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**Is the exchange rate politically  
manipulated around elections?  
The evidence from Uruguay<sup>1</sup>**

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## RESUMEN

En una economía pequeña y abierta, el tipo de cambio es una variable clave desde el punto de vista de la economía política de la política macroeconómica. Es además, un instrumento potente a través del cual los gobiernos pueden alcanzar sus metas. Las teorías recientes de la macroeconomía política, muestran que la maximización del bienestar social es únicamente una de las motivaciones de los gobiernos, y probablemente, no la más relevante. Entre los objetivos que se persiguen, está la permanencia en el poder y la satisfacción de los intereses de los grupos sociales a los cuales se representa.

Este artículo busca determinar la pertinencia para la economía uruguaya de la literatura reciente sobre la economía política del tipo de cambio. Se resumen las predicciones de varios modelos teóricos y se identifican los hechos estilizados sobre los cuales existe evidencia empírica para América Latina. Después de una breve discusión sobre especificaciones alternativas para someter a prueba la existencia de ciclos políticos en el tipo de cambio, se procede a confrontar los hechos estilizados y las predicciones de los distintos modelos con datos anuales para Uruguay desde 1920. El análisis muestra regularidades empíricas consistentes con la manipulación política de la política cambiaria.

## ABSTRACT

In a small open economy, the exchange rate is a key variable from the perspective of the political economy of macro policy. It is, indeed, one of the most powerful instruments that governments can use to achieve their goals. Recent theories of political macroeconomics stress that maximization of social welfare may be just one, and perhaps not the most relevant, of such goals. Others include politicians' own permanence in power and serving the interests of specific constituencies.

This paper seeks to determine the pertinence for the Uruguayan economy of the recent literature on the political economy of exchange rate management. The predictions of various theoretical models are summarized, along with the stylized facts identified in a series of recent empirical studies. After a brief discussion on the advantages of alternative specifications to test for political cycles in the exchange rate, the theoretical predictions and stylized facts are confronted with the evidence for Uruguay since 1920. The analysis shows empirical regularities consistent with political manipulation of the exchange rate around elections.

**Keywords:** political cycles, exchange rate policy, time series models.

**JEL classification code:** C22, E61, F41.

## **1. Introduction**

Confucio, the great philosopher and Chinese public man, five centuries before Christ advised to the Chinese royalty: "Get the kind of people and the authority will accompany you; lose the love of people and your authority won't be respected." (paragraph of The Book of Songs of Confucio, reproduced in Yánez Solanas, 1998, p. 126).

Politicians of our century seem to have kept in mind the advice of Confucio. Economic policy variables have been manipulated around elections, surely with the intention of achieving the "love of the people", and retaining the power.

In the same line, the exchange rate is an instrument and a very important variable to achieve the objective of the permanency in the government. It is an important instrument, because just as it has already been pointed out by Lindbeck (1976), the policymakers can increase the real income of the inhabitants of a country (or the consumers if one prefers), at least in the short term (year of election), through an appreciated real exchange rate. Improving the welfare of citizens, could be rewarded with the support of the votes. On the other hand, it is an important variable because exists evidence (Remmer, 1991) that big devaluations in electoral years imply a high political cost, and therefore, it is a variable that enters in the vote function and that it should be considered carefully.

From another point of view, is not doubt that the effects of a certain exchange rate policy are not homogeneous for all the inhabitants of a country. An appreciated exchange rate policy usually favors the non tradable sector of a country, while it harms the tradable sector. If we suppose that politicians can be representatives of some of these sectors, it seems natural the use of the exchange rate - like policy variable - for satisfy class interests.

In section two we make a review of the theory of the political cycle for a small open economy. In section 3, we present a brief review of the empirical evidence for Latin America and the Caribbean countries. In section 4, we provide empirical evidence from Uruguay. Finally, in section 5 we conclude.

## **2. Theory**

### **2.1 Basic approaches to political economic cycles**

In the traditional model of economic policy (Tinbergen, 1956) the behavior of policy makers was exogenous because it was assumed that they would seek to maximize the social welfare. This assumption, though related to the role economic analysts used to think up for themselves, is too simplistic. It ignores that policy makers are agents with interests of their own and, in democracies, frequently have partisan motivations as well. There is no reason to assume that these would be left aside when deciding on macroeconomic policies.

The appreciation of this limitation of the traditional model led to the emergence, in the early 1970s, of models that endogenize the behavior of policymakers and make it possible a more comprehensive analysis of the policy making process and its outcomes. Broadly speaking, these models reflect the evolution of the macroeconomic orthodoxy regarding the basic mechanisms linking policies with macroeconomic fluctuations, and different views on the working of the

political system. Table 1 summarizes the main approaches about the political business cycle, their basic assumptions and key references.

From the perspective of the political motivations and the type of political system that is modeled, there are two basic approaches among theories of the political economic cycle.

**Table 1**  
***Political business cycle models***

<u>Political agents' motivations</u>	<u>Expectations formation</u>		
	Adaptive	Rational expectations	
Opportunistic	Nordhaus (1972) Lindbeck (1973) Assael y Larrain (1994)	Asymmetric information	Nominal rigidities
		Rogoff y Sibert (1988) Rogoff (1990) Persson y Tabellini (1990) Ghezzi, Stein y Streb (1999)	
Partisan/ Ideological	Hibbs (1977)	Bonomo y Terra (1999b)	Alesina (1987)

The *opportunistic* approach assumes that the policy makers' only motivation is their appetite for power, or their love of political office. The *ideological* or *partisan* approach, in turn, recognizes that political actors commit themselves to the pursuit of specific policy goals that have an ideological rationale and/or reflect the interests of socially differentiated constituencies. Within each of these branches there have been consecutive generations of models, the older one assuming adaptive expectations while the more recent generation builds on economies with rational expectations agents.

The opportunistic approach emerged in the early 1970s, with the work of Nordhaus and Lindbeck, and based on economic models that featured adaptive expectation formation mechanisms. In the 1980s the models introduce the notions of rational expectations and asymmetric information, with Rogoff, Persson and Tabellini as the main representatives of this emerging analytical tradition. The partisan approach emerged in the second half of the 1970s with the work of Douglas Hibbs. The main tenet of this approach is the insistence on the political parties' tendency to enact distinctive policies depending on their position on the Left-Right spectrum. Even though Hibbs was initially not explicit about his economic model, adaptive expectations were implicit in the analysis. In the 1980s incarnation of the partisan models Alesina introduces the notion of rational expectations. With nominal rigidities, these can still produce short-lived booms or recessions at the beginning of each new term of office. Nordhaus (1989) has produced a model that tries to encompass both the opportunistic and partisan motivations of policy makers.

## 2.2 Political economic models for small open economies

Due to its focus on the industrial market economies and democracies (and particularly on the US's economy), most available political economic models are based on the assumption of a closed

economy. Very little had been done, until recently, to analyze the political macroeconomics of the small open economies, and consequently there is a paucity of theoretical and empirical analysis of the possible political links in the management of exchange rate policies. Although there is the noticeable exception of Lindbeck's work in the mid 1970s, it is not until the mid 1990s that several authors have started systematic and cumulative work on the political economy of exchange rate policies and elections. Table 2 summarizes the main features of four of these models. They all make a case for the use of the exchange rate policy as a tool to attain political objectives by policy makers that are rational in the standard economic sense (i.e., maximizing agents). These models can be organized according to the main features of their economic and political sub-models.

The economic models differ in the expectations formation mechanism –adaptive or rational—and in the number of goods –single good models or traded/non-traded goods models. The political models differ in the policy makers' motivations –opportunistic, partisan or both—and in the assumed behavior of voters –backward looking and adaptive, or forward looking and rational. They also differ in the number of representative voters that are explicitly considered (one or two). These theoretical models yield conceptually different, but observationally quite similar predictions about the behavior of specific macroeconomic variables around election times.

### 2.3 The political cycle and the exchange rate

The political economy models that explicitly consider the possible trajectories of the (nominal and real) exchange rate around elections provide different rationales for a single stylized fact: nominal and real exchange rate variations tend to be smaller immediately before elections (or the domestic currency tends to be appreciated) than they are in the period immediately following an election (when the domestic currency tends to depreciate more rapidly, in nominal and real terms). The fact that models have been developed to accommodate the stylized fact makes it difficult for the empirical analyst to judge their pertinence by simply testing their predictions, as will be shown below.

The mechanisms “producing” exchange rate cycles in the recent political economic models are of three types: *opportunistic*, *partisan-ideological*, and derived from different *competence levels* of the policy makers. In the context of these models, *opportunistic* cycles are those induced by policies that are not optimal given the type of policy maker that is in office. That is, the policy and exchange rate cycle is a consequence only of the policy maker's desire to be re-elected, because the same policy maker would choose a different policy in a non-electoral context. On the other hand, the *partisan-ideological* cycle does not require the policy maker to deviate from its preferred policy programme. It is indeed the divergence of preferences between two types of policy makers, or two political parties concerned about the welfare of specific portions of the electorate, which makes it possible to have exchange rate fluctuations that conform to the stylized fact. Finally, some models produce exchange rate trajectories like the one described above through policy maker turn over and the differences in their competence to produce desired macroeconomic outcomes through a limited number of policy instruments.

If we focus on the opportunistic cycle, all the analyzed models predict the same trajectory of nominal exchange rates in pre-election and post-election periods: there is currency appreciation before elections, followed by depreciation after the election.

Real exchange rate levels follow a similar pattern in three of the four analyzed models. In Stein and Streb (1999) instant purchasing power parity is assumed in one-good model, which makes short-term real exchange rate invariant. In Assael and Larraín (1994) only an opportunistic cycle is possible but there is a variety of conceivable nominal and real exchange rate paths around elections, depending on the structural parameters of the model and the assumptions about the vote function. However, it is pointed out that this would be the evolution of the exchange rate, assuming values of the parameters that are reasonable for a small open economy.

In Stein and Streb (1999) and Ghezzi, Stein and Streb (1999), also a competent or an incompetent opportunistic politicians can cause the cycle. The type of politician that cause these cycles, depend on the type of asymmetry of information that is supposed. These two models, use the same political outline and differ in the economic pattern. This difference allows that in the pattern of Ghezzi *et al.* (1999) the real exchange rate will be manipulated.

Just as these two models outlined before, it is not possible that a competent politician, in the event of an asymmetric information about competency, or the incompetent opportunist, in the case of asymmetric information about competency and opportunism, loses the election. That is a clearly restrictive result. Any way, in Ghezzi *et al.* (1999) the possibility of introducing uncertainty in the result of the election is mentioned. This possibility is not trivial from the point of view of the empirical analysis, since in this case, an appreciation of the exchange rate before the election and a later depreciation doesn't necessarily imply that the politicians act in opportunistic way, like we will try to show next.

Let us think to understand these models that the exchange rate is used as a seignorage tax. A bigger devaluation implies a bigger nominal interest rate, what implies a bigger cost to the consumers that need to have cash in advance to carry out its consumption. This bigger cost is a transfer from the consumers to the government (two faces of the same coin), since it would be similar to the cost that would have the government if had to hire debt, but doesn't have it because the consumers accept an asset that doesn't pay interests.

Competent politicians require a smaller quantity of resources and a smaller devaluation (seignorage) to provide certain quantity of public goods, which improves the well-being of the consumers. For this reason, the incompetent opportunistic politicians reduce the rhythm of devaluation that he prefer, to mimic a competent one. Then, when they win the election they need to devalue to pay debts assumed before the election.

It's interesting to compare the cycles that arise without supposing uncertainty in the election and those that arise accepting the uncertainty, especially if only opportunistic politicians produce a cycle with low devaluation in electoral years an high devaluation in post electoral years.

Let us suppose that uncertainty exists in the election, what doesn't seem to be a too strong supposition, and let us see that it would happen if a politician being competent is still substituted by one incompetent. In this case, we have that before the election the devaluation will be smaller than there will be after, because a competent politician require a smaller seignorage than the incompetent politicians need, to produce the same quantity of public goods.

As it can appreciate, if the substitution of a competent politician takes place for other incompetent the evolution of the exchange rate in the period pre and post electoral will be similar to the one that takes place with opportunistic politician. Therefore if we find a cycle like the predicted in Table 3,

we won't be able to affirm that this is an *opportunistic cycle*, but rather we are in presence of a *competence cycle*.

Something similar it can happen in Bonomo and Terra (1999b) model. In this model it is supposed that the voters of the non-tradable sector are more numerous than in tradable one, therefore many politicians of the tradable sector mimic a non-tradable politician to try to win the election. The opportunistic politician of the tradable sector will maintain a low devaluation in the electoral period as they consider as good. In this way they will favor momentary non-tradable sector and with this they will try to convince them that they are a representative of their sector. Once it has been able to win the election, it will increase the rate of devaluation to favor their sector. But a cycle of these characteristics could also be generated inside the pattern by the substitution of a politician that represents the non-tradable sector of the economy, for one that represents the tradable sector, to the one that a bigger devaluation is beneficial. This cycle would not be an opportunistic one it would be an *ideological cycle*.

Definitively, when one observes for many countries the regularity of a smaller rhythm of devaluation before the election that with posteriority to this, the only thing that one could affirm is that it is a political cycle, because it is in direct relationship with the electoral periods. But we cannot affirm that they are only caused by politicians that look for their own reelection or the victory of their party.

### **3. The empirical evidence in Latin America and the Caribbean**

The same as with the theory the empirical studies on the political cycle in the exchange rate are scarce and in general they are carried out as part of other works, and they are not the main objective of these.

Any way, there are enough evidence to support the existence of a political cycle in the exchange rate for several Latin American countries. In Table 4 we summarize the applied methods and results obtained in some empirical studies for Latin America and the Caribbean.

Assael and Larrain (1995) use three criterion to determine if the exchange rate policy in Chile in the period 1939-1989 was consistent with a opportunistic behavior of the authorities:

- If in the electoral year the country loses more than 30% of its international reserves, or it increases in more than 10% its foreign debt.
- If the following government devaluates in more than 10% the currency immediately after assuming the control.
- If a stable exchange rule exists and there is a sudden change of the same one, tending to diminish the real exchange rate, when approaching the date of elections.

These authors find that in 5 of the 8 electoral periods considered, some of the three approaches were satisfied.

Jaramillo et al. (1999) carry out linear regressions to determine if a political economic cycle exists in the nominal exchange rate in Colombia:

$$Devcol = \beta_i X_{np} + \beta_j X_p + \varepsilon$$

where  $Devcot$  is the nominal exchange rate devaluation,  $X_{np}$  is a non political variables and  $X_p$  are dummy variables that look for capture a opportunistic cycle as well as one with ideological characteristics. The opportunistic dummy variable takes the value 1 in the second quarter of the electoral year and -1 in the third, being 0 in another case. On the other hand, the ideological dummy variable takes value 1 during the conservative governments and 0 in other case.

The opportunistic dummy variable is not significant, while the ideological one is. The coefficient of the later it is positive, what is reasonable if we think that the conservative administrations are the representatives of the coffee sector that it is a tradable sector.

A similar regression was estimated for the real exchange rate. Opportunistic hypothesis was not tested on the real exchange rate, while the ideological dummy variable is not significant.

Frieden *et al.* (1999) presented evidence for the nominal and real exchange rate in Latin America and the Caribbean. These authors use very simple indicators to determine if the evidence is consistent with an opportunistic cycle.

For the nominal exchange rate the authors have a sample of 26 Latin American and Caribbean countries for the period 1960-1994, period in which 242 electoral episodes take place. The first methodology they use is taking a window of 19 months around elections. They take the devaluation of the electoral month and of the previous and later nine months to each election, and then a geometric average is made. The evidence doesn't reject the hypothesis of an opportunistic cycle around elections. This cycle is characterized by a bigger devaluation in the post electoral periods, while the devaluation in pre electoral periods doesn't move mostly away from the mean. Something similar in the evolution of the real exchange rate, although in this case it seems to be appreciated in the pre electoral period.

On the other hand, the authors also calculate the probability of devaluation before and after electoral date. They reach the conclusion that it is more probably than the devaluation happen in the later than in the former period.

In Aboal and Calvo (2000) is studied the political economic cycle in Uruguay, using a similar methodology to which we will develop in this work. The conclusion of that work is that the existence of an opportunistic cycle in the nominal and real exchange rate cannot be rejected.

In GRADE (1999) a similar methodology used by Frieden *et al.* (1999) is employed, but in this case for nine electoral episodes in the Peru and exclusively for the real exchange rate. The evolution of the real exchange rate resembles the form of U in the period previous to the election and to an inverted U in the post electoral years, what is consistent with an opportunistic cycle.

Bonomo and Terra (1999a) present evidence of an exchange rate opportunistic cycle in Brazil. These authors use time series models with changing regime, to analyze the changes in the Brazilian exchange rate regime. They reach the conclusion that the probability of having an appreciated real exchange rate is bigger in the periods before an election, and the probability that it is depreciated it is bigger in the after electoral periods.

#### 4. The evidence in Uruguay

In this section we analyze the empirical relevancy of the hypothesis of political motivations in the exchange rate policy adopted by the Uruguayan governments during the period between 1920 and 1996. In the Table 5 the considered hypotheses are presented.

The data correspond to annual series. The variables with that we work were: i) the nominal exchange rate Uruguayan peso/American dollar and ii) the real exchange rate defined as  $IRER = INER * CPI_{USA} / CPI_U$ , where  $INER$  is an index of the nominal exchange rate peso-dollar,  $CPI_{USA}$  it's the consumer price index of United States and  $CPI_U$  it's the consumer price index of Uruguay; all the indexes have base 1950. Therefore, in 1950  $ITCR$  assumes a value 100.

The information on the nominal exchange rate of the national currency regarding the American dollar comes from Vaz (1984) for the period 1920-1961, while for the last part of the sample the sources used were the bulletins of the *Banco Central del Uruguay*. The index of real exchange rate were calculated using the consumer price indexes of Uruguay and United States. The source of Uruguayan CPI is the *Instituto Nacional de Estadística*, as long as those of United States come from Bureau of Labor Statistics.

It is necessary to clarify that the empirical formulation of the hypotheses can be subject of controversy. For example, it is possible that a behavior of the nominal and real exchange rate as the signal in the opportunistic hypothesis can be attributed to other political factors. Something similar happens with the partisan-ideological hypothesis: an evolution of the exchange rate like the established one in this hypothesis can come perfectly from a competent government. For it, the carried out empirical investigation will allow to evaluate if it is probable that the behavior observed in the nominal and real exchange rates of the Uruguayan economy can be explained by political motivations, as those analyzed in this work.

**Table 5**  
**Main hypothesis**

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- **Opportunistic Hypothesis**

**Nominal exchange rate**

Low devaluation before elections and high devaluation after elections.

**Real exchange rate**

Appreciated before elections and depreciated after elections.

- **Partisan Hypothesis**

**Nominal exchange rate**

Low devaluation in the period of governments representative of non tradable sector.

**Real exchange rate**

Appreciated in the period of governments representative of non tradable sector.

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In this work we use Time Series (ARIMA) Models with Intervention Analysis as econometric methodology. The general formulation of an ARIMA model can be expressed as:

$$(1) \quad \Delta^d y_t = \mu + \Theta_q(L) / \Phi_p(L) a_t, \quad t = 1, \dots, T,$$

where the polynomials  $\Theta_q(L)$  and  $\Phi_p(L)$ , in the lag operator  $L$ , fulfills the invertibility and stationary properties,  $y_t$  is the variable on which we analyze the presence of effects of that of the political cycle,  $\Delta = 1 - L$  is the difference operator,  $\mu$  it is a constant and  $a_t$  it is a white noise stochastic process with finite variance. The application of Intervention Analysis implies introduce in the equation (1) a certain number ( $k$ ) of qualitative (dummies) explanatory variables,  $D_{kt}$ , in such a way that:

$$(2) \quad \Delta^d y_t = \mu + \sum \delta_k \Delta^d D_{kt} + \Theta_q(L)/\Phi_p(L)a_t, \quad t = 1, \dots, T, \quad k = 1, \dots, K.$$

The results of Intervention Analysis will depend on the way that we design the intervention strategy and the procedure that it is used to estimate the effects of the political motivations. In Table 6 we presented in a summarized way the systems of qualitative variables that will be included in the ARIMA model.

The first step of the models specification process consist on identify and estimate an ARIMA model with Intervention Analysis in those that variables linked to political hypothesis were not included (model 1). The Intervention Analysis introduced in the models tries to capture the transitory or permanent impact of certain extraordinary events that affected the evolution of the nominal and real exchange rate in the analyzed period. We include in the model impulse variables to capture the transitory effects, as long as step variables were used to represent permanent effects on the variables<sup>5</sup>. The extraordinary events that affected the nominal and real exchange rates in the analyzed period and the type of Analysis of Intervention used to represent its effects are presented in the Table A2 and A3 of the Appendix.

The following step was the inclusion in the model the outlines qualitative variables corresponding to the simple opportunistic hypothesis (models 2, 3, and 4). Each of these hypotheses were evaluated starting from statistical F that are presented in the inferior part of the squares 8 and 9. In third term, we proceed to evaluate the relevancy of an extended opportunistic hypothesis, in which the cyclical effects embrace a wider period than between the electoral and post electoral year (model 5). In fourth place, is evaluated the inclusion of the variable designed for the partisan-ideological hypothesis (model 6). In fifth place, is evaluated the eventual existence of a specific behavior during the dictatorial period (model 7). Finally, we proceed to the simplification of the estimated model and to the incorporation of dummies variables for the treatment of atypical observations (model 8).

**a) *Discussion about the specification of the political hypotheses***

Next, we discuss the implications that have the incorporation of the groups of qualitative variables included (Table 6) to the ARIMA model. The use of the first two groups of qualitative variables are of relatively common when opportunistic political cycles are tested, and many times it was used indistinctly, although both have different implications from the conceptual and theoretical point of view. For example, the group 2 imposes the restriction that the smallest devaluation in the electoral period should be canceled with a bigger devaluation of same magnitude, but of contrary sign in the post electoral period. In theory this condition doesn't have to be verified. Because that, it is

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<sup>5</sup> For example, the variable impulse used to represent the effect of a devaluation happened in year 1938 on the the nominal exchange rate is denominated D38. If this devaluation modifies in a permanent way the level of the real exchange rate a step type variable it is included, that is denominated E38.

convenient to contrast the presence of this alternative in front of the most flexible alternative scheme represented by the group 1.

**Table 6**  
**Definition of dummy variables included in the Intervention Analysis**

<i>Scheme</i>	<i>Dummies Definitions</i>
1. Electoral and post electoral variables	$Elec = 1$ in the electoral year, 0 in other case. $PosElec = 1$ in the post electoral year, 0 in other case.
2. Cyclical variable for electoral and post electoral year	$CicElec = 1$ in the electoral year, -1 in the post electoral year, 0 in other case.
3. Cyclical variables for the two years before and after election	$CicElec = T1 = -1$ in the post electoral year, 1 in the electoral year, 0 in other case. $T2 = -1$ in the second government year, 1 in the electoral year, 0 in other case. $T3 = -1$ in the penultimate government year, 1 in the electoral year, 0 in other case.
4. Partisan variable	$NonTran = 1$ if the government is representative of the non-tradable sector, 0 in other case.
5. Dictatorial variable	$Dict = 1$ in dictatorial period, 0 in other case.
6. Variables for extraordinary events	$Dii = 1$ in the year 19ii, 0 in other case. $Eii = 1$ in the year 19ii and the following ones, 0 in other case.

The group 3 search to capture a cycle that includes two years previous and later an election. This variables specifies a cycle in the strict sense of the term, that is to say, it imposes that the net effect along the period was 0. It is postulated that the biggest devaluation in some years will be compensated with the smallest devaluation in others. The example exposed in the Table 7 show how this group of qualitative variables works. In the example the real exchange rate is supposed it only depends on variables  $Ti$ , without loss of generality. The effect of these variables is canceled in government's period. In terms of the behavior of the real exchange rate, it means that the opportunistic political events don't have long term real effects, which is consistent with the theoretical propositions.

**Table 7**  
**Cyclical qualitative variables. Example**

<b>Estimated Model</b>	<b>Effects on the RER</b>				
	Year 1	Year 2	Year -1	Year 0	Total Effect
	$T1=-1$	$T1=0$	$T1=0$	$T1=1$	
	$T2=0$	$T2=-1$	$T2=0$	$T2=1$	
	$T3=0$	$T3=0$	$T3=-1$	$T3=1$	
$ITCR = -0,5*T1 - 0,4*T2 + 0,3*T3$	0,5	0,4	-0,3	-0,6	0

These cycles of long duration (four years) are easily justifiable in the real exchange rate. Existing studies about the purchasing power parity for different countries that affirm that the deviation of the relationship can last between 3 and 5 years. Rogoff (1996), concludes: "As a consequence of

*various adjustment costs, there is a large buffer within which nominal exchange rate can move without producing an immediate response in relative domestic prices.*" In Cancelo *et al.* (1998), using the same time series that we use in this work, reaches the following conclusion "*a shock that deviates the real exchange rate of their equilibrium value takes in decreasing in half something less than three years for... Uruguay /U.S.A.*" (our translate). These notes show that the political handling of the nominal exchange rate can have an effect on the real exchange rate that persist over the whole period of government and this justifies the search of political effects in the whole period. On the other hand, in models as Assael and Larrain (1994) exists a political handling of the nominal exchange rate during all government's period.

The variable group 4 is used to evaluate the existence of a smaller rate of nominal devaluation and an appreciated real exchange rate during administrations representing the interests of the non-tradable sector, and larger devaluations and depreciation during administrations more closely linked to the tradable sector.

With that in mind, we chose to classify administrations rather than the party of the President. The rationale for this strategy comes from the ideological and social heterogeneity of the two parties that have held office in Uruguay throughout the century. In practice, administrations formally run by the same party have exhibited quite heterogeneous policy preferences and represented diverse social interests, which does not mean to say that they cannot be classified consistently according to recognizable political labels (see, e.g., Aguiar, 1984; González, 1993).

The classification used here is indirect. While the open economy versions of partisan cycles models emphasize the tradable/non-tradable dichotomy, to produce a systematic typology of administrations in those categories would require a historical exercise beyond the scope of this paper. Instead, we use results from a recent study (Hughes, 2000) that has classified democratically elected administrations using a left/right basic scale. In the cited work, the classification is produced by asking a small but qualified group of political historians to assign administrations to political positions, and aggregating the answers in a simple scale. At the time of writing this paper, we were able to use the answers from three historians. We adopt the convention of classifying as "left-of-center" those administrations that were so labeled by at least two of the experts. Table A3 presents the individual answers of experts and the resulting classification. Although "left/right" are not the same as "tradable/non-tradable", our own qualitative assessment of the results suggests that the resulting typology is at least a good proxy.<sup>6</sup>

With the variable *Dict* we seek to undergo on approval the hypothesis that the military governments, not depending on the popular support (at least not as much as in a democratic regime) can take measures that favor the tradable sector, even being these unpopular. Because of this, if the hypothesis is correct, we expected that the sign of the coefficient of the *Dict* variable is positive, reflecting a bigger devaluation.

Finally, and to conclude this methodological section, we make notice that although the definition of real exchange rate that we use is not the most appropriate to prove the partisan hypothesis, it is the only alternative that we have, because doesn't exist price indexes for tradable and non tradable goods in Uruguay, for the whole period investigated.

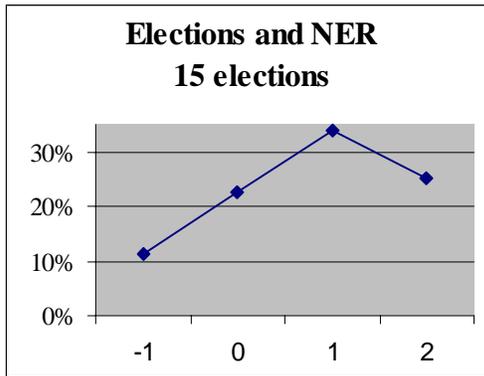
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<sup>6</sup> We thank Cecilia Hughes for having provided us with the result of her interviews.

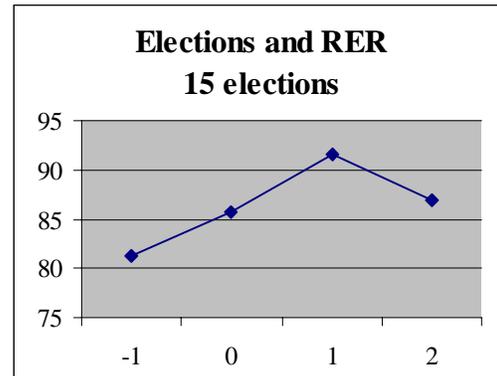
**b) Results of the empirical research**

The following graphics show the average rate of growth of the nominal exchange rate for a four year window around elections.

**Graph 1**

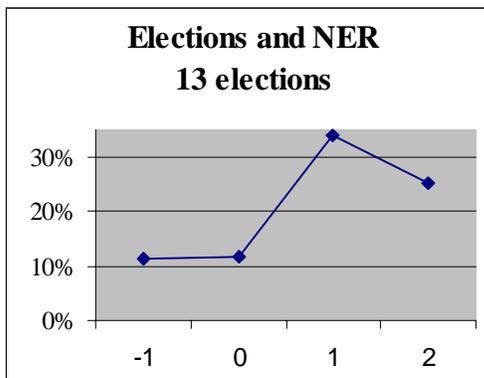


**Graph 2**

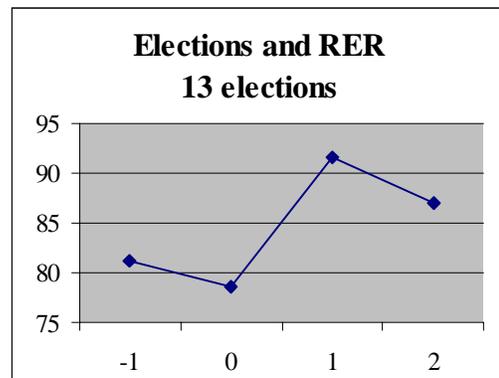


The following graphics show the average of the index of the real exchange rate for the different years of government.

**Graph 3**



**Graph 4**



In graphics 1 and 2 are considered all the elections that have been analyzed in the work (15). In the average of the electoral year is strongly influenced by the big devaluation of the years 1958 and 1966, years where the ruling parties lose the election.

In the graphics 3 and 4 the average of the electoral year is calculated excluding the years 1958 and 1966. As can be appreciated, the graphics show a cycle of characteristic similar to an opportunistic cycle.

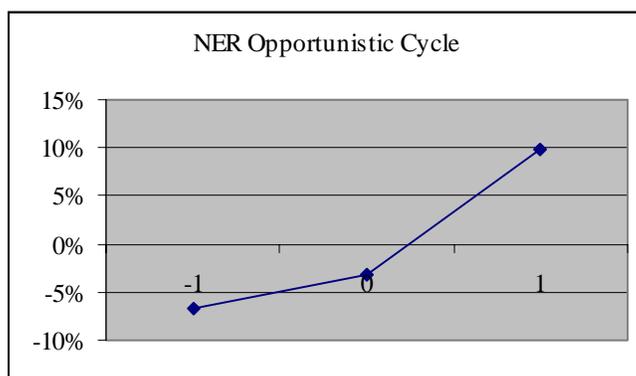
c) ***The political cycle on the exchange rate: ARIMA models with Intervention Analysis***

Eight models were estimated for each variable, as it can be appreciated in tables 8 and 9, and according to the methodology exposed in the previous sections. In the last column of the tables we show the best estimated models for each of the two dependent variables. The ARMA process in the best models is not necessarily the same as the initial specification. In specifications 1 through 7 we keep the original ARMA structure to show that the results are not an artifact of changes in the parametric structure of the estimated model.

The opportunistic hypothesis in the nominal exchange rate was not rejected, in none of the specifications (models 2, 4 and 5), just as arises of the F tests made on the opportunistic variable of these models. Any way, it was found that the variables  $T_i$  characterize in better form the phenomenon. The variable  $T_2$  is not significant. The sum of the coefficients of the variables  $T_1$  and  $T_2$  that offers us the effect of the electoral year on the exchange rate is significantly different from zero with 99% of confidence.

The following graph shows the cycle that estimate the variables  $T_i$ . One can appreciate it is consistent with an opportunistic cycle.

**Graph 5**



The opportunistic hypothesis in the real exchange rate can't be rejected. This hypothesis had three alternative specifications (models 2, 4 and 5), and in any case it was not rejected, just as it arises from F tests. The best specification is one that includes a variable that assumes value 1 in the electoral year and -1 in post electoral. As it is appreciated in the Table 9 the sign of the variable it is consistent with the prediction of an appreciated real exchange rate in electoral year and depreciated in the post electoral year.

An interesting point to stand out, is the positive and highly significant sign that that have the coefficients of the variables  $D58$  and  $D66$  (Table A1 in the Appendix), what indicates that in these years occur a big devaluation. They are interesting because in 1958 and 1966 two of the biggest financial crises in Uruguay occurred, being these electoral years. In the elections of 1958, for the first time in the century the *Partido Colorado* party loses a presidential election at the hands of its traditional rival the *Partido Nacional* party. On the other hand, in the election of 1966 the Colorado party recovers the presidency. This seems to show that the big devaluation in electoral years are punished by the voters.

The whole precedent analysis supports the hypothesis that the ruling parties have tried to maintain the exchange rate in control in the electoral periods, and they have achieved it in most of the cases, being an exception 1958 and 1966. On the other hand, it seems to be the correct measure from the political point of view, since when this was not possible the ruling parties lost the election. In other words, not devaluating in the electoral year seems to be a necessary, although not necessarily enough condition, to achieve the victory.

The partisan hypothesis has not been rejected neither in the nominal exchange rate nor in the real exchange rate. That is to say, the evidence is consistent with an exchange rate appreciated during the governments that have been representatives of the non tradable sector.

Finally the dictatorial hypothesis has been rejected, the variable *Dict* is not significant and the sign of its coefficient is not the prospective one.

## 5. Conclusions

Applied macroeconomists tend to have ambiguous attitudes towards electoral politics. On one hand, we often spend a lot of time discussing latest developments in the polity, their possible impact on economic policies, or how economic events may influence political dynamics. This is particularly true of applied macroeconomists in developing countries. On the other hand, most of the models we use to analyze and predict macroeconomic trajectories are based on the conscious or implicit assumption that electoral politics are irrelevant. The evidence presented in this paper suggests that there are some solid bases for our more spontaneous tendencies: electoral politics matter, and may matter a lot, to understand the behavior of key macroeconomic variables.

The results discussed above reveal that the depreciation of the domestic currency proceeded more slowly in election years than at other times, and more quickly in post-election years. Also, relative real appreciation normally took place in election years, and depreciation followed from there throughout Presidential terms. Finally, the socio-economic foundations (and partisan biases) of administrations – if not parties - were reflected in the pace of adjustment of real exchange rates in the predictable way: left-leaning administrations, closer to the interests of the non-tradable sectors, let the domestic currency depreciate less than right-leaning administrations (which are conceivably closer to the export oriented industries).

It is worth drawing at least a few implications of these results. First, the results highlight the need for detailed research on the mechanisms through which the logic of electoral competition influences exchange rate management. Throughout the whole period analyzed here, nominal exchange rates were essentially “controlled” by the monetary authority. Therefore, it is not unreasonable to assume that those controlling the top Executive office found ways to influence decisions about exchange rate management so as to positively affect their perceived chances of being re-elected. However, before we can draw specific policy recommendations, we need detailed historical analyses of how (through which channels) this influence took place.

Also, the same results discussed before show that governments normally do not have full discretion over the trajectory of key macroeconomic aggregates. Even if the crisis years of 1958 and 1966 – when the administrations were unable to avoid huge depreciation of the domestic currency in election years—are not considered, the complex dynamic behavior of the real exchange rate makes evident the limits of “fine tuning”. (At this point it is worth highlighting the usefulness of

econometric specifications as those used in the paper that do not assume straightforward dynamics for the behavior of the analyzed variables).

While it is still necessary to better understand how exchange rate policy making works in a country like Uruguay, one of the lessons of the recent political economy of macroeconomic policies is that formal institutions per se do not fully determine macroeconomic outcomes. In the end, even constitutional rules can be modified or abandoned if there is enough political support for such moves. Therefore, a second implication that follows from our results is that countries like Uruguay would benefit from basic political agreements among the main competing parties on the basic principles for the management of exchange rate policy. These agreements—perhaps more than rigid exchange rate regimes—can contribute significantly to macroeconomic stability, while preserving the necessary room for maneuver when the economy needs to adjust to exogenous shocks.

Finally, those familiar with the recent macroeconomic trajectory of Uruguay may feel tempted to downplay the importance of political cycles, in light of the apparent stability of policy objectives and continuity of approaches throughout Presidential terms. However, the apparent stability and continuity should not be discounted as a permanent feature of the policy making environment in the country: both political opportunism and ideological polarization may become more frequent and acute if the proper social conditions emerge, the discount rates of main political players shift upwards, or less competent policy makers happen to be appointed.

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**Table 2**  
**Theoretical Models for a small open economy**

Writers	Assumptions and Characteristics			Predictions
	Economic Model	Political Model		
		Politicians	Voters	
Assael and Larrain (1994)	One-sector small open economy  Expectation-augmented Phillips curve Inflation expectations are adaptive Finite intertemporal framework No micro foundations	One type  Same degree of opportunism	One type  Retrospective Short memory Dislike unemployment, inflation and the instability of real exchange rate	Opportunistic nominal exchange rate cycle Opportunistic real exchange rate cycle Opportunistic unemployment rate cycle Opportunistic inflation cycle
Stein and Streb (1999)	One-sector small open economy  Cash in advance constraint Purchasing power parity Labor is the only factor of production and its supply is inelastic Two-period intertemporal framework Micro foundations	Four types  Differs in the degree of Opportunism and competency	One type  Forward-looking rational voters Two-dimensional incomplete information	Opportunistic nominal exchange rate cycle Opportunistic seignorage cycle Opportunistic consumption cycle Opportunistic budget cycle Opportunistic debt cycle
Ghezzi, Stein and Streb (1999)	Two-sector small open economy  Cash in advance constraint Endowment economy Two-period intertemporal framework Micro foundations	Four types  Differs in the degree of Opportunism and competency	One type  Forward-looking rational voters Two-dimensional incomplete information	Opportunistic nominal exchange rate cycle Opportunistic real exchange rate cycle Opportunistic seignorage cycle Opportunistic consumption cycle Opportunistic budget cycle Opportunistic debt cycle
Bonomo and Terra (1999b)	Two-sector small open economy  No financial markets Endowment economy Two-period intertemporal framework Micro foundations	Two types  A tradable and non tradable Some degree of opportunism	Two types  A tradable and non tradable Forward-looking rational voters Incomplete information Non tradable are more numerous than tradable voters	Political nominal exchange rate cycle  Political real exchange rate cycle Political tax cycle Political spending cycle Political consumption cycle

**Table 3**  
**Characteristics of opportunistic nominal and real exchange rate cycles around elections**

<b>Model</b>	<b>Political conditions</b>		<b>Nominal exchange rate</b>		<b>Real exchange rate</b>	
	<b>Incumbent</b>	<b>Winner</b>	<b>Before election</b>	<b>After election</b>	<b>Before election</b>	<b>After election</b>
Assael and Larrain (1994) (1)	Opportunistic	Opportunistic	Small devaluation	High devaluation	Appreciation	Depreciation
Stein and Streb (1999)	Incompetent and high opportunistic (2)	Incumbent	Small devaluation	High devaluation	Constant	Constant
	Competent (3)	Incumbent	Small devaluation	High devaluation	Constant	Constant
Ghezzi, Stein and Streb (1999)	Incompetent and high opportunistic (2)	Incumbent	Small devaluation	High devaluation	Appreciation	Depreciation
	Competent (3)	Incumbent	Small devaluation	High devaluation	Appreciation	Depreciation
Bonomo y Terra (1999b)	Tradable	Incumbent	Small devaluation	High devaluation	Appreciation	Depreciation

Notes: (1) NER and RER cycles depends of the model parameters.

(2) Under incomplete information about competency and opportunism

(3) Under incomplete information about competency

**Table 4**  
***Evidence of nominal and real exchange rate (NER and RER) political cycles in Latin America and the Caribbean***

Writers	Country or Region	Dependent variable	Empirical model or procedure	Political Hypothesis	
				Opportunist	Partisan
Jaramillo, Steiner and Salazar (1999)	Colombia	Rate of devaluation	Linear regression	Reject	No-reject
Frieden, Ghezzi, Stein (1999)	Latin America and the Caribbean	Rate of devaluation	Average	No-reject	Non
Aboal and Calvo (2000)	Uruguay	First difference of log NER	ARIMA-IA	No-reject	Non
Assael and Larrain (1995)	Chile	Rate of devaluation, RIN and Debt	Ad hoc criterion	No-reject	Non
Jaramillo, Steiner and Salazar (1999)	Colombia	RER misalignment	Linear regression	Non	Reject
Frieden, Ghezzi, Stein (1999)	Latin America and the Caribbean	RER	Average	No-reject	Non
Aboal and Calvo (2000)	Uruguay	log of RER	ARIMA-IA	No-reject	Non
GRADE (1999)	Peru	RER	Average	No-reject	Non
Bonomo and Terra (1999a)	Brazil	RER misalignment	Markov switching	No-reject	Non

**Table 8**  
**Nominal exchange rate models**

Variables	Models							
	1	2	3	4	5	6	7	8
<b>ARMA Process</b>								
<i>C</i>	0.203**	0.187*	0.197*	0.188*	0.187*	0.214**	0.220**	0.261***
<i>AR(1)</i>	0.834***	0.853***	0.850***	0.854***	0.859***	0.855***	0.861***	1.143***
<i>AR(2)</i>								-0.304***
<b>Traditional Opportunistic Hypothesis</b>								
<i>Elec</i>		-0.025						
<i>PosElec</i>		0.082***		0.044				
<i>CicElec=T1</i>			-0.056***	-0.034				
<b>Extended Opportunistic Hypothesis</b>								
<i>T1</i>					-0.083***	-0.084***	-0.083***	-0.098***
<i>T2</i>					-0.030	-0.031	-0.030	
<i>T3</i>					0.059**	0.057***	0.057***	0.066***
<b>Partisan Hypothesis</b>								
<i>NonTran</i>						-0.132**	-0.132*	-0.181***
<b>Dictatorial Hypothesis</b>								
<i>Dict</i>							-0.0420	
<b>Diagnostic Statistics</b>								
Adjusted R2	0.69	0.73	0.73	0.73	0.75	0.76	0.76	0.86
Standard Error	0.15	0.14	0.14	0.14	0.13	0.13	0.13	0.10
Q(4) Box-Ljung	3.40	0.27	0.87	0.40	0.82	2.19	2.32	0.48
Jarque-Bera Statistic	2.29	6.31	4.20	7.71	9.16	13.58	14.75	0.85
Dependent variable: first difference of log INER								
Level of confidence: * = 90%, ** = 95%, *** = 99%.								
<b>Hypothesis of Redundant Variables</b>								
<i>Elec= PosElec=0</i>	<b>Model</b>	<b>F-statistic</b>						
	2	5.41***						
<i>Cicelec=0</i>	3	10.96***						
<i>PosElec=0</i>	4	0.74						
<i>T2=T3=0</i>	5	3.64**						
<i>NonTran=0</i>	6	3.22*						
<i>Dict=0</i>	7	0.18						
Reject with: * = 90%, ** = 95%, *** = 99% of confidence.								

**Table 9**  
**Real exchange rate models**

Variables	Models							
	1	2	3	4	5	6	7	8
<b>ARMA Process</b>								
<i>C</i>	3.798***	3.810***	3.729***	4.021***	3.746***	3.579***	3.618***	3.579***
<i>AR(1)</i>	1.189***	1.214***	1.217***	1.207***	1.229***	1.198***	1.209***	1.198***
<i>AR(2)</i>	-0.278**	-0.303**	-0.293**	-0.488***	-0.305**	-0.241*	-0.254*	-0.241*
<b>Traditional Opportunistic Hypothesis</b>								
<i>Elec</i>		-0.014						
<i>PosElec</i>		0.040*		0.020				
<i>CicElec=T1</i>			-0.031***	-0.016		-0.034***	-0.032***	-0.034***
<b>Extended Opportunistic Hypothesis</b>								
<i>T1</i>					-0.044***			
<i>T2</i>					-0.020			
<i>T3</i>					0.026*			
<b>Partisan Hypothesis</b>								
<i>NonTran</i>						-0.123**	-0.121**	-0.123**
<b>Dictatorial Hypothesis</b>								
<i>Dict</i>							-0.083	
<b>Diagnostic Statistics</b>								
Adjusted R2	0.80	0.81	0.82	0.82	0.82	0.83	0.83	0.83
Residual Standard Errors	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Q(4) Box-Ljung	2.63	1.43	1.39	0.77	2.56	2.10	2.10	2.10
Jarque-Bera	1.93	0.85	1.11	1.01	1.26	1.72	1.60	1.72
Dependent variable: log of IRER								
Level of confidence: * = 90%, ** = 95%, *** = 99%.								
<b>Hypothesis of Redundant Variables</b>	<b>Model</b>	<b>F-statistic</b>						
<i>Elec=PosElec=0</i>	2	3.16**						
<i>CicElec=0</i>	3	6.45**						
<i>PosElec=0</i>	4	0.25						
<i>T2= T3=0</i>	5	1.74						
<i>NonTran=0</i>	6	4.07**						
<i>Dict=0</i>	7	1.16						
Reject with: * = 90%, ** = 95%, *** = 99% of confidence.								

**Table A1**  
**Intervention Analysis**

<i>Nominal exchange rate models</i>								
<b>Dummy Variables</b>	<b>Models</b>							
	1	2	3	4	5	6	7	8
<i>D38</i>	0.515***	0.544***	0.598***	0.587***	0.582***	0.587***	0.585***	0.541***
<i>D58</i>	0.359***	0.425***	0.443***	0.432***	0.426***	0.498***	0.496***	0.491***
<i>D65</i>	0.340***	0.366***	0.357***	0.365***	0.445***	0.444***	0.442***	0.465***
<i>D66</i>	0.386***	0.464***	0.477***	0.470***	0.504***	0.508***	0.506***	0.505***
<i>D6971</i>	-0.716***	-0.670***	-0.667***	-0.668***	-0.642***	-0.638***	-0.641***	-0.599***
<i>D83</i>	0.544***	0.543***	0.516***	0.527***	0.516***	0.514***	0.515***	0.514***
<i>D68</i>								0.249***
<i>D75</i>								0.293***
<i>Real exchange rate models</i>								
<b>Dummy Variables</b>	<b>Models</b>							
	1	2	3	4	5	6	7	8
<i>E38</i>	0.546***	0.537***	0.597***	0.484***	0.573***	0.616***	0.618***	0.616***
<i>D58</i>	0.180**	0.219***	0.229***	0.219***	0.224***	0.296***	0.292***	0.296***
<i>D66</i>	0.162**	0.200***	0.211***	0.193***	0.205***	0.217***	0.214***	0.217***
<i>D6971</i>	-0.177**	-0.151*	-0.144*	-0.164**	-0.129	-0.137*	-0.140*	-0.137*
<i>E83</i>	0.406***	0.404***	0.413***	0.202***	0.408***	0.457***	0.452***	0.457***

*Table A2*  
*Dummies for historical events*

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<i>D38, E38</i>	Strong Devaluation
<i>D58</i>	Financial Crisis
<i>D65</i>	Financial Crisis
<i>D66</i>	Financial Crisis
<i>D6971</i>	Prices and Wages Frozen
<i>D83, E83</i>	Financial Crisis

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*Table A3*

*Right Left Political Classification*

Period	Presidents	Historians			
		Monestier	Demasi	Rilla	Mean
1919/1922	Baltasar Brum	1	2	2	1.67
1923/1926	José Serrato	1	2	2	1.67
1927/1930	Juan Campisteguy	1	2	1	1.33
1931/1937	Gabriel Terra	3	2	3	2.67
1938/1942	Alfredo Baldomir	3	2	2	2.33
1943/1946	Juan José de Amézaga	3	2	1	2.00
1947/1950	Tomás Berreta/Luis Batlle Berres	1	1	1	1.00
1951/1954	Andrés Martínez Trueba y CNG	1	2	1	1.33
1955/1958	CNG Batlle Berres/Zubiría/Lezama/Fisher	1	1.5	1	1.17
1959/1962	CNG Echegoyen/Nardone/Haedo/Harrison	3	3	3	3.00
1963/1966	CNG Fernandez/Giannatasio/Beltrán/Heber	3	1.7	2	2.23
1967/1971	Gestido/Pacheco Areco	2.8	3	2.8	2.87
1972	Juan María Bordaberry	3	3	3	3.00
1985/1989	Julio María Sanguinetti	2	2.5	2	2.17
1990/1994	Luis Alberto Lacalle	3	3	2	2.67
1995/1999	Julio María Sanguinetti	2	2.5	2	2.17

**Notes: 1 left, 3 right.**

Source: Hughes (2000).