine Months Before (t^*)	Nine Months After (t^*)
ERBS	
Aridor I (Israel)	Package Deal I (Israel)
Cohen-Orgad (Israel)	Package Deal II (Israel)
Plan February 1985 (Bolivia)	Plan 1983 (Iceland)
Austral I (Argentina)	Plan 1985 (Peru)
Cruzado (Brazil)	Plan BB (Argentina)
February Plan (Argentina)	Plan January 2000 (Turkey)
Plan 1987 (Mexico)	Plan August 1985 (Bolivia)
Primavera II (Argentina)	
Convertibility (Argentina)	
Real (Brazil)	
MBS	
	Bonex (Argentina)
	Collor (Brazil)
	Plan 1990 (Dominican Rep.)
	Plan 1990 (Peru)

Source: Various authors for stabilization dates; Lijphart elections archives for elections.
Note: ERBS and MBS are exchange-rate-based and money-based stabilization, respectively.

November 1986 elections in Brazil. The figures also show two typical MBS programs, Bonex (Argentina, December 1989) and Collor (Brazil, March 1990), which were launched soon after elections, generating a strong recession reflected by negative growth rates. The figures suggest that the anchors in the stabilization programs mentioned above might have been opportunistically selected.

Table 3 also shows the strong relationship between the timing of the stabilization programs and elections. The table shows the exact moment of an election (t^*) and, around it, the starting time of some stabilization attempts extracted from the complete sample of stabilization programs. Most of the programs are concentrated in the first quadrant of the table. These features indicate that MBS programs are launched generally after elections, whereas ERBS programs are launched mostly before elections. Nonetheless, many ERBS programs have been launched after elections, which challenges the notion of political opportunism in the choice of anchor for stabilization. The empirical models in this paper will reveal that the ERBS launched after elections demonstrate that political opportunism might also be present in these situations.

Table 4 shows all the stabilization programs from 1980 onward undertaken in countries that suffered high and/or chronic inflation, the type of stabilization (MBS or ERBS) they adopted, and the closest election (presidential or congressional) date before and after the stabilization.[13]

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[13]There were many stabilization programs prior to 1980. Most of them, such as the tablitas in Argentina, Uruguay, and Chile, occurred during dictatorial regimes when elections were not held and, therefore, they are not part of the sample. Elections are either presidential or congressional, except in the case of Iceland, Israel, and Turkey, which are the only countries with a parliamentary regime. Most of the elections considered in the sample are exogenous, which means that they were neither advanced nor postponed from their original schedule. Some exceptions are worth mentioning: the November 1984 Israeli elections (advanced one year), the May 1989 Argentine elections (advanced to May from November), the military government during a short period between the two elections around the Turkish stabilization program (military coup in September 1980 when elections were scheduled to take place but were postponed until much later, in 1983), and one stabilization program in Bolivia during the administration of Hernán Siles-Suazo that was launched before the call for early democratic elections after years of dictatorships. A critical review of these cases shows that the decision to call for early elections or to postpone them preceded and was by and large independent of the reasons that led the countries to decide whether to launch a stabilization program and to use a specific nominal anchor. Nonetheless, estimates were also obtained excluding the stabilization programs related to election cycles that were "not perfectly" exogenous. The results did not change significantly, and it can be argued that the models estimated in this paper are robust to the exclusion of stabilization programs related to these doubtful exogenous elections. The reason behind choosing only the programs occurring after 1980 is related to the fact that democracy returned to most of the countries in the sample during the 1980s. Moreover, the macroeconomic environment changed substantially starting in 1980. In general, good criteria should be completely independent of the research objective, to avoid unnecessary sample selection biases. The criterion based on a time period was chosen precisely because it fits this important principle, despite the loss of information owing to the fact that some stabilization programs were indeed undertaken in democratic countries before 1980. Mexico ERBS in 1976 is perhaps the best example.

Table 4. Stabilization Programs				
Stabilization Program	Beginning Date	Type	Elections Before	Elections After
Turkey 1980	Jan-80	MBS	Jun-77	Nov-83
Israel—Aridor I	Dec-80	ERBS	May-77	Jun-81
Israel—Aridor II	Sep-82	ERBS	Jun-81	Jul-84
Bolivia 1982	Nov-82	ERBS	Jul-80	Jul-85
Iceland 1983	May-83	ERBS	Apr-83	Apr-87
Israel—Cohen-Orgad	Dec-83	ERBS	Jun-81	Jul-84
Bolivia 1984	Apr-84	ERBS	Jul-80	Jul-85
Israel—Package Deal I	Jul-84	ERBS	Jul-84	Nov-88
Israel—Package Deal II	Nov-84	ERBS	Jul-84	Nov-88
Bolivia 1985—I	Feb-85	ERBS	Jul-80	Jul-85
Israel—Package Deal III	Feb-85	ERBS	Jul-84	Nov-88
Argentina—Austral I	Jun-85	ERBS	Oct-83	Oct-85
Israel—New Shekel	Jul-85	ERBS	Jul-84	Nov-88
Bolivia 1985—II	Aug-85	ERBS	Jul-85	May-89
Peru 1985	Aug-85	ERBS	Apr-85	Apr-90
Brazil—Cruzado Plan	Feb-86	ERBS	Nov-82	Nov-86
Argentina—Primavera Plan I	Aug-86	ERBS	Oct-85	Oct-87
Argentina—February Plan	Feb-87	ERBS	Oct-85	Oct-87
Brazil—Bresser Plan	Jun-87	ERBS	Nov-86	Nov-89
Argentina—Austral II	Oct-87	ERBS	Oct-85	Oct-87
Mexico 1987	Dec-87	ERBS	Jul-85	Jul-88
Brazil—Gradualist Plan	Apr-88	ERBS	Nov-86	Nov-89
Argentina—Primavera II Plan	Aug-88	ERBS	Oct-87	May-89
Brazil—Summer Plan 1988	Jan-89	ERBS	Nov-86	Nov-89
Argentina—BB Plan	Jul-89	ERBS	May-89	Oct-91
Argentina—Bonex	Dec-89	MBS	May-89	Oct-91
Brazil—Collor Plan	Mar-90	MBS	Nov-89	Oct-94
Dominican Republic 1990	Aug-90	MBS	May-90	May-94
Peru 1990	Aug-90	MBS	Apr-90	Apr-95
Uruguay 1990	Dec-90	ERBS	Nov-89	Nov-94
Nicaragua 1991	Mar-91	ERBS	Feb-90	Oct-96
Argentina—Convertibility Plan	Apr-91	ERBS	May-89	Oct-91
Brazil—Real Plan	Jul-94	ERBS	Nov-89	Oct-94
Turkey 2000	Jan-00	ERBS	Apr-99	Nov-02

Source: References for the stabilization programs can be found in Kiguel and Liviatan (1991), Heymann (1991), and Calvo and Végh (1999) for Argentina; Morales (1988) and Agénor and Montiel (1999) for Bolivia; Kiguel and Liviatan (1991) and Calvo and Végh (1999) for Brazil; Medeiros (1994) for the Dominican Republic; Andersen and Guõmundsson (1998) for Iceland; Razin (1991) and Calvo and Végh (1999) for Israel; Calvo and Végh (1999) for Mexico; Reyes (1999) for Nicaragua; Agénor and Montiel (1999) and Calvo and Végh (1999) for Peru; Calvo and Végh (1999) for Uruguay; and Rodrik (1991) and Aruoba (2001) for Turkey. Data for elections can be found in the Lijphart Elections Archives.

According to Table 4, many stabilization programs were adopted close to either a presidential or congressional election. Many others, such as Israel in 1985 or Uruguay in 1990, seem to have been adopted far from elections. At least five stabilization programs relied on monetary aggregates after the introduction of elections in countries such as Argentina, Brazil, Peru, the

Dominican Republic, Uruguay, and Turkey.[14] Even though the use of monetary anchors became more frequent after the return of democracy in 1980, there was a clear preference for the adoption of the exchange rate as the anchor to stabilize inflation (Table 4). This ''revealed preference'' for ERBS might reflect an inherent advantage of the exchange rate as an anchor because of its transparency (Atkeson and Kehoe, 2006). It may also suggest that the exchange rate is a more efficient instrument than a monetary aggregate to quickly reduce high and chronic inflation, especially if there is widespread indexing of contracts and prices to the exchange rate. The next sections present a deeper analysis to test the hypothesis that the timing of elections affects the choice of anchor to stabilize inflation.

III. Data Sources and Sample

In order to construct a sample, it is necessary first to define a stabilization attempt. The question of what is considered a stabilization program is important and controversial. The literature considers two methods of defining a stabilization attempt: the mechanical approach and the ''episodic'' approach. The former uses a mechanical rule to define a stabilization episode, whereas the latter uses well-known case studies in the economics literature to determine what can be considered an inflation stabilization plan.

Easterly (1996) is a key paper in the mechanical tradition that holds stabilizations to be all episodes for which cross-country data show movement from two years or more of greater than 40 percent annual inflation to two years or more of less than 40 percent annual inflation. Hamann (1999) also advocates the use of mechanical rules defining more flexible criteria in order to determine what constitutes an inflation stabilization attempt. The main shortcoming of this tradition is that episodes identified by this method do not necessarily represent full-fledged stabilization attempts. Besides, mechanical rules tend to be biased toward successful stabilizations, leaving the failed attempts off the list of stabilization episodes.

Calvo and Végh (1999) and Veiga (1999 and 2000) adopt the episodic approach to determine their samples of stabilization programs. The main shortcoming of the episodic method is that it may fail to include stabilizations that have occurred but were not heavily addressed by the

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[14]There is a debate in the literature regarding the classification of the Bolivian stabilization program as MBS or ERBS. Some defend the ERBS classification, claiming that the de facto anchor in the stabilization program was the exchange rate, even though de jure it was not announced as such at the beginning of the program. Agénor and Montiel (1999) classify the Bolivian plan as an MBS, explaining that no peg was adopted when the program was announced. In this paper, the Bolivian program is classified as an ERBS using the de facto definition for the classification of anchor. Several case studies show that the exchange rate in Bolivia was widely used as an anchor throughout the program, with the central bank even defining, through daily auctions, the final amounts and sale prices for foreign exchange in the market. Nevertheless, estimations were produced with the same sample, but with Bolivia as an MBS. The results did not change significantly and, therefore, the estimates in this paper are robust to this Bolivian classification switch.

literature. This is especially true if some of the stabilization attempts took place in remote countries.

In the analysis of political opportunism, it is important to consider only full-fledged stabilization programs. There are many episodes of inflation-reducing policies (traditional monetary and fiscal policies) that cannot be characterized as full-fledged stabilization programs.[15] Besides, the more these programs were publicly announced by policymakers, the more consistent they are with respect to the episodic approach and, therefore, the more suitable they are for the sample. Adopting rules that could leave unsuccessful stabilizations out of the sample and including programs that were not really inflation stabilization plans undermine the use of the mechanical approach.[16] Even though it has its limitations, the episodic approach was chosen for this paper because it is more appropriate for the research question addressed.[17]

The stabilization programs used in the empirical analysis are the 34 episodes of inflation stabilization shown in Table 4. Data for elections are available for the whole period from the Lijphart Elections Archive. Data for all the economic variables come from the IFS (the IMF's International Financial Statistics database) and the central banks of the countries in the sample. Data for political fragmentation are taken from the Database of Political Institutions compiled by Beck and others (1998).

IV. Econometric Model

Figures 3 and 4 show the distributions of the most important variables used in the regression analysis according to the nominal anchor. The distribution of months to next election clearly indicates a high frequency (about 50

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[15]Full-fledged stabilization programs are announced ''packages'' containing a diverse array of policies. Some programs adopt traditional orthodox (fiscal and monetary) policies and others adopt nontraditional heterodox policies (price and wage controls, income policies, and ''social pacts'' among different pressure groups). Most of them include monetary reforms and measures to reduce price and wage indexing. These programs, therefore, differ completely from the policies implemented by the central bank and the treasury of the different countries on a daily basis. This is true even when these policies are implemented in order to reduce the inflation rate by a few percentage points.

[16]Nevertheless, the inclusion of some stabilization episodes such as Iceland (1983) and Nicaragua (1991) were extracted from Hamann (1999). The author found their existence using a mechanical rule but their ultimate inclusion was only possible when case studies of the stabilizations were found. This procedure is consistent with the ''episodic'' approach, although it may be considered a mixture of both methodologies.

[17]A fair question to ask is whether the higher number of ERBS compared with MBS could show that it is more convenient to announce ERBS than MBS. In particular, according to this view, policymakers would try to avoid the announcement of MBS prior to elections even if they existed. In this case, a selection bias could exist in favor of ERBS over MBS. A priori, however, it is not obvious that policymakers may prefer to announce one strategy rather than the other to stabilize inflation. Strategies chosen and announced should depend largely on the election cycle. Furthermore, it is difficult to assume that MBS actually happened but were not announced by policymakers. The countries in the sample are very sensitive to inflation stabilization policies and it is hard to imagine politicians mitigating their adoption just by failing to announce their existence.

Figure 3. Distribution of Exchange-Rate-Based (ERBS) and Money-Based
Stabilizations (MBS) by Months to Next Election
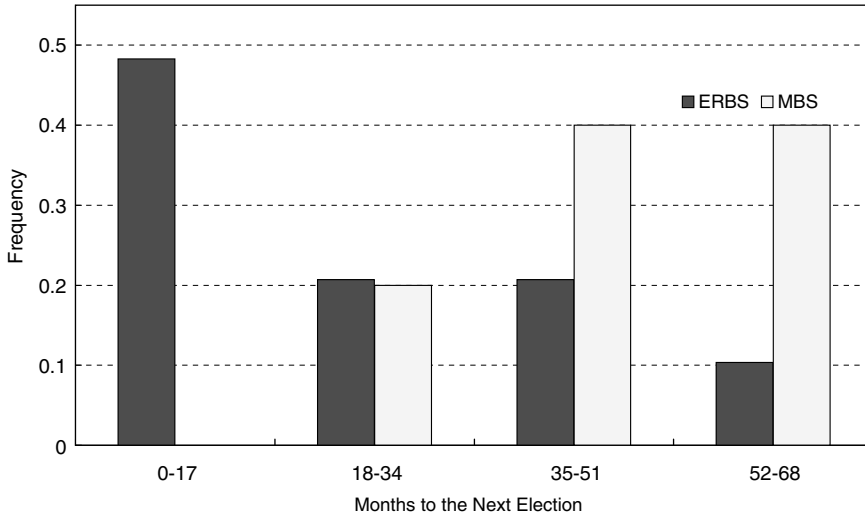
Sources: Various authors for stabilization dates; Lijphart Elections Archives for elections.

Figure 4. Distribution of Exchange-Rate-Based (ERBS) and Money-Based
Stabilizations (MBS) by Months from Past Election
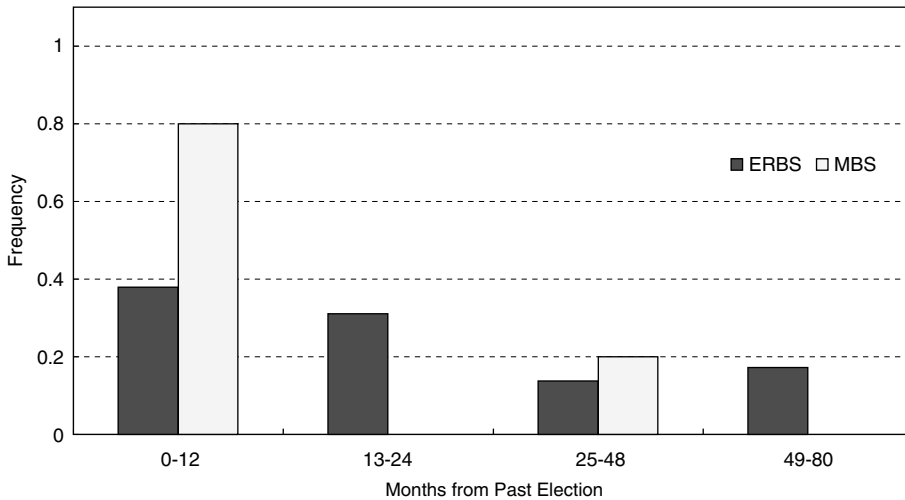
Sources: Various authors for stabilization dates; Lijphart Elections Archives for elections.

percent) in the range of 0–17 months for ERBS as well as a high frequency
(80 percent) in the range of 35 months and above to next election for MBS.
On the other hand, the distribution of months from past election shows high

frequency (80 percent) in the range 0–12 months for MBS as well as a high concentration (about 58 percent) of ERBS in the range of 13 months and above from past election. The figures suggest a close relationship between the election cycle and the choice of nominal anchor. The regression analysis that follows will help determine the existence of such a relationship.

The econometric analysis will model the choice of nominal anchor to stabilize inflation using a cross section of policymakers responsible for the 34 stabilization programs documented in Table 4. The empirical models estimate the influence of elections on the choice of stabilization anchor used by policymakers. This relationship will capture the existence of political opportunism in the choice of the nominal anchor to stabilize inflation.[18] The econometric models use distance in months from the adoption of the stabilization program to the next election and from the previous election as the main explanatory variables for the choice of anchor to stabilize inflation.

A series of probit models are estimated where Y_i is the discrete dependent variable that takes the value 0 if the program is an MBS, and 1 if the program is an ERBS. The first benchmark model to be estimated is

$$P(Y_i = 1) = \Phi(X_i'\beta) = \Phi(\beta_0 + \beta_1 \ln(X_{1i}) + \beta_2 X_{2i}$$

$$+ \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i}),$$

where $\Phi(X_i'\beta)$ is the standard normal cumulative distribution function.

The X matrix is composed of the following regressors:

X_1: months to next election
X_2: international reserves
X_3: openness
X_4: political fragmentation index
X_5: quarterly GDP growth rate

It does not particularly matter the logarithmic form set for the variable months to next election in the regression. The assumption introduces another concavity, aside from the probit specification, in the way the distance to the next elections affects the choice of anchor to stabilize inflation. In particular, the rate at which the probability of a policymaker adopting an ERBS increases as elections get closer.[19] International reserves are calculated as the ratio of reserves to M3. This takes into account the relative sizes of the

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[18]The models in this paper take as given the policymakers' decision to stabilize inflation. This decision is first and foremost influenced by the inflationary process experienced by the different countries, and it is therefore independent of the choice of anchor used throughout the stabilization attempts. Bruno and others (1991) is a good reference for case studies investigating the inflationary process affecting the decision of whether or not to stabilize inflation in a variety of countries.

[19]Using the linear specification for the distance produced very similar results. For convenience, throughout the paper, only the results of the estimated models using the logarithmic form will be shown.

countries when considering the distinct amount of international reserves they possess. The ideal measure would include IMF potential financial assistance that would eventually increase the stock of international reserves of the various countries. In practice, this is impossible to do, because the IMF does not reveal the amount of either conditional or unconditional loans it is willing to grant to countries in financial distress. Openness is defined as the share of total exports plus imports over GDP a month before the stabilization program. The index of political fragmentation is a dummy variable that takes the value of 1 for a fragmented political environment and 0 for a more stable and cohesive one. Political fragmentation in a presidential regime means that the incumbent's opposition party has the majority in congress and, in a parliamentary regime, it means that the incumbent's party (government) does not have a majority in the parliament.[20] The growth rates considered have two quarters' lag from the starting month of the stabilization program. This assumes that policymakers knew only two-quarter-lagged (and not current) growth rates when they decided which anchor to use to stabilize inflation.

The main objective of the estimation is to determine the sign of β_1 as well as its statistical significance. The smaller the distance in months to the next election, the higher the probability of adoption of an ERBS should be, because it is more likely that the consumption boom will occur close to the next elections. Therefore, theory predicts that β_1 should have a negative sign.

It is also interesting to examine the possibility of other variables affecting the choice of stabilization anchor. Intuitively, there should be a clear connection with the level of international reserves. A higher level of international reserves should result in a higher probability of adoption of an ERBS, because the government would be more able to sustain a fixed level for the exchange rate. Therefore, β_2 would be expected to have a positive sign.

A higher level of openness should positively affect the probability of an ERBS. The more open the economy, the higher the proportion of goods that are actually traded and hence the larger the proportion of goods that are, in principle, subject to the "discipline" of the law of one price. In theory, other things being equal, the higher the proportion of tradable goods, the more inflation will fall as a result of the implementation of an ERBS, which suggests that β_3 should have a positive sign.

High political fragmentation should increase the probability of adoption of an ERBS, because it is unlikely that a government would find enough political support for policies that entail great short-term output costs to the public, such as an MBS.[21] Policymakers' ability to implement their preferred

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[20]This index is derived from a more general index reported by Beck and others (1998) in the database for political institutions.

[21]It is also true that politicians may try to establish credibility by adopting strict policies when there is a perception that they are politically weak. In this case, the adoption of an MBS would take place precisely when there is high political fragmentation (low political support). The econometric test will determine which hypothesis is validated by the data.

policies may depend on the stock of political capital necessary for policymaking.[22] Therefore, it is important to consider facts and events that took place in past periods as an indication of how much political support candidates have before embarking on any specific economic program. In particular, recently elected politicians should possess a large stock of political capital that can be used to set unpopular economic policies like MBS. According to this view, it would make sense for politicians to adopt unpopular policies when their stock of political capital is at its highest level. The aftermath of an election is an obvious situation where the stock of political capital has not yet suffered any depreciation. Therefore, the above proposition implies that higher political fragmentation increases the probability of an ERBS ($\beta_4 > 0$).

Finally, GDP growth may influence the choice of stabilization anchor, because if a country is in a recession it is more likely to implement an ERBS, given that adopting an MBS will further depress the economy, increasing the overall costs of the program. Therefore, the sign of β_5 would be expected to be negative.

The coefficients of the regression will be unbiased only if the different explanatory variables are orthogonal to the stochastic error term of the regression. This condition implies, among other things, that the right-hand-side variables of the model are exogenously determined. It is easy to see that growth and openness before stabilization and political fragmentation are independent of the choice of anchor to stabilize the economy. It is not as easy to see that the distance to next elections is independent of the choice of anchor to stabilize inflation. The distance variable is composed of two factors: the date of the elections and the date that the decision to stabilize takes place. The first factor is completely exogenously determined by a country's legal system. It can be argued that the second component is dependent on the nominal anchor chosen. In particular, it could be that policymakers are committed to a particular anchor and they simply wait for the best moment to decide when to stabilize inflation, launching the anchor they had long been committed to. If this is the case, the choice of anchor would affect the decision of when to stabilize inflation and, therefore, the distance-to-next-election variable in the regression would no longer be exogenously determined. However, throughout this paper, it has been assumed that the decision to stabilize inflation precedes the choice of the nominal anchor for stabilization.

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[22]Generally, but not always, the more unpopular the policies, the higher the need for political support. This support may come from politicians inside the government bureaucracy or outside, from the congress or other political institutions. Political support may also come directly from the people, in public demonstrations, as, for example, populist governments in Brazil and Argentina have experienced in the past. Ideally, one would like to be able to accurately measure political capital but, naturally, this is a complex task. In this paper, the index of political fragmentation is used as a good approximation capturing the amount of political capital available to the politician before choosing the nominal anchor to stabilize inflation.

The assumption of stabilizing inflation after the choice of nominal anchor is reasonable for two reasons. First, the decision about when to stabilize inflation depends strongly on how high the inflation rate in the economy is as well as the rate of change in inflation at every point in time. The inflationary history of the country, among other things, will determine the exact moment to launch the nominal anchor to stabilize inflation. The second argument relates to the assumption that politicians are not committed to particular policy instruments, such as a nominal anchor. Quite the opposite is true. Policymakers are committed to policy objectives such as lower inflation and higher output. In particular, they are willing to reach these two policy goals at some point before elections using whatever instruments they can, so they are able to enhance their chances of reelection. On this basis, it can be argued that the decision of when to stabilize inflation (and the variable distance to next elections) is determined exogenously to the model. The above is also valid for the level of international reserves prior to stabilization. Even though this level might have been influenced by a prior decision to use, for example, the exchange rate as the nominal anchor in a future stabilization program, it is again assumed that the decision to stabilize inflation precedes any other policy decision, and, therefore, the choice of anchor to stabilize is selected afterward with whatever stock of international reserves is available at the moment. The assumptions regarding the policymaker's behavior and the decision-making process outlined above guarantee the exogeneity of all the explanatory variables of the model, ensuring that the coefficients estimated are unbiased.

Because heteroscedasticity is a very common problem in cross-section analysis, an estimator of variance more robust than the traditional computation will be used.[23] Therefore, all standard errors calculated throughout the econometric analysis are robust (corrected for heteroscedasticity) using the Huber-White-Sandwich method.

Table 5 presents the results of a set of regressions using different combinations of the following variables: months to next elections, reserves, openness, political fragmentation, and growth as regressors.[24]

The signs of the coefficients for months to next election as well as the signs of the remaining regressors are consistent with the basic argument presented previously.[25] According to the table, model (1) is the best in terms

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[23]The possible presence of heteroscedasticity in the model might be, for instance, a result of the fact that countries with high levels of international reserves can have both choices of nominal anchor to stabilize inflation, whereas countries with low levels of reserves cannot choose the exchange rate as a viable anchor and must rely on a monetary aggregate.

[24]Inflation was never statistically significant when introduced as a regressor in the model. This may be because inflation often escalated after a failed ERBS (for example in Argentina, Brazil, and Peru), reaching higher levels before countries launched their MBS as an alternative strategy. Results are available from the author on request.

[25]The exception is the sign of the coefficient of growth, which was positive in some specifications, but the coefficient was never statistically different from zero.

	(1) ERBS	(2) ERBS	(3) ERBS	(4) ERBS	(5) ERBS	(6) ERBS
Table 5. Regression Variants Using Absolute Distance to Next Elections						
log (months to next elections)	−2.26*** (0.72)	−1.932*** (0.60)	−2.117** (1.06)	−1.363* (0.71)	−2.053*** (0.77)	−1.029** (0.48)
Reserves	16.312** (7.61)	16.661** (7.99)	11.764* (6.71)	14.919** (5.95)		
Openness	3.374** (1.58)	3.452** (1.43)	3.474*** (1.13)		3.496*** (1.35)	
Political fragmentation	2.43*** (0.93)	1.635 (1.09)		1.9 (1.15)	−0.772 (0.80)	
Growth	20.778 (33.08)					
Constant	2.815 (2.27)	2.285 (1.79)	5.08 (3.92)	1.630 (1.70)	7.377** (3.13)	4.527*** (1.73)
Prob > χ^2	0.0044	0.0009	0.0000	0.0664	0.0024	0.0311
Pseudo R^2	0.6266	0.6151	0.5770	0.4931	0.4297	0.1947
Observations	33	33	33	33	33	33

Sources: See Table 4.

Notes: The dependent variable is the probability of adoption of an ERBS. The model is a probit estimated using maximum likelihood. Robust standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

of specification. Even though growth is not statistically significant, distance in months to next elections and political fragmentation are statistically significant at the 1 percent confidence level, whereas international reserves and openness are also significant at the 5 percent confidence level.[26] This estimation confirms the validity of the hypothesis that policymakers opportunistically choose the nominal anchor to stabilize inflation.

Additional models were estimated to examine whether the hypothesis of political opportunism being behind the choice of nominal anchor is confirmed. Table 6 shows estimates of a regression in which the variable "months to next elections" is substituted by the variable "months from past elections." Clearly, the expectation is that the sign of the coefficient of the variable "months from past elections" will be positive. The farther away the politician is from past elections, the higher the probability of adoption of an ERBS should be. Even though the sign of the other coefficients did not change substantially compared with the regression using months to next elections, their statistical significance is not as high.

The models examined above have assumed that only the absolute distance in months to or from past elections should affect the policymaker's

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[26]Growth was not statistically significant in most of the specifications.

	(1) ERBS	(2) ERBS	(3) ERBS	(4) ERBS	(5) ERBS	(6) ERBS
Table 6. Regression Variants Using Absolute Distance from Past Elections						
log (months from past elections)*	0.942* (0.51)	0.934* (0.56)	0.876* (0.53)	0.852* (0.45)	0.572* (0.29)	0.412 (0.28)
Reserves**	18.586** (8.79)	16.753** (7.62)	15.753** (7.85)	17.742** (7.50)		
Openness	2.219* (1.29)	1.969 (1.51)	2.061 (1.44)		2.129 (1.40)	
Political fragmentation	−0.062 (0.95)	0.364 (0.90)		0.624 (0.90)	−0.396 (0.66)	
Growth	−18.758 (36.95)					
Constant	−4.381* (2.41)	−4.446* (2.56)	−3.944* (2.34)	−4.022* (2.19)	−0.686 (1.07)	0.091 (0.69)
Prob > χ^2	0.2841	0.2601	0.2004	0.1102	0.1276	0.1426
Pseudo R^2	0.4390	0.4228	0.4168	0.3710	0.1921	0.0840
Observations	33	33	33	33	33	33

Sources: See Table 4.

Notes: The dependent variable is the probability of adoption of an ERBS. The model is a probit estimated using maximum likelihood. Robust standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

decision regarding the nominal anchor to stabilize inflation. In fact, it can be argued that six months before an election is exactly six months before an election for politicians who have been two or four years in office. Nevertheless, it can also be argued that if the length of the election cycle that policymakers face is unequal, a proportional measure of distance might be more appropriate. The estimates in Table 7 are the result of regressions that used normalized distance to next elections. The normalization is given simply by the ratio of the distance to next election to the length of the election cycle (the sum of the distances to and from elections) that each policymaker faces.[27] The coefficients' signs and the statistical significance of all the variables do not change substantially from the specification using absolute measures of distance.

Table 8 reproduces the results of the same exercise using instead normalized distance from past elections. Again, coefficient signs and

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[27]Election cycle does not necessarily coincide with government mandate. It just means the period between any two elections (presidential or congressional). A newly elected Argentine president with a mandate of four years faces congressional elections in exactly two years and the next presidential election in four years. Even though his or her mandate is for four years, the president faces an election cycle of only two years.

Table 7. Regression Variants Using Normalized Distance to Next Elections

	(1) ERBS	(2) ERBS	(3) ERBS	(4) ERBS	(5) ERBS	(6) ERBS
log (months to next elections/cycle)	−4.391***	−4.319***	−3.799**	−4.219**	−2.577**	−1.391**
	(1.66)	(1.50)	(1.86)	(1.67)	(1.23)	(0.68)
Reserves	27.039***	26.852***	16.598**	27.041***		
	(9.59)	(10.08)	(8.07)	(10.49)		
Openness	2.987*	3.036*	2.831**		2.89**	
	(1.70)	(1.78)	(1.41)		(1.46)	
Political fragmentation	3.099**	2.9**		3.285**	−0.281	
	(1.40)	(1.31)		(1.36)	(0.73)	
Growth	4.794					
	(34.64)					
Constant	−8.095***	−7.896***	−3.753**	−7.269***	−0.771	0.445
	(2.99)	(2.80)	(1.69)	(2.81)	(0.94)	(0.37)
Prob > χ^2	0.1090	0.0593	0.0605	0.0594	0.0856	0.0418
Pseudo R^2	0.6708	0.6700	0.5675	0.5928	0.3524	0.1703
Observations	33	33	33	33	33	33

Sources: See Table 4.

Notes: The dependent variable is the probability of adoption of an ERBS. The main regressor is the ratio number of months to the next elections divided by the number of months within an election cycle. The model is a probit estimated using maximum likelihood. Robust standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

statistical significance do not change considerably, indicating that the political opportunism hypothesis is robust to this change in the model specification. Proceeding with the idea of testing how robust the results previously obtained are to other specifications, a model incorporating measures of distance both to and from elections is considered. The model to be estimated is

$$P(Y_i = 1) = \Phi(X_i'\beta) = \Phi(\beta_0 + \beta_1 \ln(X_{1i}) + \beta_2 \ln(X_{2i})$$

$$+ \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i}),$$

where, as before, $\Phi(X_i'\beta)$ is the standard normal cumulative distribution.

In this model X_1 is the variable "months to next election" and X_2 is the variable "months from past election." All other regressors are the same ones previously used in the benchmark model as well as in other specifications.

This model allows for examination of the impact on the probability of choosing an ERBS of a marginal increase of a month in the election cycle, holding either the distance to next or from past elections constant. The basic argument from the previous models should also follow for this specification. An increase of a month in the election cycle, holding months

Table 8. Regression Variants Using Normalized Distance from Past Elections

	(1) ERBS	(2) ERBS	(3) ERBS	(4) ERBS	(5) ERBS	(6) ERBS
log (months from past elections/cycle)	1.241** (0.58)	1.247** (0.54)	1.140** (0.49)	1.057** (0.53)	0.816*** (0.28)	0.500** (0.24)
Reserves	18.442** (8.43)	18.397** (7.99)	16.691** (7.23)	19.581** (9.29)		
Openness	3.060* (1.66)	3.047 (1.88)	3.142* (1.85)		3.079 (1.99)	
Political fragmentation	0.687 (1.04)	0.723 (0.95)		1.050 (1.03)	−0.397 (0.66)	
Growth	−1.212 (39.36)					
Constant	−1.228 (1.03)	−1.238 (1.01)	−0.657 (0.83)	−1.045 (1.10)	1.600** (0.66)	1.812*** (0.46)
Prob > χ^2	0.2297	0.1540	0.0842	0.4506	0.0299	0.0392
Pseudo R^2	0.5445	0.5445	0.5278	0.1703	0.2922	0.1311
Observations	33	33	33	33	33	33

Sources: See Table 4.

Notes: The dependent variable is the probability of adoption of an ERBS. The main regressor the number of months from previous elections divided by the number of months within an election cycle. The model is a probit estimated using maximum likelihood. Robust standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

from past elections constant, adds a month to the distance to next elections, reducing the probability of adoption of an ERBS. It is important to mention that this model does not suffer from full multicollinearity, because the length of the election cycle is not equal for all policymakers.[28] Table 9 shows the estimates of this model, including both measures of distance to and from elections.

The sign of the coefficients for months to next election and months from past election as well as the sign of the remaining regressors is consistent with the basic argument presented previously. Nevertheless, the statistical significance of both measures of distance is reduced substantially throughout the different specifications. This is a result of the strong collinearity between both measures of distance (see note 26). International reserves, openness, and political fragmentation are again highly statistically

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[28]If the election cycle were exactly the same for all policymakers and the distance measures were defined in linear form (not logs), months to next elections would be a linear combination of months from past elections. This fact, in turn, would generate full multicollinearity, making the estimation of this particular model impossible. Nonetheless, it is reasonable to assume that both measures of distance are strongly collinear, and it is likely that the statistical significance of the estimated coefficients will be reduced.

Table 9. Regression Variants Using Distance to Next Elections and Distance from Past Elections

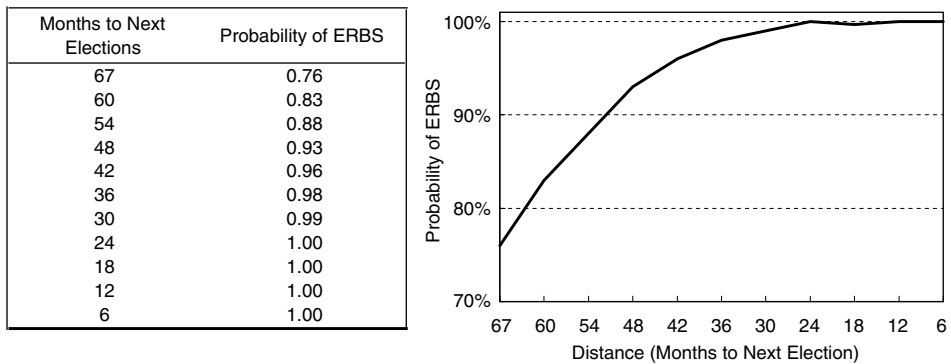|	(1) ERBS	(2) ERBS	(3) ERBS	(4) ERBS	(5) ERBS	(6) ERBS
log (months to next elections)	−2.091*** (0.68)	−1.664** (0.70)	−1.96 (1.30)	−1.139 (0.79)	−2.015** (0.88)	−1.072* (0.62)
log (months from past elections)	0.538 (0.58)	0.525 (0.53)	0.445 (0.53)	0.618 (0.46)	0.144 (0.30)	0.04 (0.36)
Reserves	19.069* (9.78)	19.701** (9.91)	14.249* (8.31)	20.964** (8.78)		
Openness	3.246** (1.54)	3.408** (1.51)	3.563*** (1.29)		3.478** (1.44)	
Political fragmentation	2.817*** (1.02)	1.832 (1.19)		2.142* (1.27)	−0.785 (0.82)	
Growth	23.879 (32.60)					
Constant	0.588 (4.14)	−0.175 (3.74)	3.367 (5.57)	−1.448 (3.00)	6.992* (3.77)	4.555* (2.75)
Prob > χ^2	0.0041	0.0023	0.0020	0.1555	0.0072	0.0755
Pseudo R^2	0.6528	0.6394	0.5943	0.5318	0.4300	0.2149
Observations	32	32	32	32	32	32

Sources: See Table 4.

Notes: The dependent variable is the probability of adoption of an ERBS. The main regressors are number of months from previous elections and the number of months to the next elections divided by number of months within an election cycle. The model is a probit estimated using maximum likelihood. Robust standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

significant in variant (1) of this particular model, reinforcing the idea that both economic and political variables, aside from distance to or from elections, affect the decision over the nominal anchor to stabilize inflation. Therefore, in spite of the specification chosen from all the models considered in the econometric analysis, the results lead to the same conclusion—namely, that the election cycle is relevant to the determination of the nominal anchor to stabilize inflation.

V. Marginal Effects

Because the coefficients estimated by the probit regressions are different from the marginal effects of changes to the right-hand side variables on the probability of an ERBS, the resulting numbers on the previous tables are not very informative. Rather than reporting the marginal effects associated with each coefficient, evaluating the value of the other explanatory variables at their means, a series of exercises is conducted in order to examine the real

Figure 5. Predicted Probabilities with Varying Distance (Months to Next Elections)

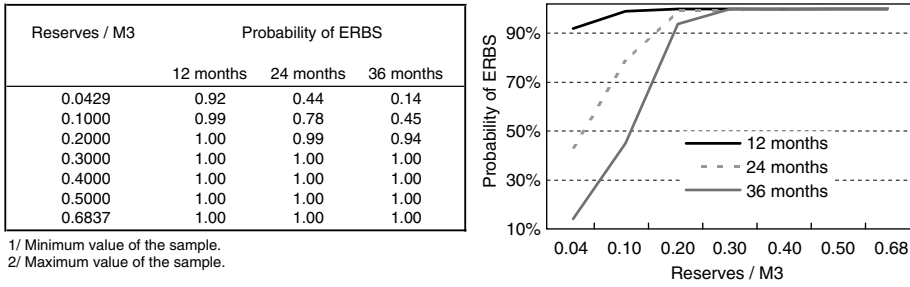| Months to Next Elections	Probability of ERBS
67	0.76
60	0.83
54	0.88
48	0.93
42	0.96
36	0.98
30	0.99
24	1.00
18	1.00
12	1.00
6	1.00

Sources: Various authors for stabilization dates; Lijphart Elections Archives for elections.
Note: Reserves, openness, political fragmentation, and growth are evaluated at their means.

impact of the different regressors on the probability, using the benchmark model previously estimated.

Figure 5 shows how the probability of an ERBS increases as the distance to the next elections shrinks. The figure starts from the highest value of distance to next election in the sample (Nicaragua), holding the other variables in the regression to their sample means. According to Figure 5, the probability of adopting an ERBS ranges from 76 to 100 percent, depending how close next elections are.
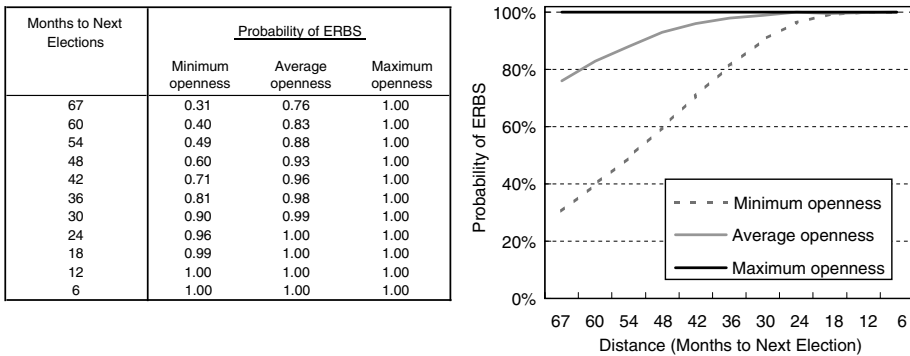
Figure 6 illustrates the impact of varying reserves on the probability of adopting an ERBS for different values of the distance to next elections. At least three important insights are derived from this figure. First, it is interesting that no matter how large the relative stock of international reserves is, politicians one year before elections adopt an ERBS with at least 90 percent probability. Second, for very low stocks of international reserves, a change in the distance to next elections has a tremendous impact on the probability of adoption of an ERBS. The probability jumps from as low as 45 percent to as high as 90 percent in a one-year period. The third and last point is that if international reserves are largely available (at least 40 percent of M3) the probability of an ERBS is close to one. This is because politicians with relatively high levels of international reserves can embark on an ERBS much earlier, because the exchange rate can be kept fixed for a much longer period of time. If in Krugman (1979) international reserves played a role in the postponement of a devaluation in the midst of a currency crisis, this situation also implies a time frame during which international reserves have a role to play. In particular, opportunistic policymakers with more available reserves may adopt an ERBS much earlier or simply choose an ERBS far away from elections when it would make more sense to choose an MBS taking into account only the boom-bust cycles resulting from the ERBS. Nicaragua is an example of a country with a relatively high level of reserves

Figure 6. Predicted Probabilities with Varying Reserves

Reserves / M3	Probability of ERBS		
	12 months	24 months	36 months
0.0429	0.92	0.44	0.14
0.1000	0.99	0.78	0.45
0.2000	1.00	0.99	0.94
0.3000	1.00	1.00	1.00
0.4000	1.00	1.00	1.00
0.5000	1.00	1.00	1.00
0.6837	1.00	1.00	1.00

1/ Minimum value of the sample.
2/ Maximum value of the sample.

Sources: Various authors for stabilization dates; Lijphart Elections Archives for elections; and IMF, International Financial Statistics for data on international reserves.

Figure 7. Predicted Probabilities with Varying Distance and Openness

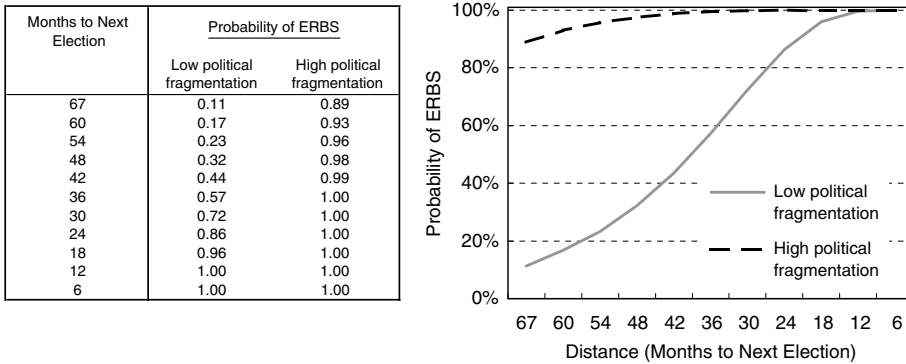| Months to Next Elections	Probability of ERBS		
	Minimum openness	Average openness	Maximum openness
67	0.31	0.76	1.00
60	0.40	0.83	1.00
54	0.49	0.88	1.00
48	0.60	0.93	1.00
42	0.71	0.96	1.00
36	0.81	0.98	1.00
30	0.90	0.99	1.00
24	0.96	1.00	1.00
18	0.99	1.00	1.00
12	1.00	1.00	1.00
6	1.00	1.00	1.00

Sources: Various authors for stabilization dates; Lijphart Elections Archives for elections; and IMF, International Financial Statistics for data on openess.

Note: Reserves, fragmentation, and growth are evaluated at their means.

(over 60 percent) that adopted an ERBS more than five years before elections.

Figure 7 illustrates how the distance to next elections affects the probability of adopting an ERBS for different levels of openness. The figure shows that when the levels of openness are very low (less than 5 percent) as in Turkey in 1980, the probability of an ERBS is as low as 30 percent when elections are far away and all other variables are evaluated at their sample means. In addition, for high levels of openness, the probability of an ERBS is one, regardless of how far away the next elections are. These results indicate that the level of openness might limit the degree of political opportunism behind the choice of anchor to stabilize inflation. For example, no country in the sample is as open as Israel, whose share of exports plus imports over GDP is sometimes greater than one. Israel has adopted six ERBS but no

Figure 8. Predicted Probabilities with Varying Distance and Political Fragmentation

Months to Next Election	Probability of ERBS	
	Low political fragmentation	High political fragmentation
67	0.11	0.89
60	0.17	0.93
54	0.23	0.96
48	0.32	0.98
42	0.44	0.99
36	0.57	1.00
30	0.72	1.00
24	0.86	1.00
18	0.96	1.00
12	1.00	1.00
6	1.00	1.00

Sources: Various authors for stabilization dates; Lijphart Elections Archives for elections; and database of political institutions, for data on political fragmentation.

Note: Reserves, openness, and growth are evaluated at their means.

MBS programs. The results derived from Figure 7 suggest that Israeli politicians were loath to choose an MBS even far away from elections because of the risks of failure to stabilize inflation with a monetary anchor in a very open economy.

Figure 8 illustrates how the probability of an ERBS is affected by changes in the distance to the next elections for each type of political environment (fragmented and not fragmented). For large values of the distance to the next elections, the probability is strikingly different for fragmented and cohesive political environments. The difference in probability may reach as high as 75 percentage points. This picture might explain why countries such as Argentina adopted an ERBS program, such as the BB plan (August 1989), far away from future elections even though past elections had occurred just months before the stabilization. In fact, other exceptional similar cases might occur when politicians do not enjoy much political support, even after recent elections. This may happen, for instance, if a politician is elected more because of a lack of good alternatives than on the basis of the individual's reputation. The lack of political support may have strongly affected the choice of the nominal anchor in these circumstances.[29]

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[29]The 1989 presidential election in Argentina illustrates how a lack of political capital might condition the choice of nominal anchor to stabilize inflation. Even though the new president, Carlos Menem, was elected with great popular support, key interest groups from the business sector, the government bureaucracy, and the intellectual elite were still reluctant to back him. This political scenario may have undermined Menem's ability to launch an MBS. Instead, he resorted to an ERBS that required less support and might have been instrumental to building up more political capital. Similar anecdotal evidence can be found in other ERBS launched soon after elections in Peru, Israel, and Iceland.

Table 10. Regression Model Using Interactions with Distance	
	ERBS
log (months to next elections)	−3.689***
	(0.88)
log (months to next elections) * Reserves	5.217**
	(2.62)
log (months to next elections) * Openness	0.925*
	(0.51)
log (months to next elections) * Political fragmentation	0.787***
	(0.23)
Growth	18.621
	(33.13)
Constant	7.28***
	(2.48)
Prob $> \chi^2$	0.0013
Pseudo R^2	0.6403
Observations	33

Sources: See Table 4.

Notes: The dependent variable is the probability of adoption of an ERBS. The regressors are interaction variables using months to next elections and the control variables. The model is a probit estimated using maximum likelihood. Robust standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

Figures 6–8 suggest that the impact of distance to next elections on the probability of adoption of an ERBS may differ according to whether the country has a high or low level of international reserves, and/or is highly open or closed to international trade flows, and/or is politically fragmented or cohesive. A regression with interacted explanatory variables was used to test this hypothesis. The results are shown in Table 10.

All the coefficients in the regression are statistically significant, with the exception of growth. The sign of the various coefficients confirms the argument derived from the figures above. In particular, for a given distance to next elections a greater level of international reserves, openness, and political fragmentation increases the probability of adoption of an ERBS.

The examples mentioned in this section help to justify an observed fact that appears to be inconsistent with political opportunism—namely, the existence of ERBS launched soon after elections. The boom-bust-cycle hypothesis would have predicted the optimal timing for the ERBS to be farther away from past and closer to next elections. Nonetheless, the model suggests that the determination of the nominal anchor in these cases depended on one or more of the model's explanatory variables. In fact, a baseline probability test confirms that the model predicts correctly

more than 90 percent of the actual ERBS and MBS in the countries of the sample.[30]

The results above are relevant, because they indicate that the degree of political opportunism behind the choice of anchor to stabilize inflation depends on the level of reserves, openness, and the political environment. Moreover, the results are also extremely significant from a normative perspective, because stronger political and economic institutions could potentially reduce the degree of opportunism and especially benefit developing countries, which are generally subject to weak institutional arrangements and high degrees of political opportunism.

VI. Extensions

This section considers possible extensions to the benchmark model estimated previously. In particular, two interesting issues will be examined: the impact of past failed or successful stabilization attempts on the choice of anchor for a new stabilization and the impact one country has on other countries' decisions regarding the nominal anchor to stabilize inflation.

The extent to which a stabilization program fails or succeeds is easy to determine in some situations, such as the failure of the Plan Primavera in 1988 in Argentina, but difficult in others, such as the Convertibility Plan in 1991 in Argentina. Nevertheless, it can be argued that successive failures of a particular strategy may have influenced the decision to adopt a different one. Examples are the successive failed ERBS launched in Argentina, Brazil, and Peru that might have led these countries to adopt an MBS at some point. In fact, all these countries have adopted an MBS after having failed at least once to stabilize their economies using the exchange rate as the nominal anchor.[31] In order to capture the effect of failed ERBS on the choice of anchor for stabilization, estimates were produced from a model that incorporate dummies for the countries that had at least two failed ERBS attempts.[32] Table 11 summarizes the results.

The coefficients of both country dummies have a negative sign, even though only for Brazil it is statistically significant. They indicate, therefore, that these countries have some specific characteristics that make them less likely to adopt the exchange rate as a nominal anchor. The interpretation is

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[30]The baseline probability assumed for the test was 50 percent. This number was chosen because it reflects the theoretical assumption that there should be no reason to prefer one nominal anchor over the other if it is assumed that both result in equal present-value welfare, as in Calvo and Végh (1999).

[31]Although Peru had only one failed ERBS before the MBS in 1990, the other two countries had at least three failed ERBS before deciding to adopt an MBS.

[32]This model specification is a very simplistic way to address an interesting but complicated issue. Only a time series model of Argentina and Brazil could address how previous failed attempts using a particular nominal anchor for stabilization might have induced politicians to use the alternative anchor in a subsequent attempt.

	ERBS
Table 11. Regression Model with Country Dummies	
log (months to next elections)	−4.272***
	(1.21)
Reserves	24.842**
	(10.39)
Openness	0.195
	(1.42)
Growth	8.727
	(36.80)
Political fragmentation	3.806***
	(1.27)
Dummy for Argentina	−3.652
	(2.35)
Dummy for Brazil	−2.131**
	(0.99)
Constant	10.21**
	(4.34)
Prob $> \chi^2$	0.0000
Pseudo R^2	0.7048
Observations	33

Sources: See Table 4.

Notes: The dependent variable is the probability of adoption of an exchange-rate-based stabilization. The model is a probit estimated using maximum likelihood. Robust standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

that policymakers in these countries have failed to stabilize the economy several times using the exchange rate as the nominal anchor and that they were therefore more willing to try MBS instead. These results are consistent with Kiguel and Liviatan (1991), reinforcing the argument that policymakers facing low levels of credibility try to adopt an MBS to signal their toughness with a strict program and avoid ERBS. This is especially true when failed attempts to stabilize inflation using the exchange rate as an anchor have damaged the credibility of the instrument and of the policymaker who employs it.

The second noteworthy extension to the benchmark model relates to the fact that the decision regarding the nominal anchor to stabilize inflation in one country might affect the same decision in other countries. Examples might be the effect of the introduction of the New Shekel ERBS plan in Israel on the decision to use the exchange rate as the nominal anchor in the Austral and Cruzado programs in Argentina and Brazil, respectively. The simplest way to handle this issue would be to consider dummies for common years or periods of similar stabilization programs. However, because most of the stabilization programs in the sample occurred between 1985 and 1994, it is

necessary to include a dummy for each of the 10 years, because there were programs in most of them, excluding 1992 and 1993. Therefore, the use of this model cannot shed much light on the particular effect of the positive covariances between policymakers and countries. Nonetheless, even if there is such a positive covariance, it only reinforces the idea of political opportunism behind the choice of anchor to stabilize inflation. In fact, it might be that any positive covariance reflects precisely the common manifestation of political opportunism in these developing countries with weak institutional arrangements.

Finally, it is worth examining how successful a politician's decision regarding the nominal anchor to stabilize inflation is in terms of electoral results. Again, it is not insignificant whether, considering the reelection of the party and/or the incumbent, this is the result of a particular policy. Certainly, there is a wide range of policies affecting different areas of human life that influence the success of a candidate at the polls. It is easier to suggest, based on evidence, that the incumbents who were seen as failing to stabilize inflation before elections were punished by voters. Nonetheless, some failed programs, such as the Cruzado Plan in Brazil in 1986, did succeed in electing the incumbent's party for a majority in congress and the largest number of Brazilian state governors. This result is directly connected to the fact that the program was perceived as being sustainable by the population, even though it could endure only up to the elections, as was later revealed by its collapse. The Convertibility Plan in Argentina also apparently helped the incumbent Menem get re-elected. Broadly, given that economic policies in general and inflation stabilization programs in particular are very relevant in these societies, opportunistic policymaking still exists and it seems to be reasonably successful in terms of its benefits to incumbents. If this were not true, it would be hard to explain, for example, so many attempts to stabilize inflation after so many failures.

VII. Concluding Remarks

The most significant result of this paper is the observed pattern regarding the choice of anchor to stabilize inflation in high- and chronic-inflation countries. In particular, because ERBS programs generate an initial consumption boom they are on average adopted before elections, and because MBS programs generate an initial recession they are on average launched after past, and far away from future, elections.

This paper also provides a rationale for why policymakers may choose a short-term hard MBS. It seems advantageous to do it right after elections for two reasons: first, because economic recovery will take place during the term of office of the politician and, second, because it allows the politician to blame the previous government for the costs implied by the adoption of the MBS. In addition, it can be an alternative strategy for some countries that, as

a result of numerous failed attempts, might have exhausted the ability to use the exchange rate as the nominal anchor.

Most important, this paper provides insight into the motivations behind policymakers' choice of anchor to achieve low inflation. A relatively large stock of international reserves, a high level of openness, and high political fragmentation not only increase the probability of adoption of an ERBS but also affect the degree of political opportunism behind the choice of nominal anchor for stabilization.

At the same time, this work is a relevant contribution to the literature, providing a rationale for the ''recession now vs. recession later'' hypothesis and the existence of consumption cycles, because not all stabilization programs are expansionary. If all types of stabilization programs were expansionary, it would be hard to explain why, on average, one type is generally selected before elections whereas the other is selected after them.

In addition, this work provides further support for the ''episodic'' approach in the selection of stabilization episodes by creating a more comprehensive list of stabilization attempts.

This paper has suggested some possible theoretical channels that can be used to explain the facts that were obtained. Voters' behavior and the ability of policymakers to opportunistically choose economic policies are essential ingredients in the construction of an interesting theoretical model. The main objective of this study was to seriously document the economic and political variables affecting the decision over the anchor to stabilize inflation without taking any position in favor of a particular theoretical model of political opportunism or voting behavior.

It is not surprising that politicians choose economic strategies that align with their own goals of reelection. However, there is very little empirical work documenting this fact. This paper provides compelling evidence that politicians behave in opportunistic ways with respect to one particular type of economic policy. Depending on how widespread this behavior is within a country, this may suggest that stronger institutional arrangements that oversee politicians could reduce the degree of political opportunism benefiting societies in many developing countries.

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