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The impacts of international economic crises on the succession of incumbents in 55 countries (1960-2012)

(when citing, keep in mind this is still a draft)

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Abstract

This paper compares national general elections in 55 countries from 1960-2012 to examine the effects of international economic crises on the electoral performance of incumbents. We investigate whether, and how much, a handful of economic and institutional variables have been shifting electoral support. Our main attention is, on the one hand, on economic factors such as the moments of global crises, countries inner GNP, inflation indices, the unemployment rates, monetary reserves, government consumption expenditure, among others. On the other hand, we include control political variables such as the government type, party system fragmentation, the age of democracies, among others, in order to verify if the significance of economic crises is and remain relevant, and when and how they are important to understand political support. Do crises equally affect this dimension in developed and in non-developed democracies, or depending on monetary reserves? In a word, can crises commonly affect what citizens choose? We will show that yes they can, but we should be aware of how, when and where it happens. As data covers elections with results made public up to April 2012, we thus include in the dataset the present world crisis.

The present international crisis routinely gives the impression that there is virtually no escape for national incumbents in democratic countries. If they do not fight hard the domestic havoc caused by the internalization of the world crisis, they shall be electorally punished. If they fight it, be it through fiscal restrictions and the resultant weakening of the Welfare State, be it through expansion of spending and the resultant initial worsening in the economic health with conceivable increase in inflation rates, they can feasibly expect to be punished as well. Therefore, in case this dead-end scenario is true, electoral performance of incumbents ought to be affected when severe crises are threatening around, *vis-à-vis* their performance elsewhen. This is precisely what we try to test and assess in this paper.

Nevertheless, it is hitherto far from consensual in the political science literature whether or how economy even has an effect on electoral choices or on electoral outcomes – and even

less that, stupidly or not, *it's the economy*, as in the famous slogan, the biggest deal when itgets to gathering votes[1]. The empirical treatment of this question began with the expansionofsurvey researches and case studies, in a growingly number of works on the behavior of voters and perception of voters about economic circumstances. Although not unanimously, most of those individual-level works helped establishing the conclusion that economy does mattertothe way voters vote (Anderson, 19995, 2006; Converse, 1990; Goodhart and Bhansali, 1970; Kiewiet, 2000; Kiewiet and Rivers, 1984; Kramer, 1971; Lewis-Back, 1988; Monroe, 1984; Mueller, 1970; Rudolph, 2003; Sanders, 2000; Wittman, 1989; among many others)[2].

Although there is also controversy in this individual-level literature, it is in the effortsof generalizing those findings through broader cross-country comparative-level research that results have been getting much more complicated and nuanced. As Powell and Whitten (1993:391) correctly state it, "despite the large literature analyzing economic effects over time within countries, it has proved surprisingly difficult to demonstrate consistent effects in cross-national studies". In fact, the many works have been finding many different results about the political role of factors like, mainly, economic growth, inflation rates and unemployment. Sometimes, they have suggested that one or another of those economic factors is important, sometimes they have advocated that a combination of them, or none, or all, matters (Barreiro, 2008; Cheibub and Przeworski, 1999; Host and Paldam, 1990; Lewis-Back and Mitchell 1993; Paldam, 1991; Pacek and Radcliffe, 1995; Powell and Whitten, 1993, 2003; Remmer, 1993; Royed et. al., 2000; Strom and Lipset, 1984; Velasco, 2004; among others)[3].

This paradox between researches somewhat endorsing the role of economy in case studies within countries, but not in a comparative and generalizable framework, has generated diverse debate on the specification of models used to measure the phenomenon and, also, on the implications to the theoretical foundations about the functioning of the democracy. Those foundations, of course, date back to the development and interlacement of broader theories such as the economic voting, the role and extent of retrospective-prospective voting and the democratic accountability (see Barro, 1953; Downs, 1957; Fearon, 1999; Ferejohn, 1986; Fiorina, 1981; Key, 1966; Manin, 1997; Przeworski, 1999). The joint assumption sought after in these efforts is that elected rulers would be not only accountable to ruled voters, i.e. subject to sanction or rewards (Fearon, 1999) in terms of renewal or non-renewal of mandates, but also voters would decide between punishment or reward with an eye – a big one of an eye - on the economic situation.

Theoretically, however, it is too big an effort to investigate here whether, in wider and deeper terms, governments are accountable and in which sense they are. We are more interested in testing only whether somewhat drastic scenarios in economy, similarly in spiritto what Barro calls 'disasters' (2008, 2009, 2011), do affect elections when it is time to vote. This is a cautionary note. First, by no means democratic accountability needs to assume the

[1] The most popular epitome of the idea of economy driving the electoral choices of voters was coined by Bill Clinton's chief strategist James Carville, in the worldwide famous phrase he chose as one of the campaign mantras: "It's the economy, stupid!"

[2] For a fairly comprehensive review of those works and, actually, of the whole literature on the effects of economy on electoral outcomes, see Nannestad and Paldam (1994) and Anderson (2007).

[3] See previous note.

economic theory of voting. Finding any empirical bond between the context of economy and the incumbents' electoral performance (as we expect to) could reasonably mean a sufficient condition for one to conclude that some sort of accountability is present. But it is hardly a necessary one. Secondly, the scenario where recessions or depressions are felt by votersand do affect their choices would not necessarily mean, in a conceptual point of view, that democracies have been largely accountable in more favorable periods. In other words, voters' choices being affected by extreme economic scenario is also not a necessary condition for democratic accountability to exist and could be rightly disputed that it is neither sufficient.

In fact, it may be the case that while one or another economic variable measured by the literature has no role when considered in common models, it could behave differently when considered in the crisis context. Alternatively, it may be the case that only extreme situationsof each economic variable mobilize electors to punish incumbents. We will address some ofthose questions working with models that resemble those discussed in the literature,takingadvantage of good propositions from different authors, but also including here the detection of crises, recessions and their interactions with other phenomena. In some sense, our central questionis to a certain degree more exploratory than explanatory.

Besides the prolific debate on the more general impact of economy on electoralchoices and results, there is no extensive political literature commenting on the behavior of voters in specific moments of crises, i.e. of severe economic drawbacks. Moreover, to establish a theoretical expectation about the role of crises is more challenging than it appears. At thesame crises can be expected to increase punishment over incumbents because of the worsening of general economic scenario, they could also arguably result in weakening the impact of poor national economic performance, as voters would be a bit more understanding withthebadnews within their country knowing that the world is falling apart.

We analyze all democratic elections of 55 countries from 1960-2012 looking for the role of crises on elections. First, in the next section we briefly describe what a crisis will mean.Then, in the following section, we raise some interesting points from the literature on the subject of economic impacts on electoral outcomes. In the third section, we describe the dataset and the variables we will use. Next, in the fourth section, we present our models and results. The last section is dedicated to some conclusions.

1. Crisis, what crisis?

To accomplish this research task, we have to start by deciding what we are to consider as a crisis, how to define it. As surprisingly as it may seem, there is no established definition in economic research neither for crisis, nor for depression or recession. At the dawn of the very current international crisis, IMF's *World Economic Outlook* (2009) was still bringing interesting debate on the concept of national recessions, while very recent works from Barro (2008, 2009, 2011) and another from Bordo et. al. (2001) have been still trying to identify "economic disasters" of countries in a long-term perspective. Fortunately for real life economy and

unfortunately for our methodological needs, however, when put in longer perspective, sideby side with world wars and 1929, practically no such disasters are found after 1960 and when they are found they are restricted to specific countries in each moment.

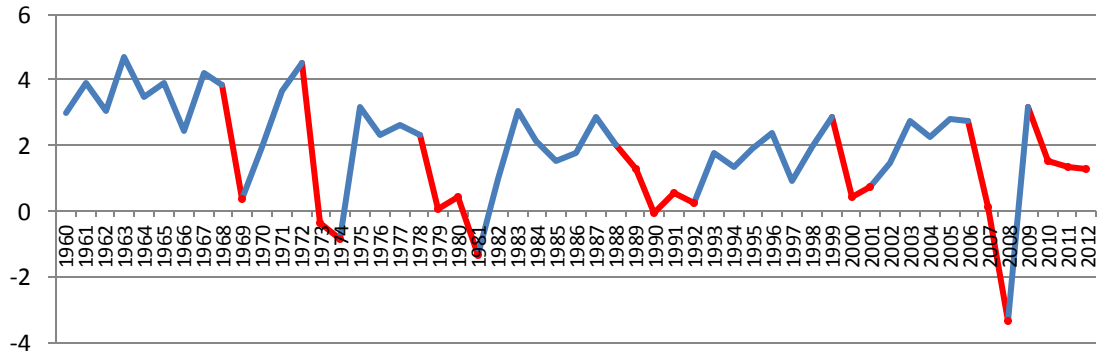
It is not that rules of thumb to circumvent this problem do not exist. Talking about national economies, the IMF (2002) reminds that "perhaps the most conventional ruleofthumb for defining a national recession is two straight quarters of negative GDP growth" (p.10). Or maybe three, as many central bank worldwide seem do adopt. In fact, as our data is organized annually, it is reasonable to consider that a given country with a negative real GDP growth in any year can be properly classified as in recession in the respective year, as it would have probably even surpassed the usual criterion of two or three negative quarters. We will follow this definition for national recessions. But it still leaves us unassisted on how to define international, world crises. Turning to world economy as a whole, the same IMF report continues: "unfortunately, this simple rule does not translate well to the global context. First, quarterly real GDP data are weak (…) Second, while we cannot measure it exactly, it is likelythat quarterly global growth does not turn negative nearly as often as does GDP within the typical country. Indeed, annual global growth has never been negative for any year in recent history".

While a solution sometimes embraced is to correct GDP for population growth andthen to use negative GDP per capita growth as the threshold for defining recessions, even this procedure would not be satisfactory. Again, the same report makes appropriately clear: transferred to the world economy context, negative GDP per capita growth would be asufficient condition to identify a global recession, not a necessary one. At the same time, the usual ruleof thumb of GDP growth lesser than 3% seems to have weak theoretical justification. The solution we start by following here is similar to the one proposed by Claessens, Kose, and Terrones (2008) and developed at IMF (2009). It consists of detecting peak-to-troughs on world GDP per capita growth to identify stronger falls and rises. By doing so, we found here similar troughs as theIMF did: 1973, 1981, 1990 and 2008, but we also looked for the moderate to high troughs, thus including 1969, 2000-2001 and 2011. As an example, the point made by the IMF report to explain why they haven't identified 1998 or 2001 as a strong trough, and so as a global recession, was that "in 1997–98 many emerging economies, particularly in Asia, had sharp declines in economic activity, but growth in advanced economies held up. In 2001, conversely, many advanced economies had mild recessions, but growth in major emerging markets such as China and India remained robust" (2009:12).

However, we are also interested here in those crises that strike the world less homogeneously. In addition, it is important to note that we look to the literature on busyness cycles to establish the duration of crises. It means, in our simple definition, that crises last until the beginning of recovery – measured as the beginning of the next peak. Figure 1 shows exactly the international crises we end up with[4]:

[4] Curiously, those points are not greatly different from the ones we would have if adopting the rule of thumb of international crises as being the years with less than 3% world GDP growth.

Figure 1 – World GDP per capita growth, with international crises in red



Source: World Bank (2012) for 1960-2010 and World Bank estimates for 2011-2012

2. Does economy widely matter?

As aforementioned, divergence and variety in results from works comparing cross-nationally the role of economic context on elections discourage definite conclusions and certainties. However, at the same time, they have been proposing good procedures, ideas and assessments of how to model the issue. We shall rely on them.

In the first steps of this comparative approach, Strom and Lipset (1984) report that in 163 elections from 1950 to 1982, only inflation had some effect on incumbent electoral losses, and only after 1973. Other economic indicators were not statistically significant. Lewis-Back and Mitchell (1993; 27 elections in 5 developed countries), on the other hand, found quite modest effects of inflation and unemployment, and in a somewhat restrict and not generalizable sample. Host and Paldam (1990) and Paldam (1991, 197 elections in 17 developed countries) find weak coefficients for the effects of economic variables, models have bad fits and inflation coefficients often have the wrong expected sing. Remmer (1993), on 21 elections in 12 Latin American democracies, was the first to turn to non-developed countries, finding that economic indicators matter in some cases, but still reporting weak coefficients.

A few other works have been presenting more innovative models and somewhat consistent results, although researches still disagree with each other. Powell and Whitten (1993, 102 elections in 19 developed countries) innovate by proposing that the impact of economy on electoral results can only be accessed if one considers the political differences and institutional contexts. Mainly, where political institutions make it more clear who is responsible for the economic outcomes, voters can more easily evaluate and eventually punish or reward incumbents. Their results point in these directions, with inflation, unemployment and economic growth all affecting incumbents' electoral performance where there is clarity of responsibility[5]. On the other hand, Cheibub and Przeworski (1999), with the most comprehensive sample in the

[5] For a direct reassessment of Powell and Whitten model, and with divergent results, see Royed et. al. (2000).

literature, are the first to find that economic outcomes have no impact at all. Indeed, they were also the first to analyze both developed and non-developed countries, in a sample of 135 countries 1950-1990 that actually included not only democracies. Instead of thinking of electoral performance of incumbents, they have investigated whether the survival of the rulers (chief executives) in government is influenced by political and economic variables. And in what regards economy, they conclude that it does not.

More recently, two works have questioned this result and further developed the assessment of the subject. Velasco (2004, 184 elections, 41 countries 1980-1998) also argues that researches should test for immediate effect of economic outcomes on the probability of incumbent parties to remain in charge, but differently she only considers electoral democracies and thus, the dependent variable becomes a binary identification of reelection or non-reelection. Additionally, Velasco takes care of both the long-term perceptions and how voters compare short-term and long-term economy. Indeed, she not only finds a significant role of growth and inflation on the chance of remaining in power, but also that long-term should be taken into account: "Voters do make comparisons and take the past into account, at least when judging economic growth. (…) Thus, voters can be long and short sighted, this will depend on what they are evaluating" (p.39). With a different approach, Barreiro (2008, 477 elections in 83 countries, 1950-2000) also reports that economic performance accounts for the electoral performance of the incumbents, recovering this dependent variable such as the literature has used before. Her results show that economic growth and anti-inflationary policies increase electoral performance, while hyperinflation decreases. Also, "although in both rich and poor democracies voters reward economic growth, they are more sensitive to performance in the more wealthy democracies. Accountability works slightly better in rich countries. Finally, an important determinant of the vote for the incumbent in poor countries is the length of democracy: more time, more votes" (p.42).

Finally, last year Nishikawa (2012, 19 developed parliamentarian countries) tested if different electoral systems do affect differently the duration of parties in government. The author uses a duration model, similar to the survival analysis employed by Cheibub and Przeworski (1999), although curiously, the paper does not discuss or cite neither this classical work and nor the whole literature on the subject of incumbents' electoral performance or chance of reelection[6]. The main finding is that single member districts lead to more frequent changes in who governs, while proportional systems tend to make politicians to endure in the office they hold.

As we will discuss in more detail shortly, in this research we follow Barreiro (2008) in embracing the original idea of electoral performance, but with a few modifications. In addition, we will see that this author is moreover correct about using robust regression to deal with this kind of data, differently to what literature usually did. It is quite likely that cross countries comparisons should present many severe outliers. But in what regards the economic variables, we do think Velasco (2004) has a strong point about the importance of not considering economic variables myopically, as voters probably do remember a bit more than yesterday. We will

[6] Author even does the odd claim that Political Science literature did not pay as much attention to this subject as it should.

implement this approach quite differently from Velasco, but we do think that this insight should be generally retained in researches on this topic. At the same time, we will include and control for the political context as endorsed by Powell and Whitten (1993) and later by Cheibub and Przeworski (1999).

3. Dataset and variables

The dataset contains all democratic elections of 55 countries from 1960 to April 2012[7], considering for analysis the 585 elections that were preceded by at least one other democratic election. Pairs of elections are necessary for calculating variance in electoral performance, as we shall explain shortly. Here we keep mixing developed and non-developed countries, looking to include as many different parts of the world as possible[8].

Democratic status was defined at the threshold of score 4 in the Polity IV classification. Despite the well-known shortcomings of using this index (Munck and Verkuilen, 2002), a classification such as the one from Alvarez et al. (2000), adopted by recent works, would not be ideal for our purposes either. Their operational definition of democracy relies on the occurrence of alternation in power between ruling groups and oppositions. The first alternation demarks the first democratic election, which would needlessly drop many elections from our analysis: by this conception, at least one election (the initial one in the pair when there is the first alternation) is to be undesirably considered not democratic. Not to mention many initial elections of countries that took longer to have alternation. Polity IV, if adopted without deeper theoretical ambitions and using a lower threshold, could be enough to at least identify beginning of democracies – as we are not interested in comparing the idiosyncratically defined level of democracies.

In the end, countries analyzed in this version of the dataset are the following. Parliamentary: Australia, Barbados, Belgium, Botswana, Canada, Cape Verde, Czech Republic, Denmark, Germany, Greece, Hungary, India, Israel, Italy, Jamaica, Japan, Netherlands, New Zealand, Norway, Spain, Sweden, Trinidad and Tobago, Turkey, United Kingdom. Presidential[9]: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Mongolia, Nicaragua, Panama, Paraguay, Peru, Philippines, Russian Federation, South Korea, Ukraine, United States, Uruguay, Venezuela. Mixed: Austria, Bulgaria, Finland, France, Iceland, Ireland, Portugal and Sri Lanka.

In the case of countries with mixed systems, i.e. semi-presidential or semi-parliamentary systems, there is always a decision to make about which election will be considered. Austria, Finland, Iceland and Ireland are not a problem, as most of the presidential elections had only one candidate or had only succession of independent candidates not repeating themselves (which makes impossible or not credible to analyze incumbency over time). Hence, in those cases we considered the parliamentary elections. For the other countries, some works justify

[7] Many countries, of course, only started holding democratic elections in some point during this period. About the elections held in 2012, we include the ones in Dominican Republic, Greece, Mexico and Russia.
[8] A few other countries not yet in the dataset are going to be included soon.
[9] In presidential elections, we always work with results of the first rounds.

their choices commenting about legal powers in each country (e.g. Barreiro, 2008), others give preference to parliaments by default (e.g. Powell and Whitten, 1993). Instead of having to cut off cases without a theoretical reason to do so, we rather include both presidential and legislative elections of those countries, separately. The plain idea here is that there is no reason to assume *a priori* that voters cannot separate their evaluations of presidents and parliaments in a mixed-system[10].

- Dependent variable (DV): electoral performance

Many different procedures were adopted to build the dependent variables used by the literature that looks for effects of economy on elections. What means, truly, that authors have been frequently talking about different things. Cheibub and Przeworski (1999), for one example, were the only to test for the survival of rulers in government and at the same time were the only to find that practically no economy variable had an effect on this dependent variable. About this, Barreiro (2008) seems in the right direction when she points that, comparing to rest of literature, survival talks about something else: "permanence in office is often independent of elections. As Cheibub and Przeworski show, 48 percent of changes of prime-ministers in parliamentarism are not caused by elections" (p.19). Even if the concept of survival in office closer reassembles what incumbent parties expect, it is measuring a lot more than the electoral choices made by voters, especially in parliamentary systems.

As before mentioned, Velasco (2004) tried to improve on this issue by choosing a binary variable to assess the reelection (or not) of democratic incumbent parties in charge. She correctly claims that this option is a better way to assess the impacts on the likelihood of incumbents to do what they supposedly really want: to retain government. Even better, we should say, she focus only on the possibility of changes and stabilities entailed by elections. In fact, the many ways to calculate variation of votes from one election to another can be misleading, as she reminds us: "Although losing votes can be interpreted as a form of punishment, it does not necessarily imply that the incumbent party loses power. It may lose some votes, and still be able to retain power. The fact that governments may produce bad economic outcomes -and still manage to retain power- questions the strength of the punishment and the pervasive incentives this situation may create. Additionally, it is not the same to lose 5% of the votes in an election when the party won 65% of the vote in the last election, to lose 5% of the vote in a situation where the party won the last election with 51% of the vote" (p.11).

Still, it is again a matter of what we want to talk about. Many institutional factors not considered by Velasco are known to affect the probability of reelection of incumbents in a cross-national comparison, from the majority rules adopted by presidential elections to the thresholds in parliamentary elections. More importantly, reversing Velasco's argument, even remaining in charge, a party may lose a lot of its electoral support from one election to another and looking only for permanence in office may cloud those shifts in electoral preference. At the same time,

[10] In fact, if voters are smart enough to evaluate complex and interlaced issues as inflation and employment depending for instance if rulers are from left or right wings (Hibbs, 1977, 2006 for a classical approach; Barreiro, 2008 for the idea in our debate), why would them not be able to punish or reward in different degrees the president and the parliament?

individual parties may remain the same share of electoral preference and still loose office due to the rearrangement of the competitors, and in this case relying on the permanence in office may be misleading. Moreover, the factors that may weakly alter the probabilities of an incumbent party being reelected may, by the other hand, strongly affect the share of votes received – and the size of electoral support could conceivably matters in a great degree for politicians, governments and coalitions (including under presidential systems). Hence, we decide to follow in this paper the measurement of electoral performances rather than using likelihood of reelection.

However, in spite of adopting the procedure of Paldam (1991) and Barreiro (2008), of calculating how many percent points are gain or lost by incumbents and/or alliances from one election to the next[11], we favor to acknowledge the warnings about the difference it makes to gain or lose votes depending on the share of votes one started with. This claim from Velasco (2004) was first raised by Powell and Whitten (1993), to whom we could account for those differences by including the votes held by incumbents in the previous election as an independent variable, i.e. as a control. The procedure is, for instance, also used by Cheibub and Przeworski (1999). But one simpler and more straight way to handle this problem may be to slightly change the calculation of the dependent variable. In spite of subtracting the share of votes in t_1 from the share of votes in t_0, we consider the relative gain or loss. Accordingly, electoral performance here will mean:

$$Electoral\ Performance\ (ElecPerf) = \frac{\sum_1^P V_{p_{t_1}} - \sum_1^P V_{p_{t_0}}}{\sum_1^P V_{p_{t_0}}}$$

Where:

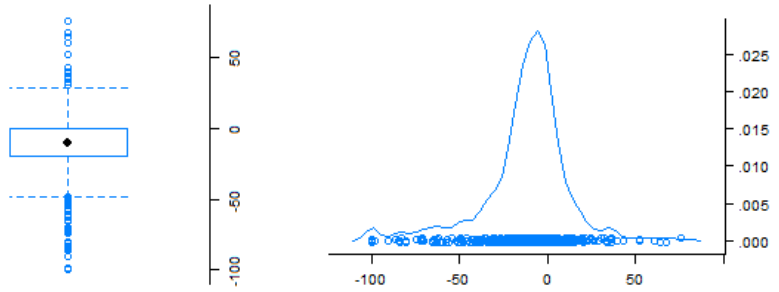
$V_{p_{t_0}}$ is the share of valid votes of each party p in the victorious electoral alliance of P parties in election held in t_0 and $V_{p_{t_1}}$ is the share of valid votes that each of those p parties has in the next election, held in t_1.

For an example, take the pair of elections 1983-1986 in Austria. In 1983, the winning alliance was Social Democratic Party with 47.6% (the head) of valid votes and Freedom Party of Austria with 4.9%. In 1986 election, does not matter whether those parties were yet allies, we calculate how much support they got: 43.1% and 9.7%, respectively. So, the head incumbent variation was $(43.1 - 47.6) / 47.6 = -9.4\%$, not $43.1 - 47.6 = -4.5\%$ as it would be in the absolute calculation[12]. It means that the head of government party decreased in 9.4% the share of support it had before. The incumbent alliance variation was $[(43.1 + 9.7) - (47.6 + 4.9)] / (43.1 + 9.7) = 0.4\%$, what means that, together, the incumbent parties almost did not lose share of electoral support. Figure 2 shows the descriptive statistics of this variable, giving us some important information:

[11] We also have calculated this variable considering the variations only of the head party of alliances, but results are similar and always consistent with the ones in the article.

[12] Notice that the unit of this variable, and also of all other variables in percentages, is not 0.01, but 1%. Thus, in the regression analysis, an increase of one point in the dependent variable, caused by an independent variable X_i, will mean $\beta_i = 1$.

Figure 2 – Descriptive statistics of electoral performance



N	585
Mean	-0,11
Std.Dev	0,28
.25 Pctile	-0,20
.50 Pctile	-0,09
.75 Pctile	0,00
.90 Pctile	0,11
Min	-1
Max	1,77

First, it is possible to see that in 75% of the cases analyzed in this paper, incumbents' share of electoral support decreased in the subsequent election, comparing to the previous. What means that the usual research object in this subject, commonly posed as the advantage of incumbents, could rather be named the intriguing incumbents' disadvantage. In the second place, it is possible to see that we indeed have a lot of outliers in the dependent variable. More than that, the distribution of the variable is heavily two-tailed. All transformations proved to be unhelpful to change both this distribution and the consequent distribution of the models' residuals. In fact, it makes sense to have quite a number of extreme cases, representing the not-so-uncommon situation when incumbents tragically lost or incredibly gained support. Political life is prone of outlying, sudden rough situations such as riots, civil disorders, revolutions, international menaces, scandals, charismatic leaders, policies topical results and so on. Leaders can gather votes from those many situations, or lose them in great quantity, depending on other numerous outlying factors.

Accordingly, we have all reasons to suspect that many works in the literature, dealing with similar dependent variables, had data facing similar issues. Yet, the only one to acknowledge this problem and to work with robust regression models to face the issue was Barreiro (2008). We are going to start by comparing results of a preliminary model run both with OLS and with robust regression, including the proper tests for bias in the OLS estimators. We have only to briefly describe main variables of the model first.

- Variables of interest (vi)

We begin with the main variables we are interested in testing. In what regards the identification of international crises, national recessions and hyperinflation as discussed before:

vi.1) International crisis (WrldCrisis) = 1 if World was facing a crisis in the year of the election *or* in the previous year, 0 otherwise. This *or* logical procedure was applied to avoid the above mentioned problem of considering or not considering factors in the same years of elections when elections are held in different points of years. At the same time, it would make no sense to look for crises longer in time as we did with other economic variables, for two reasons. First, if an *or* statement was extended three years back from each elections, it could conceivably inflate the

effect of crises on elections. Secondly, the whole point in studying the impact of international crises on electoral performances is to test for the punctual event they represent when compared to internal economic outcomes. Therefore, we expect negative sign, meaning that the mere presence of international crisis could affect electoral performances of incumbents. This is our main variable of interest;

vi.2) Internal recession (CntryRecess) = 1 if countries' GDP growth was lesser than zero in the correspondent election year *or* in the year before; 0 otherwise. We expect a negative sign, showing that recessions themselves affect incumbent evaluation in the next election;

vi.3) Hyperinflation (hyperCPI) = 1 when average inflation at the last three years before elections is greater than the value of its .95 percentile (average inflation rate of 54.37%). The inspiration here is the variable from Barreiro (2008);

- Economic control variables (ec)

In order to model the impact of economic performance accurately, we include the main usual economic variables in literature: economic growth, inflation and unemployment. But this is the point to recall that Velasco (2004) has a strong point when claiming that researches should not necessarily expect voters to evaluate those factors myopically. There is no reason to expect that voters reward or punish incumbents based on current economy at the moment of elections, or even on the basis of economy as it was going not long ago (see Peltzman, 1990).

Additionally, to consider only the economic indices at the same year of elections would prove erroneous because elections can be held in different months during a year and our data is annual. It means, for instance, that if an election date was March 1994 and we link it, let say, to employment indices of the whole 1994 year, we would be expecting that future unemployment was to affect previous electoral results. Non-myopically – to use the terms from Velasco - it would make more sense to expect voters to consider the context of the past few years. We will follow the advice:

ec.1) Economic growth (varGDPpc) = average of the real GDP per capita growth at the three years before elections. Real GDP data comes from PWT7.1 dataset (Heston, et. al., 2012). The usually expected here is, of course, a positive sign, indicating that better economic situation is rewarded by voters;

ec.2) Inflation rates (logCPI) = log of the average of consumer price index at the three years before election. Source is the World Bank (2012). The expected is a negative sign, to show that inflation deteriorates the evaluation of voters regarding governments;

ec.3) Employment rates (logEmploy) = log of the average of the variation in the share of employed population at the three years before election. Source is the *output per worker* variable[13] in PWT7.1 (Heston, et. al., 2012). The expectation is a positive coefficient: more people working, more rewards to incumbents.

[13] The PWT variable is RGDPL2WOK, which is equal to $(real\ GDP * population)/workers$. Their definition to this denominator, as of the 6.3 version of the codebook is: "workers includes all status

ec.4) General government final consumption expenditure (GovC) = average of government current expenditures[14] at the three years before elections. Source is the World Bank and one conceivable expectation would be a positive sign: more expenditure from government, more electoral reward;

ec.5) High-income countries (HighIncome) = the countries in our sample that are classified by the World Bank[15] as being currently high-income economies. This is a binary variable to allow for group comparisons.

- Political control variables (pc)

Now we turn to our political variables, to control for institutional diversity as well as for the clarity of responsibility (Powell and Whitten, 1993). To classify countries per election year, we relied on numerous sources, readings and searches. Golder (2007) is a main source, though. Political variables are the following:

Presidentialism versus parliamentarism (Presid) = 1 when the election being considered was held to elect a new president; 0 if it was to elect a parliament. We have no specific expectation regarding this variable, but is a highly important control as we are running models without separating presidential and parliamentary systems;

Effective number of electoral parties (Enep) = the number of parties in the Lower Chamber elections according to the usual formula by Laakso and Taagepera (1979). The expectation, to follow the literature, is a negative sign;

pc.1) Federalist country (Federal) = 1 if country is a federalism, 0 if it is not. I rely on Watts (1998), Norris (2008), Garring and Thacker (2004), and the website Forum of Federations - The Global Network on Federalisms. In each case, I followed the conclusions offered by the majority of those works;

pc.2) Age of democracy (AgeDem) = years since the country was classified as democratic according to Polity IV. We expect positive sign following the argument of Barreiro (2008) about the institutionalization of the political systems and of parties would strength the connection between voters and parties;

pc.3) Old democracies (OldDem) = 1 if country has more years of democracy than the overall .75 percentile of the variable AgeDem, i.e. 56 years. Otherwise, score for this

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categories of persons in employment, not only employees -- including paid family workers but also employers, own-account workers, members of producers cooperatives, contributing family workers and workers not classifiable by status". From it we calculate back the number of workers and then their relative size in the population.

[14] In World Bank's definition, it includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditure on national defense and security, but excludes government military expenditures that are part of government capital formation.

[15] A complete list can be found at: http://data.worldbank.org/about/country-classifications/country-and-lending-groups#OECD_members.

variable is 0. We expect this to measure the same thing as AgeDem, but in the form of a binary variable to allow for group comparisons.

4. Multivariate tests

Our model number 1 only replicates the usual approaches of the literature on the importance of economy on the electoral performance of incumbents. Mainly, works include a set of core three economic variables (economic growth, inflation and unemployment), which we also do. Additionally, we propose to include the governmental consumption expenditure as a percentage of GDP as a proxy of if fiscal policies are restrictive or expansionist.

Again following the literature, we include a set of political variables with the intention of controlling for the clarity of responsibility (Powell and Whitten, 1993) in the political systems and, more generally, by the political context as a whole. The most common variables to accomplish this task have been the ones measuring unity or fragmentation of governments: size of the major party in the Lower Chamber; a dummy for if government is or not a coalition; number of parties in the system; and so on. In our first model, we include the effective number electoral parties in Lower Chambers. This is the most important way to control for clarity of responsibility – and actually, it may even be a proxy for most of those other political characteristics that authors usually claim.

For instance, it informs us about the expected impacts of coalition governments. But as Barreiro (2008) points, it isn't clear if many parties in the government is good or bad for incumbents evaluation, i.e., if voters punish harder because of the supposed decrease in governability or if they are softer judges because of not knowing exactly whom to punish. Anyway, as our dependent variable of electoral performance includes the variation of the whole alliances, it should be less sensitive to this problem. Following most of the literature, we expect a negative sign for effective number of electoral parties. Still regarding those controls for clarity of responsibility, it is surprisingly that literature has left out from models another dimension that could clearly help on that matter: federalism. Recovering Lijphart (1991), a federative system is often interpreted as a strong characteristic of consociativism. And could arguably mean less clarity of responsibility in the terms of Powell and Whitten. Hence, we include it in the model too. Finally, following Barreiro (2008), we include years of democracy as a possible control for institutionalization of political systems. Thus, we have:

Model 1:

$$ElecPerf_1 = \beta_{1,0} + \beta_{1,1}GDPpc + \beta_{1,2}logCPI + \beta_{1,3}Employ + \beta_{1,4}GovC + \beta_{1,5}Pres + \beta_{1,6}Enep + \beta_{1,7}AgeDem + \beta_{1,8}Federal + \varepsilon_1$$

In model number 2, we only add our dummy variable, which identifies international crises. We are not only interested in seeing if it has a distinguishable effect on electoral performance, but also if its inclusion changes the rest of the model somehow.

Model 2:

$$ElecPerf_2 = \beta_{2,0} + \beta_{2,1}GDPpc + \beta_{2,2}logCPI + \beta_{2,3}Employ + \beta_{2,4}GovC + \beta_{2,5}Pres + \beta_{2,6}Enep + \beta_{2,7}AgeDem + \beta_{2,8}Federal + \beta_{2,9}WrldCrisis + \varepsilon_2$$

We run both models with OLS and with robust regression using the MM-estimator from Yohai (1987), in order to verify the extent of discrepancies caused by using OLS in this kind of heavily-tailed data. The software used throughout this paper was the *R-Project* software, version 2.15.2. All the following robust models were implemented with the function lmrob and the $adjusted\ R^2$ fit measures for them were estimated using the correction for robust regression proposed by Renaud and Victoria-Feser (2010)[16]. Here are the results for models 1 and 2:

Table 1 - Electoral performance explained by: replication model (1) and then including World crises (2). Dependent variable: electoral performance

	Model 1		Model 2	
	OLS	Robust MM-type LM	OLS	Robust MM-type LM
(Intercept)	-12,3671 (5,72) **	-8,6384 (4,88) *	-10,8501 (5,75) *	-8,0823 (4,84) *
WrldCrisis			-4,0094 (1,97) **	-1,8232 (1,47)
varGDPpc	2,1989 (0,39) ***	1,7636 (0,34) ***	2,2452 (0,39) ***	1,7981 (0,34) ***
logCPI	-0,8291 (1,26)	-1,5332 (1,12)	-0,7652 (1,26)	-1,5108 (1,11)
Employ	-0,8261 (1,00)	0,1533 (0,78)	-0,7333 (0,99)	0,2410 (0,78)
GovC	0,7017 (0,22) ***	0,2318 (0,14)	0,7152 (0,22) ***	0,2480 (0,14) *
Enep	-3,9135 (0,61) ***	-1,8672 (0,51) ***	-3,9983 (0,60) ***	-1,9520 (0,52) ***
Presid	-6,4587 (2,55) **	-2,2617 (2,65)	-6,3431 (2,55) **	-2,0917 (2,66)
AgeDem	0,0308 (0,03)	0,0289 (0,02)	0,0323 (0,03)	0,0302 (0,02)
Federal	2,6920 (2,16)	1,6978 (1,57)	2,5638 (2,15)	1,6181 (1,56)
Adjusted R^2:	0,17	0,15	0,18	0,16
Resid.Std Error:	22,33	13,85	22,26	13,86
Test for Bias:	LS-estimator:	M-estimator:	LS-estimator:	M-estimator:
	88,33 ***	12,91	84,43 ***	16,86
N	526	526	526	526

*Notes: Standard errors in parentheses. Statistical significance levels: ***0,01; **0,05; *0,1*

According to the OLS estimation, the model without the international crises variable has four statistically significant coefficients. The average increase of one percent-point in the GDP per capita in the last three years of election increases about 2.2% the share of electoral support of incumbents. Government expenditures are weaker: one percent-point more of expenditures result in an increase of only 0.7% in electoral performance. The effective number of electoral parties, by its turn, would suggest that each additional effective party in the Lower Chamber during a mandate decreases 4% the electoral performance of incumbents. A presidential incumbent would tend to lose about 5% more of performance than parliamentarian alliances,

[16] Even with the robust method, we chose to drop six cases from all the models in this works, in order to correct the distribution of residuals. They influenced this distribution in all models. Those extreme cases were: Argentina-2007; Denmark-1975; Ecuador-2009; Peru-1990 and Portugal-1986 and 1991.

holding everything else constant. The inclusion of the world crises variable does not alter the model much, but is significant and points that when world economy is in crisis, incumbents of countries would lose around 4% of performance in the next election. Inflation and unemployment have no significant effect on electoral performance, according to those two models.

The problem with this analysis is that it is not robust to the influences caused by outliers in different variables, as we have advanced earlier. In fact, the distribution of residuals of both OLS for models 1 and 2 are not normal, but two-tailed. And heteroscedasticity seems to be a problem in both as well. Results are not reliable. It gets clear when we look at the models run with robust regression. Not only the tests for bias in estimations show that the two OLS models 1 and 2 are biased, while Robust models 1 and 2 are not. In addition, residual standard errors are quite smaller in the robust regression results and, truly, some results of significance and strength of coefficients turn different. Coefficients of varGDPpc are smaller and coefficients of Enep are much smaller. At the same time, system of government lose its statistical significance and governmental expenditures also loses in model 1, but not in model 2. More importantly, the presence of world crises seems to not matter when we consider the robust model. It means: when we properly account the overweight of outliers in the model.

As we told previously, it is likely that many other researches on the topic of the impact of economy on votes had similar patterns of outlying from extreme values. But only Barreiro (2008) acknowledged the problem. It seems quite clear that results are not trustable with OLS regression as we are dealing with variables that, actually, probably will have many extreme low and extreme high cases. Therefore, from now on we rely on the robust regression estimators as specified above, in order to properly run the next models.

The last results suggest so far that the event of international crises do not affect electoral performances. However, an important point often forgotten when researching those impacts of economic matters on elections is that economic variables can be quite sensitive to the misspecification of models, specially when we leave other economic factors out from the models. In order to see if the results of the robust analysis are themselves robust to new specifications, we are adding four more parameters, once at a time. First, in the model number 3 we add an interaction effect between the average of government consumption expenditures as a share of GDP in the three years before elections and the occurrence of world crises. Thus, we can see if crises have an additional effect to the impact caused by government expenditure on electoral performance of incumbents, or yet if it reveals a hidden effect of crises.

Model 3:

$$ElecPerf_3 = \beta_{3,0} + \beta_{3,1}GDPpc + \beta_{3,2}logCPI + \beta_{3,3}Employ + \beta_{3,4}GovC + \beta_{3,5}Pres + \beta_{3,6}Enep + \beta_{3,7}AgeDem + \beta_{3,8}Federal + \beta_{3,9}WrldCrisis + \beta_{3,10}(GovC * WrldCrisis) + \varepsilon_3$$

In model number 4 the included variable is now an interaction term between the log of the average of national reserves at the three years before elections, and the occurrence of world crises to see if specifying countries' fiscal shield discloses a hidden effect of crises.

Model 4:

$$ElecPerf_4 = \beta_{4,0} + \beta_{4,1}GDPpc + \beta_{4,2}logCPI + \beta_{4,3}Employ + \beta_{4,4}GovC + \beta_{4,5}Pres + \beta_{4,6}Enep + \beta_{4,7}AgeDem + \beta_{4,8}Federal + \beta_{4,9}WrldCrisis + \beta_{4,10}logReserv + \beta_{4,11}(logReserv * WrldCrisis) + \varepsilon_4$$

In models 5 and 6 we try to assess national domestic recessions in two different ways. Respectively, adding a dummy variable to identify when a country suffered from hyperinflation in the three years before elections and adding a dummy variable that identifies when countries had negative GDP growth in the year of election or in the year before. With those recession measures we are both interested in testing whether there is an effect of extreme domesticbad scenarios on the electoral performance and also in verifying how it affects the be haviorofother variables.

Model 5:

$$ElecPerf_5 = \beta_{5,0} + \beta_{5,1}GDPpc + \beta_{5,2}logCPI + \beta_{5,3}Employ + \beta_{5,4}GovC + \beta_{5,5}Pres + \beta_{5,6}Enep + \beta_{5,7}AgeDem + \beta_{5,8}Federal + \beta_{5,9}WrldCrisis + \beta_{5,10}HyperCPI + \varepsilon_5$$

Model 6:

$$ElecPerf_4 = \beta_{6,0} + \beta_{6,1}GDPpc + \beta_{6,2}logCPI + \beta_{6,3}Employ + \beta_{6,4}GovC + \beta_{6,5}Pres + \beta_{6,6}Enep + \beta_{6,7}AgeDem + \beta_{6,8}Federal + \beta_{6,9}WrldCrisis + \beta_{6,10}CntryRecess + \varepsilon_6$$

Results of models 3 to 6 are in table number 2:

Table 2 - Including WorldCrises*Government expenditures (3); WorldCrises*Countries reserves (4); Hyperinflation (5) or Country recessions (6). Dependent variable: electoral performance

	Model 3	Model 4	Model 5	Model 6
	Robust MM-type LM	Robust MM-type LM	Robust MM-type LM	Robust MM-type LM
(Intercept)	-6,8860 (5,18) *	-5,6811 (4,86)	-16,3943 (6,02) ***	-5,3986 (4,52)
WrldCrisis	-5,2867 (4,85)	-7,7742 (2,99) ***	-1,8459 (1,44)	-0,8725 (1,44)
GovC*WrldCrisis	0,1975 (0,24)			
logReserv		-1,5914 (1,19)		
logReserv*WrldCrisis		3,5039 (1,55) **		
hyperCPI			-20,7581 (6,76) ***	
CntryRecess				-4,5618 (1,61) ***
varGDPpc	1,8161 (0,34) ***	1,7558 (0,34) ***	2,0355 (0,36) ***	1,4144 (0,34) ***
logCPI	-1,4676 (0,12)	-1,4379 (1,11)	1,1020 (1,41)	-1,4049 (1,05)
Employ	0,2278 (0,76)	0,1682 (0,76)	-0,3921 (0,90)	0,5709 (0,73)
GovC	0,1715 (0,17) ***	0,2622 (0,16)	0,3601 (0,15) **	0,2261 (0,14) *
Enep	-1,9589 (0,52) ***	-1,9678 (0,53) ***	-1,7802 (0,52) ***	-1,9972 (0,51) ***
Presid	-1,9800 (2,66) **	-1,8948 (2,60)	-1,8662 (2,55)	-2,4054 (2,54)
AgeDem	0,0305 (0,02)	0,0305 (0,02)	0,0332 (0,02)	0,0226 (0,02)
Federal	1,6158 (1,56)	1,7917 (1,57)	2,2026 (1,59)	1,3420 (1,56)
Adjusted R^2:	0,16	0,17	0,21	0,17
Resid.Std Error:	13,87	13,87	13,60	13,49
Test for Bias M-esti	12,31	17,95	14,79	16,86
N	526	526	526	509

*Notes: Standard errors in parentheses. Statistical significance levels: ***0,01; **0,05; *0,1*

It is possible to see that model 3 is mostly the same as previous model 2, i.e. the inclusion of the interaction between government expenditures and the occurrence of crises changes neither the model, nor the effect of other variables. The other three models, in contrast, are more motivating. Model 4 shows that the inclusion of national reserves transforms the role played by the occurrence of world crises. Not only have those crises turned to be statistically significant, but also with a negative sign and a strong coefficient. Besides, the interaction is also significant but with a positive sign, what is quite interesting: world crises worsen the electoral performances of incumbents, but how much they do depends on the monetary reserves countries have. More reserves mean less effect of crises. Consistently, the term of logReservout of the interaction is not significant, meaning that when there are no international crises, we cannot be confident that there is significant effect of monetary reserves on electoral performance. But we will see different results on this point shortly. Additionally, in model 4 the Government expenditures lose significance. Besides those results, other coefficients remains almost the same and no one else gain or lose significance. Model 4 is, thus, a clear improvement upon the initial models.

In model 5 we come back to the initial formulation, without the interaction between reserves and crises, and we include only the variable to detect hyperinflation. This new variable has a strong coefficient, statistically significant and with the expected sign: the presence of hyperinflation strongly affects the electoral performance of incumbents, lowering it by 20 percent points. As the measure of inflation is not significant in all models but the dummy for hyperinflation is, we could say that it is not the fluctuations in the price inflation rates that affect electoral performance of incumbents, but the occurrence of really high inflation. Voters may be not paying most of their attention to prices when choosing rulers, unless prices in economy go up greatly. Finally, it is worth noting that this model with hyperinflation is the one that mostly improves the corrected adjusted R^2 and also the residual standard error, so far.

On the other hand, when we add the occurrence of national recessions in place of hyperinflation (model 6), the coefficients and significance of variables remain mostly similar to the initial models 1 and 2. Except for the new variable itself, that proves to be statistically significant and in the expected direction. When countries are in recession, incumbents lose electoral support. But differently to what happened in model 4 where the inclusion of hyperinflation made inflation itself to be not significant, in model 5 the inclusion of economic recession does not change the significance of the average variation of GDP per capita in the three years before election. Actually, even its coefficient remains approximately similar, falling from 1.8 in model 2 to 1.4 in model 6. The mere occurrence of recession has a -4.6 coefficient. In other words, recessions seems to matter even when we control for economic growth.

So far, we have tested models adding each of those new variables separately to the original model 2. However, do those findings hold when considering in the same model the relationship between world crises and national reserves, the presence of hyperinflation and the occurrence of national recessions? Now, we finally run a large full model with those three variables, the model number 7.

Model 7:

$$ElecPerf_7 = \beta_{7,0} + \beta_{7,1}GDPpc + \beta_{7,2}logCPI + \beta_{7,3}Employ + \beta_{7,4}GovC + \beta_{7,5}Pres + \beta_{7,6}Enep + \beta_{7,7}AgeDem + \beta_{7,8}Federal + \beta_{7,9}WrldCrisis + \beta_{7,10}logReserv + \beta_{7,11}(logReserv * WrldCrisis) + \beta_{7,12}HyperCPI + \beta_{7,13}CntryRecess + \varepsilon_7$$

In addition, after analyzing model 7 we further develop this full model testing for the behavior of the variable WrldCrisis and for its robustness in other model specifications. For instance, in model 8 we include an interaction between World Crises and the binary variable that identifies presidential systems (Pres=1) against parliamentary systems (Pres=0). By doing so, we test if there is a difference between the impact of international crises on the electoral performance of incumbents in presidential and parliamentary elections and also, if this effect of crises remains significant when we separate those systems. This is especially important, as the joint consideration of both systems in the same sample can be said to distort results.

Model 8:

$$ElecPerf_8 = \beta_{8,0} + \beta_{8,1}GDPpc + \beta_{8,2}logCPI + \beta_{8,3}Employ + \beta_{8,4}GovC + \beta_{8,5}Pres + \beta_{8,6}Enep + \beta_{8,7}AgeDem + \beta_{8,8}Federal + \beta_{8,9}WrldCrisis + \beta_{8,10}logReserv + \beta_{8,11}(logReserv * WrldCrisis) + \beta_{8,12}HyperCPI + \beta_{8,13}CntryRecess + \beta_{8,14}(Pres * WrldCrisis) + \varepsilon_8$$

In model 9, we test the interaction between WrldCrisis and OldDem to verify if international crises do have different impact on electoral performance of incumbents in newer and older democracies. Remember that the cutoff is the .75 percentile of age of democracy in the countries in the sample, i.e. 56 years of democracy. We include an interaction term between this dummy variable and the dummy for world crises. The main idea here is to do group comparisons in the same sample, between developed political systems and newer political systems. Notice that in this model we drop AgeDem, as it was the input for creating OldDem.

Model 9:

$$ElecPerf_9 = \beta_{9,0} + \beta_{9,1}GDPpc + \beta_{9,2}logCPI + \beta_{9,3}Employ + \beta_{9,4}GovC + \beta_{9,5}Pres + \beta_{9,6}Enep + \beta_{9,7}Federal + \beta_{9,8}WrldCrisis + \beta_{9,9}logReserv + \beta_{9,10}(logReserv * WrldCrisis) + \beta_{9,11}HyperCPI + \beta_{9,12}CntryRecess + \beta_{9,13}OldDem + \beta_{9,14}(OldDem * WrldCrisis) + \varepsilon_9$$

Finally, in model 10, we test the interaction between WrldCrisis and HighIncome, to see if international crises have a different impact on electoral performance of incumbents in richer and poorer countries. Remember that rich countries are the ones in our sample that are considered by the World Bank as high-income economies.

Model 10:

$$ElecPerf_{10} = \beta_{10,0} + \beta_{10,1}GDPpc + \beta_{10,2}logCPI + \beta_{10,3}Employ + \beta_{10,4}GovC + \beta_{10,5}Pres + \beta_{10,6}Enep + \beta_{10,7}AgeDem + \beta_{10,8}Federal + \beta_{10,9}WrldCrisis + \beta_{10,10}logReserv + \beta_{10,11}(logReserv * WrldCrisis) + \beta_{10,12}HyperCPI + \beta_{10,13}CntryRecess + \beta_{10,14}HighIncome + \beta_{10,15}(HighIncome * WrldCrisis) + \varepsilon_{10}$$

The results are the following:

Table 3 - Putting World Crises, National Recessions and Hyper Inflation together (7). Then adding World Crises*Presidential systems (8); World Crises*Rich countries (9) or World Crises*Old democracies (10). Dependent variable: electoral performance

	Model 7	Model 8	Model 9	Model 10
	Robust MM-type LM	Robust MM-type LM	Robust MM-type LM	Robust MM-type LM
(Intercept)	-10,3106 (5,84) *	-10,1643 (5,85) *	-7,0438 (5,93)	-9,1318 (6,22)
WrldCrisis	-6,0821 (2,91) **	-5,3795 (2,89) *	-8,9017 (3,32) ***	-13,0586 (4,49) ***
logReserv	-1,8033 (1,20)	-1,8340 (1,19)	-2,4084 (1,27) *	-1,7310 (1,32)
logReserv***WrldCrisis**	2,9786 (1,52) *	2,9766 (1,52) *	3,5358 (1,57) **	3,3427 (1,57) **
hyperCPI	-17,5116 (6,63) ***	-16,9466 (6,75) **	-16,8274 (6,73) **	-16,0058 (6,71) **
CntryRecess	-3,8869 (1,63) **	-4,0325 (1,64) **	-4,2985 (1,65) ***	-4,3285 (1,62) ***
varGDPpc	1,6431 (0,38) ***	1,6386 (0,38) ***	1,6130 (0,39) ***	1,5650 (0,37) ***
logCPI	0,9290 (1,38)	0,8798 (1,39)	0,5359 (1,40)	1,0946 (1,39)
Employ	0,0378 (0,81)	0,0536 (0,81)	0,0912 (0,82)	-0,0901 (0,81)
GovC	0,3547 (0,17) **	0,3553 (0,16) **	0,4343 (0,17) **	0,2536 (0,17)
Enep	-1,8863 (0,51) ***	-1,9285 (0,52) ***	-2,1137 (0,52) ***	-1,9505 (0,54) ***
Presid	-2,0504 (2,41)	-0,4396 (3,15)	-1,5595 (2,46)	0,5710 (2,77)
AgeDem	0,0225 (0,02)	0,0214 (0,02)		0,0108 (0,02)
Federal	2,1322 (1,61)	2,0592 (1,62)	2,3464 (1,61)	2,2083 (1,56)
Presid***WrldCrisis**		-3,5054 (4,27)		
OldDem			-2,8150 (1,80)	
OldDem***WrldCrisis**			5,9185 (2,65) **	
HighIncome				0,9620 (2,82)
HighIncome***WrldCrisis**				8,6755 (3,56) **
Adjusted R^2:	0,22	0,22	0,22	0,24
Resid.Std Error:	13,31	13,21	13,3	13,03
Test for Bias M-estim.:	21,40	22,46	22,87	21,36
N	509	509	509	509

*Notes: Standard errors in parentheses. Statistical significance levels: ***0,01; **0,05; *0,1*

Model number 7 shows that the results we found so far persist in a full complete model. Each modification introduced by models 4, 5 and 6 in comparison to model 2, remains significant put together in model 7. Specifying a relationship between world crises and monetary reserves reveals a role played by crises on electoral performances: the presence of crises decreases the performance of incumbent parties in elections. But the greater the country international reserves, the lesser is this effect of crises. At the same time, hyperinflation has a strong coefficient and in the expected direction, while national recessions matter without impeding economic growth to remain important by itself. As in all other models, the variation of real GDP per capita is significant and positive: 1 percent point increase in this GFPpc brings, on average, 1.64 percent point increase in the electoral performance of incumbents. Also consistent withall models in the paper, the greater the effective number of parties, the lesser the electoral performance of incumbents. The meaning of this results is unclear, as we will discuss in the conclusions.

In model number 8, we have added an interaction between the occurrence of international crises and the type of government system at stake in a given election. As one can see, this term was not statistically significant and, at the same time, its inclusion in the model did not cancel the significance of WrldCrisis neither gave significance to the main term of Pres. This result indicates that international crises similarly affect electoral performance in presidential and in parliamentary systems and the models are robust to the groupdifferentiation by presidential versus parliamentary elections.

Model number 9 also presents an interesting result. Being an old or a young democracy does not have an effect on electoral performance, by itself, that is distinguishable from randomness. But the effects of international crises on the electoral performance of the incumbent parties are different accordingly to democracies being older or newer. Actually, the electoral performance of incumbents in older democracies seem to suffer much lessthanintheir counter parts in younger democracies. Fixing all national reserves to zero, it is easy to see that when there is a world crisis (WrldCrisis = 1) and a country is an older democracy (OldDem = 1), then the effect of the crisis on the electoral performance of the incumbentis $-8.9017 + 5.9185 * 1 * 1 = -2{,}9832$, that is, only 33% of the initial impact, $\because -2{,}9832/-8.9017 \cong 0.3351$. Notice, moreover, that the inclusion of this interaction in the model increased the strength of the sole coefficient of world crises (when fixing countries' reserves at zero and OldDem = 0) from about -6.1 in model number 7 to -8.9 in this model. The meaning of this result is that when we properly take into account the differences between countries' level of development of the political system, we discover that incumbents in younger countries suffer greater decreases in electoral support due to international crises, than the previous models suggested to the whole sample.

Finally, model number 10 also brings an interesting result, as here we have modeledthe relationship between the effect of international crises on the electoral performance of incumbents and the level of economic development. The results are clear: the interactionterm is highly significant and has a strong positive coefficient, what means there exists a great diminishing effect of the impact of crises on the electoral performances of incumbents if those incumbents are running in high-income countries. In addition, including the interaction term between WrldCrisis and HighIncome in this model almost doubled the sole coefficient of the impact of world crises (when we fix countries' reserves to zero and HighIncome = 0): from -6.8 in model 7 to -13.1 in model 10. This means that when taking into account the differences between countries' levels of economic development, we discover that in countries with lower incomes the incumbent parties suffer much more electoral impact than we have supposed so far. Again, if logReserv is fixed, when there is a World Crisis (=1) and a given country is a high-income economy (HighIncome=1), then the total effect of crises become $-13.0586 + 8{,}6755 * 1 * 1 = -4{,}3831$, what is one third of the impact of crises if WrldCrisis=1 and HighIncome=0, $\because -4{,}3831/-13.0586 \cong 0.3356$. An important note is that if one considers that high-income countries usually have greater international reserves than low income countries, thisdifference in the impact of international crises on the electoral performance of incumbents tends to be even greater between high and low income countries.

It is worth going briefly into more detail in this particularized analyzes of richer and poorer income countries. In order to do so, we will now, lastly, move to the estimation of our last mode, which will use a different dependent variable: the permanence of headpartyinoffice,

reassembling that option in Velasco (2004). It is simply a binary variable, scoring 1 if the incumbent party (head of alliance, if an alliance exists) remains incumbent (also as head of alliance). Otherwise, it scores 0. Consequently, as we will now work with a binary dependent variable, we will estimate the following with robust Generalized Linear Models with binomial family of the error distribution. Such estimation was also implemented with *R* software, but now using the glmrob function.

We are actually going to estimate only one model, but for three different samples: for all cases in the dataset, for the high-income countries and for the low-income countries. The model specification is the following.

Model 11:

$$IncPermanence_{11} = \beta_{11,0} + \beta_{11,1}GDPpc + \beta_{11,2}logCPI + \beta_{11,3}Employ + \beta_{11,4}GovC + \beta_{11,5}Pres + \beta_{11,6}Enep + \beta_{11,7}AgeDem + \beta_{11,8}Federal + \beta_{11,9}WrldCrisis + \beta_{11,10}logReserv + \beta_{11,11}(logReserv * WrldCrisis) + \beta_{11,12}HyperCPI + \beta_{11,13}CntryRecess + \varepsilon_{11}$$

The results are in our last table:

Table 4 - Likelihhod of permanence of incumbents in office: in all cases (11.1), in high-income countries (11.2) and in low-income countries (11.3)

Models:	11.1 - all countries	11.2 - high-income	11.3 - low-income
	Robust binary family GLM	Robust binary family GLM	Robust binary family GLM
(Intercept)	1,4550 (0,63) *	2,7510 (0,97) **	-0,2329 (0,96)
WrldCrisis	-0,8259 (0,39) **	-0,9796 (0,50) **	-1,1740 (0,73) *
logReserv	-0,1834 (0,13)	-0,2694 (0,19)	-0,1498 0,25)
logReserv***WrldCrisis**	0,4550 (0,20) **	0,6159 (0,27) **	0,4680 (0,33)
hyperCPI	-0,1977 (0,62)	1,2688 (1,53)	-1,6755 (0,83) **
CntryRecess	-0,5817 (0,21) ***	-0,4101 (0,29)	-0,8261 (0,33) **
varGDPpc	0,0507 (0,04)	0,0993 (0,06)	-0,0479 (0,06)
logCPI	-0,2482 (0,15)	-0,7060 (0,22) ***	0,3613 (0,23)
logEmploy	0,1082 (0,09)	0,1913 (0,14)	-0,1172 (0,16)
GovC	0,0227 (0,02)	0,0080 (0,03)	0,0522 (0,04)
Enep	-0,1989 (0,06) ***	-0,2093 (0,09) **	-0,1943 (0,09) **
Presid	-0,4164 (0,02) *	-0,5722 (0,56)	-0,0736 (0,37)
AgeDem	-0,0030 (0,00)	-0,0057 (0,00)	-0,0019 (0,01)
Federal	-0,6320 (0,21) ***	0,6672 (0,30) **	0,5454 (0,34)
N	527	328	199

*Notes: Standard errors in parentheses. Statistical significance levels: ***0,01; **0,05; *0,1*

Primarily, it is possible to see that international crises remains significant, with the expected sign and with a large coefficient in all the three sub-samples. It means that whether we are talking about all countries, about only the high-income or about the low-income ones, the occurrence of international crises tend to decrease the odds of incumbent parties to remain

as the head of government. Interestingly enough, it seems that when we move to this kind of approach, i.e. estimating the permanence of incumbents in charge instead of their electoral support, the linear variation of GDP per capita never appears to be significant. Only the occurrence of national recessions was statistically significant in the altogether sample and in the low-income sample. The permanence of incumbents in high-income countries seems not to be directly affected by recessions. By the other hand, the variation of consumer price indices are significant for the first and only time in this paper in the model 1.2: affecting the odds of permanence of incumbent in high-income countries, but not of incumbents in low-income countries. In those, what seems to matter is the occurrence of hyperinflation.

5. Conclusions

The first detail we should be aware about incumbents' advantage in subsequent elections, is that they actually may be in disadvantage. Data showed that most often their share of votes decrease from one election to the next. Indeed, incumbent parties faced a decrease in electoral performance in 75% of the elections in our dataset. One quarter faced a decrease up to 10% in the relative amount of votes; another quarter, from 10% to 20% and another quarter faced a decrease even greater than 20%.

Nevertheless, it does not mean that things couldn't get worse. We could see that indeed international crises and domestic recessions can both deteriorate the electoral support of incumbents, although the impact of world crises only shows up when we consider the amount of monetary reserves hold by countries. Those reserves are, indeed, one of the options incumbents have to do not let crises be (heavily) in their way. The economic growth as a whole also matters. It proved to be a very robust variable, retaining significance and similar coefficients in spite of the changes in models. It usually had a coefficient ranging from 1.4 to 1.8, what means that an average increase of one percent point in real GDP per capita in the past three years results in an average increase of 1.4 to 1.8 percent points in the share of votes won by the incumbent party in the current election. Another precaution that incumbents have to take is not to let a domestic hyperinflation crises arise. The most threatening variable to electoral performance is to let inflation rates go sky-high, as we pointed that it is not the ordinary inflation rates that bother voters, but only the hyperinflation crises.

Talking about the measure of national recessions, once included in the model it was robust to all specifications and, more interestingly, it did not hurt the statistical significance or even the coefficient strength of the variable that accounts for GDP per capita variation. Economic growth matters proportionally to the variation of the real GDP per capita. And recessions matter by themselves. It was curious to notice how single political variables did not directly have significance in any model, such as presidential x parliamentary systems, federalist systems or the age of democracies. But at the same time, this one turned to be fairly important in one of the last models, when it was used to identify two groups of countries in the sample: older and younger democracies. We found that controlling by old versus young democracies makes the presence of world crises more remarkable for the electoral performance of incumbents in the youngest systems. Actually, crises affect them more than initially presented in the models.

A similar result was found when interacting international crises and the binary variable that divides the sample into two groups of countries: high and low-income economies. We have seen that the impact of crises tend to be fairy greater in low-income democracies than in high-income ones. More than that, the inclusion of this interaction in the model increased substantially the coefficient of the role of world crises in low-income economies even in comparison with other models, showing that including country income level in the specification sheds more light on the role of crises on the electoral performance of incumbents. If we take into consideration that richer countries are also the ones who usually have greater international reserves, and that those reserves proved to have a strong effect of diminishing the electoral role of crises, them it get even clearer than incumbents in high-income democracies tend to have a much smaller electoral challenge during international crises than those incumbents in low-income systems.

Lastly, we can conclude that the international crises play an important role on the electoral performance and on the electoral change of incumbents. More than that, its role is consistent and robust across models, as far as consider that the effects of crises cannot be disassociated from the importance of countries' international reserves. In general, we have moved forward a little step in finding evidence of the impact of economy on elections. However, more importantly, we have specifically offered evidence that the international economic context matters as well. Hopefully, other steps in clarifying this set of phenomena will come subsequently.

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