

**The Political Economy of Intergovernmental Grants:  
Evidence from a Maturing Democracy**

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***Abstract:***

We evaluate the impact of political forces in the allocation of intergovernmental grants in Portugal, as it matured from a young to an established democracy. Using a large and unexplored dataset we show that political variables condition the granting system, and that their importance changed over time. While tactical manipulation in the distribution of grants among municipalities seems to exist only in the early years of democracy, opportunistic effects are stronger in the latter years. We argue that the latter effect is due to a change in the political environment and to the electorate's lack of information on intergovernmental grants.

***JEL classification:*** H77, H59, D72

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## 1. Introduction

Working with a large cross-section of countries, Brender and Drazen (2005) argued that empirical evidence of a political budget cycle exists but that the result is driven by a group of “new democracies”, which included Portugal. Since democracy was re-established in Portugal in 1974, the country has evolved from a “new” to an “established” democracy, which makes it an appropriate laboratory for further investigation of Brender and Drazen’s findings. Furthermore, Akhmedov and Zhuravskaya (2004), analyzing political budget cycles in Russia after its transition to democracy, have found that the magnitude of the cycles decreased over time. While Russia is a decade-old democracy, young by all standards, democracy was re-established in Portugal thirty years ago, allowing us to analyse a substantially longer time span and to observe a transition from a new to an established democracy.

In this article, we evaluate the influence of political forces on the allocation of intergovernmental grants in Portugal, and if their impact has changed as democracy matured. Besides opportunistic election cycles, we also analyse whether or not central governments distribute grants strategically among municipalities in order to enhance their chances of re-election. We test Cox and McCubbins’s (1986) hypothesis that risk-averse political candidates favour their supporters, against Lindbeck and Weibull’s (1987, 1993) argument that they target swing voters.

We use a large, detailed, and unexplored dataset covering all mainland municipalities from 1979 to 2002. The institutional structure of local governments and the policy instruments available are identical for all localities in Portugal, making this panel preferable to one composed of several countries, or states, with different institutions and policy instruments. The study of intergovernmental grants is particularly relevant because transfers from the central government represent the main source of funding for municipalities.<sup>1</sup>

The paper is structured as follows: Section 2 briefly reviews the relevant literature; Section

3 describes the Portuguese political and institutional framework; Section 4 presents the baseline empirical model; Section 5 reports the empirical results and, finally, Section 6 concludes the paper.

## **2. The literature**

The theory of fiscal federalism<sup>2</sup> provides a normative framework for the assignment of functions to different levels of the public sector, and for the achievement of a balance between responsibilities and resources at each governmental level. Intergovernmental grants represent an important way to allocate funds among different levels of the public sector. The normative approach to such grants assumes that the central government is motivated mainly by efficiency and equity goals, seeking to maximize the general welfare of the population.

The public choice literature has also provided some positive explanations for the allocation of intergovernmental grants. Policies conducted by the central government may be determined, at least partly, by an attempt to promote its own interests, which might simply depend upon the probability of re-election. Grants are seen as a strategic tool of central governments aiming at re-election. In this context, two strands of literature are particularly relevant: the one on opportunistic political business cycles, and that on tactical redistribution.

### ***2.1. Literature on opportunistic political business cycles***

In the seventies, two seminal contributions, Nordhaus (1975) and Lindbeck (1976), initiated the literature on opportunistic political business cycles. They presented models where opportunistic incumbents manipulate the economy before elections in order to maximize their probability of re-election. By assuming the existence of an expectations-augmented Phillips curve, a political business cycle pattern emerges in which unemployment is unsustainably low in pre-election periods and unsustainably high in post-election periods.

With the rational expectations revolution, the hypothesis that incumbents could systematically manipulate real economic variables through pre-election demand shocks became untenable. Rational opportunistic business cycle models were developed based on the assumption that politicians differ in their level of competence, something they know better than the electorate. According to these models, before elections, incumbents take advantage of this asymmetry of information by manipulating economic policy instruments in order to appear as competent as possible. The best known signalling models of the rationality of pre-electoral manipulation are attributed to Rogoff and Sibert (1988), and Rogoff (1990). The first predicts an increase in public expenditures or a reduction of non-distorting taxes before elections. In the second, pre-election fiscal policy is biased toward easily observed consumption expenditures, and away from government investment.

More recently, Drazen and Eslava (2006) developed a model that relies on imperfect information about the politicians' preferences for different voter groups and about voting patterns over the population, rather than about the level of competence of the incumbent. In this model, politicians use election-year fiscal policy to influence electoral results, but the overall government budget deficit is not significantly affected. This is achieved by targeting types of spending preferred by voters in more swing regions at the expense of other expenditures they do not favour, or other voters.

An important topic of the current discussion in the literature concerns those features of a country that support or discourage the emergence of a budgetary electoral cycle. Persson and Tabellini (2004) argue that electoral cycles in fiscal variables depend on electoral rules and forms of government. According to Brender and Drazen (2005), fiscal manipulation may work better in "new" rather than in "established" democracies because voters in the former may be inexperienced with electoral politics or may have less information available to evaluate fiscal manipulation. Shi

and Svensson (2006) claim that the size of the electoral budget cycles depends positively on politicians' rents of remaining in power and, negatively, on the share of informed voters in the electorate. Alt and Lassen (2006), presented evidence that, conditioned by the degree of fiscal policy transparency, political budget cycles occur in advanced industrialized economies, and that they are larger in more politically polarized countries.

The analysis of Portuguese intergovernmental grants is relevant to the literature on opportunistic political business cycles because Portugal is a relatively young democracy, and to date most of the research in this area has focused on established democracies. Since the first democratic elections in Portugal took place in 1976, and our dataset starts in 1979, we have an excellent laboratory to test whether or not the impact of political forces in the grant allocation process changed as democracy matured in the country.

## ***2.2. Literature on tactical redistribution***

Cox and McCubbins (1986) and Lindbeck and Weibull (1987) pioneered the theoretical literature on tactical redistribution under budget constraints. Cox and McCubbins (1986) developed a model where the optimal strategy for risk-averse political candidates is to promise redistributions of welfare favouring their closest supporters. However, according to Lindbeck and Weibull's (1987, 1993) models, the winning policy favours voters with weak party preferences.

Building on these models, Dixit and Londregan (1996) argued that parties will woo swing voters if they are equally effective in allocating redistributive benefits to all groups, but parties will favour their core support group if they are more effective in delivering favours to them. In a subsequent paper, Dixit and Londregan (1998) showed that parties adjust both the ideological and pork-barrel components of policy to cater for groups with a higher concentration of swing voters and those whose cut-points<sup>3</sup> shift more readily in response to the promises of transfers.

Dahlberg and Johansson (2002) tested the prediction of the Cox and McCubbins (1986) model and that of the Lindbeck and Weibull (1987) model.<sup>4</sup> Using data for a temporary grant programme distributed by the Swedish central government to municipalities, they found strong evidence in favour of the latter model, and no support for the former. Also for the Swedish case, Johansson (2003) tested the Dixit and Londregan (1996, 1998) model and reported evidence that municipalities with a high number of swing voters receive a higher proportion of intergovernmental grants. Using block grants from federal to sub-federal governments in Albania, Case (2001) found that more assistance was allocated not only to swing communes but also to those that might be pivotal to winning a majority of seats in Parliament. On the contrary, Ansolabehere and Snyder (2006) analyzing state transfers to local governments in the U.S., found a substantial partisan bias in favor of areas that provide them with the strongest electoral support, and little or no support for the swing voter model.

In this paper we test the above-mentioned models along with other hypotheses regarding the impact of political forces in grant distribution from the central government to municipalities. To our knowledge, only Pereira (1996) investigated the determinants of intergovernmental grants in Portugal using a political-economic approach. He focused on the impact of the structure of the lobbying activities of local governments on grant design.<sup>5</sup> In this paper we shed additional light on the influence of political forces in the Portuguese granting system by investigating additional hypotheses and by using a larger dataset, both in cross-sectional and temporal dimensions.

### **3. The Portuguese political and institutional framework**

After almost fifty years of dictatorship, democracy was re-established in Portugal following the April 25<sup>th</sup>, 1974 revolution. The organs of sovereignty in Portugal are the President of the Republic, the Government, the Assembly of the Republic, and the Courts. The main duties of the

President are: to serve as the head of State and the Commander-in-Chief of the armed forces; to set the dates of legislative elections after consulting the parties; to appoint the Prime Minister and the members of the Government suggested by the latter; to dissolve the Parliament and call for elections; and to promulgate and publish laws, decree-laws, and regulations. Generally the leader of the party that received the most votes in the last elections becomes the Prime Minister. The Assembly of the Republic is a unicameral Parliament composed of deputies elected for a period of four years by direct and secret universal adult suffrage. Parties present closed and blocked lists of candidates in each district<sup>6</sup> and there is a proportional transformation of votes into seats according to the Hondt method.<sup>7</sup>

From 1974 to 1987, several governments took office but none succeeded in staying in office for an entire four-year term. In the 1987 elections, after two years in office as a minority government, the People's Democratic Party / Social Democratic Party (PPD/PSD) won a majority of parliamentary seats for the first time since the re-establishment of democracy. It returned as a majority government in the subsequent elections held in 1991. At the end of 1995, the party in office changed again: the Socialist Party (PS) won the elections and stayed in office until 2002. After that, the country was ruled by a coalition formed by the PPD/PSD and the Democratic and Social Centre/People's Party (CDS/PP). Following a Presidential dismissal of the government, elections were called in February 2005. The country is currently run by the PS, which has a comfortable overall majority of seats in the National Assembly. See Table 1 for a description of the parties in office since 1979.

[Table 1]

The first Portuguese municipal elections were held in 1976 and, since then, eight elections have taken place. Election dates are fixed and defined exogenously, and all municipalities have elections on the same day. Until 1985, municipal elections occurred every three years, and after that

the term of municipal governments was extended to four years. Elections have always taken place in December, with the exception of the most recent one, which occurred in October 2005.<sup>8</sup>

The Portuguese Constitution of 1976, the Local Power Law (Law n. 79/77) and the first Local Finance Law (Law n. 1/79) brought new responsibilities and more power to municipalities, allowing for local finance reform through the consolidation of financial decentralization. Local governments are responsible for improving the well-being of the population that resides in their jurisdiction. They promote social and economic development, territory organization, and supply local public goods (water and sewage, energy, transportation, housing, healthcare, education, culture, sports, defence of the environment and protection of the civilian population).<sup>9</sup>

Transfers from the central government constitute the most important source of funding for municipalities. Although their importance has been decreasing over time, in 2002 they still represented 43.1% of total revenues for municipalities. Municipalities receive both conditional and unconditional grants.<sup>10</sup> Conditional grants maintain more control for the central government and provide less discretion for the municipalities than unconditional grants. They are usually governed by contracts and specific programme requirements.<sup>11</sup> The European Union's funds are a special case of conditional grants. They are allocated to each municipality by a central government agency that must follow the EU guidelines in the selection of the projects to be financed.

With unconditional grants, the discretion of the grant giver is more limited since the amount each municipality receives is determined by a formula. However, for the early years of democracy, there is anecdotal evidence of discrepancies between the values of grants determined according to the formula and the amounts that were actually distributed. One should also take into account the possibility of political manipulation of the formula by the incumbent government. Table 2 summarizes the changes that occurred in the allocation criteria of unconditional grants.

[Table 2]



The rules determining the total amount of unconditional grants to be transferred to municipalities, during most of the period analysed, left room for incumbent governments to set the figures according to their electoral agenda. We now proceed by reviewing the legislation on this specific topic. Law n. 1/79 required that the total amount of unconditional grants to municipalities constitute no less than 18% of the amount allocated to capital and current expenditures in the National Budget. After 1984, this percentage was established in the National Budget law. Therefore, the total amount of grants, though constrained by law, was not completely formula-driven. The 1987 Local Finance Law changed the way the total amount of unconditional grants was determined by establishing that it should be annually adjusted on the basis of the expected change in the value-added tax (VAT) revenue, as written in the National Budget. Since this rule relied on expectations, there was still room for electoral politics to influence the total amount of grants.

In 1998, a new law was approved (Law n. 42/98) which created the Municipal General Fund (MGF) and the Municipal Cohesion Fund (MCF).<sup>12</sup> The total amount of these funds was set as a 30.5% proportion (24% for FGM and 6.5% for FCM) of the actual tax revenues generated two years before by income taxes and the value-added tax. This represents an important change from the previous local finance law, which based the determination of the total amount of unconditional grants on expected tax collections. The National Budget Law of 2001 created a new fund to complement the MGF and the MCF: the Municipal Basis Fund (MBF), which allocates an equal amount of resources to each municipality. The total amount of these funds still represents 30.5% of the actual tax revenues generated two years before by the income taxes and the value-added tax, but the proportions for component funds are now 20.5% for MGF, 5.5% for MCF, and 4.5% for MBF.

#### **4. The baseline empirical model**

In this section we empirically investigate the politico-economic aspects of the grant

allocation process. We use as our laboratory a large and unexplored dataset containing information on all Portuguese mainland municipalities (278) from 1979 to 2002.<sup>13</sup> We model real *per capita* grants to municipalities ( $GRANT_{it}$ ) as a function of (1) lags of the dependent variable, since grant programmes are likely to persist over a number of years, as are the political and normative factors that impact upon such grants; (2) a vector of variables related to the public choice idea that policymakers take into account their personal political interests in the grant allocation process ( $PUB\_CHOICE_{it}$ ); and, (3) a vector of control variables associated with the normative approach, which views the grant giver as a social welfare maximizer ( $NORM_{it}$ ).

The dependent variable,  $GRANT_{it}$ , is defined in *per capita* terms in order to take into account size differences among municipalities and avoid heteroskedasticity problems. It is measured in 1995 euros to control for price increases over time. We first consider the total amount of grants transferred to municipalities and then investigate those that are not formula-determined.<sup>14</sup>

The first vector of variables ( $PUB\_CHOICE_{it}$ ) consists of five political variables. To test the Rogoff and Sibert (1988) model of rational opportunistic political budgetary cycles, we include a dummy variable equal to one in legislative election years, and to zero in the remaining years ( $LEG\_ELECT_{it}$ ). Following the predictions of the model, central governments are expected to transfer a larger amount of funds to municipalities in legislative election years in order to increase their popularity.<sup>15</sup> Following Rogoff and Sibert (1988), it is also likely that mayors lobby the central government to receive a larger amount of funds during municipal election years so that more resources are available for vote-enhancing expenditures.<sup>16</sup> To test this hypothesis, a dummy variable equal to one in municipal election years, and to zero in the other years ( $MUN\_ELECT_{it}$ ) was added to the model. We also consider a variable measuring the number of years that a mayor has been in office<sup>17</sup> ( $YEARS\_IN\_OFFICE_{it}$ ) since mayoral expertise and knowledge of the granting process is likely to increase with time in office, thus increasing their ability to extract funds from

the central government.

To investigate the possibility of tactical distribution of grants by the central government two variables are considered.<sup>18</sup> The first one is a dummy variable that takes the value of one when the mayor and the Prime Minister belong to the same political party (SAME\_PARTY<sub>it</sub>). This variable allows us to test the Cox and McCubbins (1986) model, according to which the optimal strategy of political candidates is to favour their supporters. The second variable measures the difference in vote shares, expressed in absolute values, between the main party in the central government and its main opponent, in the last legislative election in each municipality (DIFFERENCE\_%VOTES). This variable captures the closeness of the last legislative election at the municipal level. Following Case (2001) and Dahlberg and Johansson (2002), we use it as a proxy for the number of swing voters.<sup>19</sup> With this variable, we test the Lindbeck and Weibull (1987) and Dixit and Londregan (1996, 1998) prediction that municipalities with many swing voters are targeted by the incumbent party as a strategy to win the next election.

The second group of explanatory variables (NORM<sub>it</sub>) consists of demographic, economic and time variables that allow us to test whether the granting process strives for improvements in social welfare. To capture differences in local population needs we consider each municipality's population, in thousands, (POPULATION<sub>it-1</sub>), population squared (POPULATION\_SQ<sub>it-1</sub>), and the percentages of the population under 15 (%POP\_UNDER15<sub>it-1</sub>), and over 65 years old (%POP\_OVER65<sub>it-1</sub>). The existence of economies of scale in the provision of services by local governments constitutes a rationale for *per capita* grants to decrease with community size. Since larger jurisdictions can provide identical public service levels with lower taxes, the central government should transfer fewer resources to them in order to promote horizontal equity. However, some authors have criticized this argument based on the idea that local public goods may have "privateness" characteristics.<sup>20</sup> The estimated coefficients associated with the variables

%POP\_UNDER15 and %POP\_OVER65 are expected to be positive because these groups of the population demand specific services typically provided by local authorities, such as elementary education and facilities for the elderly. To proxy the macroeconomic situation of the country, we included the growth rate of GDP at 1995 prices ( $\Delta GDP_{it-1}$ ). The macroeconomic performance of the country conditions tax revenues collected by the central government and, consequently, the amount of funds transferred to municipalities. A positive sign is expected for the estimated coefficient associated with this variable. Finally, we control for the passage of time by introducing a quadratic time trend (TREND and TREND\_SQ). In this way, we capture time-effects that affect the distribution of grants equally across all municipalities.

In this vector, all variables, except the trend, are lagged one year because it takes some time for demographic and economic data to be released and for policymakers to take them into account in the grants allocation process. Table 3 presents descriptive statistics for all variables used in the empirical work.<sup>21</sup>

[Table 3]

The baseline empirical model is described in equation (1), where  $t$  represents the year,  $i$  the municipality,  $p$  the number of lags of the dependent variable included in the model,<sup>22</sup>  $\alpha_j$  is a parameter to be estimated,  $\beta$  and  $\gamma$  are vectors of parameters to be estimated,  $v_i$  is the individual effect of municipality  $i$ , and  $\varepsilon_{it}$  is the error term:

$$GRANT_{it} = \sum_{j=1}^p \alpha_j GRANT_{i,t-j} + PUB\_CHOICE'_{it} \beta + NORM'_{it} \gamma + v_i + \varepsilon_{it}$$

$$i = 1 \dots, N; t = 1, \dots, T \quad (1)$$

The model described above could be estimated assuming municipalities' individual effects as fixed or random. However, the lagged value of the dependent variable would be correlated with the error term  $\varepsilon_{it}$ , even if the latter was not serially correlated, leading to inconsistent model estimates. This would occur because there is a clear dominance of cross sections (N=278) over time

periods (T=24) in our sample.

Arellano and Bond (1991) developed a Generalized Method of Moments (GMM) estimator to solve these problems. By first differencing equation (1) individual effects ( $v_i$ ) are removed and the resulting equation becomes estimable by instrumental variables:

$$\Delta GRANT_{it} = \Delta \sum_{j=1}^p \alpha_j GRANT_{i,t-j} + \Delta PUB\_CHOICE'_{it} \boldsymbol{\beta} + \Delta NORM'_{it} \boldsymbol{\gamma} + \Delta \varepsilon_{it}$$

$$i = 1 \dots, N; \quad t = 1, \dots, T \quad (2)$$

The valid instruments are: levels of the dependent variable, lagged two or more periods; levels of the endogenous variables, lagged two or more periods; levels of the pre-determined variables, lagged one or more periods; and the levels of the exogenous variables, current or lagged or, simply, the first differences of the exogenous variables. More moment conditions are available if we assume that the explanatory variables are uncorrelated with the individual effects. In this case, the first lags of these variables can be used as instruments in the levels equation. When the dependent variable and/or the independent variables are persistent, lagged differences of the dependent variable may also be valid instruments for the levels equations. Blundell and Bond (1998) show that this extended GMM estimator is preferable to that of Arellano and Bond (1991)<sup>23</sup> in this particular case.

## 5. Empirical results

We start by investigating the determinants of the total amount of grants received by municipalities (expressed in real and *per capita* terms), and whether political effects changed over time as the country evolved from a new to an established democracy. We then proceed to study grants that are not determined by formulae (also in real *per capita* terms). All equations presented were estimated by the method system-GMM for linear dynamic panel data models.<sup>24</sup> The variable measuring the number of years mayors have been in office was treated as an endogenous variable because transfers from the central government represent an important source of funding for local

governments, and spending decisions are likely to have an impact on electoral results. In equations for total grants, the instruments used for the lagged dependent variable and the endogenous variable (number of years in office) were the levels of these variables lagged 2 to 8 periods, in the equation in first differences,<sup>25</sup> and once lagged first differences in the equation in levels. For non-formula grants equations, the same instruments were used but it was necessary to add level 9 of the dependent and the endogenous variable in order to have valid Sargan tests. Tables 4 to 6 report the two-step results using robust standard errors corrected for finite samples.<sup>26</sup>

### *Total grants*

Column 1 of Table 4 shows estimation results of our baseline model for total grants that includes all variables described in the previous section. Several findings are immediately evident. First, the statistical significance of lagged grants suggests that they are subject to considerable inertia.<sup>27</sup> Second, of the five variables considered in the political vector, three turned out to be highly statistically significant. As predicted by the literature on opportunistic political budgetary cycles, grants increase during election years. It is important to recall that only after the local finance law of 1998 did the total amount of unconditional grants start to be determined by a formula based on actual tax revenues collected two years before. Before that, it was based on expectations for the tax revenues or set as a percentage of the National Budget expenditures. Therefore, the central government could easily manipulate the total amount of the “pork” to be distributed. Results indicate that, for all else equal, total grants *per capita* increase by 16.37 euros (of 1995) in municipal election years, a relative increase of 6.8% (compared to the sample mean of 239.4, recall Table 3). This is in accordance with our prior hypothesis that mayors lobby to receive more grants during balloting years in order to have more funds available for electoral campaigns and vote-enhancing expenditures.<sup>28</sup> During legislative election years total grants *per capita* increase by 11.86

euros, an increase of 5% (as compared to the sample mean of 239.4). In line with Rogoff and Sibert's (1988) theoretical predictions, the central government increases the amount of grants distributed to municipalities to improve its popularity, and therefore, its likelihood of re-election.

Concerning tactical distribution of grants, our estimates present strong evidence in favour of the Lindbeck and Weibull (1987) and Dixit and Londregan (1987, 1993) hypothesis that politicians target swing voters. The estimated coefficient associated with the variable *DIFFERENCE\_%VOTES* is negative and highly statistically significant. On the contrary, no support is found for Cox and McCubbins's (1986) idea that politicians favour their supporters. The dummy variable *SAME\_PARTY* is not statistically significant, revealing that municipalities led by mayors that belong to the Prime Minister's party are not favoured in the grant distribution process. These results are in line with those reported by Dahlberg and Johansson (2002) and Johanson (2003), for the Swedish case, and by Case (2001), for Albania. Although correctly signed, the variable measuring the number of years a mayor has been in office is not statistically significant.

[Table 4]

Regarding the variables related to the normative approach to transfers, results indicate that grants *per capita* decline as the size of the community increases, until the population reaches about 350 thousand inhabitants. As expected, grants *per capita* increase with the percentage of individuals under 15 and over 65 years old, suggesting that more funds are transferred to satisfy the specific needs of these two groups of the population. The growth rate of GDP, included to capture the macroeconomic performance of the country, also has the expected sign and is highly statistically significant. Finally, regarding the controls for the passage of time, the estimated coefficients associated with the variables *TREND* and *TREND\_SQ* are both positive and statistically significant, indicating that grants do not only grow over time but that their growth rate is increasing.

To test the robustness of the conclusion that, over the entire term, the central government

does not favour municipalities run by mayors of the same political colour, we substituted the dummy *SAME\_PARTY* by a variable measuring the percentage of votes the party in the central government obtained in the previous legislative electoral balloting. This variable was not statistically significant (column 2), nor was an alternative variable standing for the number of votes for the party in the national government. We can, therefore, conclude that over the entire term, there is no support for the Cox and McCubbins (1986) model.

Given the finding that grant funding rises in election years, we decided to investigate whether or not these increases are more pronounced towards municipalities led by mayors that belong to the Prime Minister's party or to swing municipalities. We, therefore, interacted the dummy variables for the municipal (*MUN\_ELECT*) and legislative (*LEG\_ELECT*) election years with the dummies *SAME\_PARTY* and *DIF\_PARTY* ( $=1-SAME\_PARTY$ ) and the variable *DIFFERENCE\_%VOTES*. Results presented in column 3 reveal that, for municipal elections, both interactions are statistically significant and that the coefficient for "same-party" mayors is smaller than that for "different-party" mayors. However, a Wald test does not allow us to reject the hypothesis of equal coefficients between the two interaction variables. For legislative elections, the interaction variables were highly statistically significant, but the coefficient associated with same-party governments is now larger and statistically different from that for different-party governments. In this case, a Wald test allows us to reject the hypothesis of equal coefficients for the two interaction variables. In a model including the interaction between the electoral dummies and the *DIFFERENCE\_%VOTES*, these variables were not statistically significant. Regarding increases in transfers during electoral years no distinction seems to be made among municipalities regarding the number of swing voters.

Finally, we tested whether increases in transfers are also visible in the year preceding an election. Results, presented in column 4, reveal that this occurs for both municipal and legislative



elections. Since some investments may take several months to reach completion and become visible to voters, it is not surprising that transfers start increasing in the year before an election.

### *Political effects over time*

Motivated by Brender and Drazen's (2005) finding that in a large sample of countries the political budget cycle was driven by the group of new democracies, in which Portugal was included, we decided to investigate whether the impact of political factors changed from the early years of democracy to the latter ones. Brender and Drazen (2005) used three alternative definitions for new democracy: the period comprising the first four competitive elections, the first ten years, and the first fifteen years after becoming democratic. When we apply these definitions to the Portuguese case, we get, respectively, 1985, 1983 and 1988 as the last year for the new democracy period. Using the three dates alternatively, we created two dummies to identify the new and the established democracy periods (*NEW\_DEM* and *ESTAB\_DEM*). We then interacted all of the political variables with these two dummies. Table 5 reports the results for the classification of years 1974 to 1988 as new democracy, and of years afterwards as established democracy.<sup>29</sup>

[Table 5]

Results indicate that central governments distributed grants strategically among municipalities only in the new democracy period: municipalities ran by mayors affiliated with the party in central government received more grants, as did those with many swing voters. These results are in line with Brender and Drazen (2005), since they may result from lower transparency in the grants distribution process during the early years of democracy, and voters' as well as competing political parties' inexperience with electoral politics. As in the previous table, experience accumulated by mayors in office is not statistically significant in any of the periods.

Contrary to Brender and Drazen's (2005) finding in a panel of countries, data for Portugal

suggests that opportunistic effects in grants were much smaller in the early years of democracy than afterwards.<sup>30</sup> This result is not surprising if we take into account the political environment and the lack of transparency that characterizes the allocation of intergovernmental grants. During the new democracy period, six legislative elections took place and none of the parties achieved an overall majority of votes. It was a period of high political instability, during which uncertainty about the ability to complete a four-year term made it difficult for the incumbent party to plan and implement electoral policies.<sup>31</sup> Furthermore, acquiring knowledge over time about the democratic system is not restricted to voters. Politicians also acquire greater experience, and their ability to implement electoral policies may increase. It is also worth mentioning Alt and Lassen's (2005) result that, conditioned on the degree of fiscal policy transparency, electoral cycles exist in advanced industrialized economies. The Portuguese democracy has matured over the last thirty years, elections are free and there is freedom of press, but intergovernmental grants, given their specificity, are still an obscure topic for most Portuguese voters. Therefore, it is appealing for incumbents to manipulate them in order to improve their re-election prospects.

#### *Non-formula grants*

Taking into account that a significant amount of transfers to municipalities are distributed according to a formula-based fiscal rule (recall Table 2), we continued our empirical analysis by investigating non-formula grants. As already mentioned, the time span of available data is smaller (1984 to 2002), and there are many missing values in 1984 and 1985. Since very little of the new democracy period is covered, it is not possible to investigate whether the impact of political factors has changed as democracy consolidated.

[Table 6]

Evidence reported in Table 6 confirms our hypothesis that non-formula grants are subject to

political influences. The percentage increase in non-formula grants during electoral years is now of 20.7% (as compared to the sample mean of 72.5) for municipal elections, and of 9.1% for legislative elections – in both cases a higher increase than for total grants. Despite having more discretionary power over this type of transfers, the central government does not seem to discriminate across municipalities according to a mayor's party affiliation or the number of swing voters. This result is not surprising if we take into account that the sample period for non-formula based grants covers very little of the new democracy period. The impact of an additional year a mayor has been in office is not statistically significant, as is the case for total grants. Concerning the vector of normative variables, results reveal that estimated coefficients for POPULATION, POPULATION\_SQ, %POP\_OVER65, ΔGDP, TREND and TREND\_SQ continue to be statistically significant. We can therefore conclude that the central government also takes into account the specific needs of the municipalities, as well as the macroeconomic situation of the country, when allocating non-formula grants.

As was done for total grants, we interacted the dummy variables for the electoral years with the dummies SAME\_PARTY and DIF\_PARTY. Results, reported in column 2 of Table 6, are essentially the same as before. We can, therefore, conclude that party similarity between local and central governments only seems to be a relevant issue during legislative election years. As for total grants, non-formula grants start increasing in the year preceding an election (column 3).

## **6. Conclusions**

Portugal is an excellent laboratory to test Brender and Drazen's (2005) finding, on a panel of countries, that political budget cycles are phenomena of new democracies. Democracy was re-established in Portugal in 1974, allowing us to observe a transition from a new to an established democracy. Using an unexplored and detailed sample consisting of all Portuguese mainland

municipalities, for the 1979 to 2002 period, we investigate the impact of political factors in the allocation of intergovernmental grants and whether they have changed over time.

We find evidence that the grants allocation process is influenced both by economic conditions and political factors, which is consistent with the modern literature on the New Deal (Couch and Shughart, 1998; Wallis, 1998; Fishback *et al.*, 2003). Our results present strong evidence that political factors exert an important role in this distribution process, and that their relative importance has changed from the early years of democracy to the latter ones. During the early years of democracy, municipalities ruled by mayors that belonged to the Prime Minister's party, and with more swing voters, were favoured in the distribution process. These phenomena are not visible in the established democracy period. However, increases in the amount of grants transferred to municipalities during municipal and legislative election years are larger in the second period of the sample (1989-2002), than in the first one (1979-1988).

The reduction over time of the impact of tactical factors in the allocation of grants goes in the expected direction. That is, as democracy matured, governments' political manipulations when distributing the total amount of the "pie" among municipalities diminished. However, opportunist effects increased over time. This result may be associated with politicians' acquisition of knowledge about electoral politics, and to the reduction of political instability. In the later years of the sample, strong single party governments managed to stay in office for their entire terms. Opportunism is more attractive for a single-party government than for a coalition government, and the ability of a strong single party-government to implement electoral policies is also larger. Regarding voters, this result suggests that the transfer of resources between different levels of governments is still an obscure topic, making it difficult for them to see through the electoral policies and punish opportunistic incumbents at elections. This is an issue that deserves further attention in order to implement measures that enhance voters' knowledge of intergovernmental

grants and to reduce the scope of strategic behaviour by incumbent politicians and the losses in welfare they may generate.

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<sup>1.</sup> Since there are no states or administrative regions in mainland Portugal, municipalities are the highest ranking authorities below the national government.

<sup>2.</sup> See Oates (1999) for a survey on fiscal federalism.

<sup>3.</sup> In this model, the actual social welfare function associated with any voter is a weighted sum of the rightist and the leftist social welfare functions. The cut-point corresponds to the critical value of the weights attributed to the rightist/leftist social welfare functions which make voters indifferent between the two parties.

<sup>4.</sup> Previous empirical research on the political economy of intergovernmental grants had already investigated these hypotheses, although some lack a strict theoretical ground. Among others see Wright (1974), Alperovich (1984), Gist and Hill (1984), Bungey *et al.* (1991), Grossman (1994), Pereira (1996), Worthington and Dollery (1998).

<sup>5.</sup> For analysis of the effects of lobbying activities in the allocation of grants see also Grossman (1994), Worthington and Dollery (1998), Bork and Owings (2003), Lowry and Potoski (2004), and Feld and Schaltegger (2005).

<sup>6.</sup> There are eighteen districts in mainland Portugal. Municipalities are subdivisions of districts.

<sup>7.</sup> After the votes are tallied, averages are calculated in order to determine the number of seats each party receives. The formula for this average is  $V/(s+1)$ , where V is the number of votes each party list received and s is the number of seats the party has been allocated so far. At the beginning, the value of s is zero. The party with the highest average gets the seat. Each round of averaging determines which party gets the next seat.

<sup>8.</sup> Municipal elections took place on December 12, 1976; December 16, 1979; December 12, 1982; December 15, 1985; December 17, 1989; December 12, 1993; December 14, 1997; December 16, 2001; and October 9, 2005.

<sup>9.</sup> Most of the local public goods provided by municipalities are highly visible to citizens.

<sup>10.</sup> The ratio of conditional to unconditional grants has increased considerably over time, from 14.2% in 1987 to 42.3% in 2002.

<sup>11.</sup> The first Local Finance Law mentioned the possibility of conditional financial help for municipalities from the central government in case of public disaster or unusual circumstances. The Law n. 1/87 considered the possibility of technical and financial cooperation between the central government and municipalities aiming at the promotion of regional and local development. In 1998, a new Local Finance Law was enacted allowing for help from the central government if regional development was at stake or if there was an urgent need for funds that could not be provided by the municipality. The regulatory framework for conditional financial help is established by the central government in the form of decree-laws (legislation issued by the government by permission of the Parliament).

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<sup>12</sup> The MGF was created to provide municipalities with adequate financial resources for the execution of their tasks, according to their levels of operation and investment. The MCF intends to promote horizontal balance, that is, to reduce inequity among local jurisdictions. This fund is only transferred to municipalities that have a development index below the national average.

<sup>13</sup> Overseas municipalities belonging to the autonomous regions of Azores and Madeira were excluded from the analysis since there is an intermediate level between these municipalities and the central government, they benefit from the status of ultraperiferic regions in terms of EU funds, and the inhabitants of islands may have specific needs.

Regarding the Portuguese geographical organization, it should be noted that during the period analyzed four new municipalities were created: Amadora, in 1979, and Odivelas, Trofa and Vizela, in 1998.

<sup>14</sup> Levin-Lin-Chu and Im-Pesaran-Shin panel unit root tests reject the hypothesis that total grants and non-formula grants are non-stationary.

<sup>15</sup> However, if we follow the Worthington and Dollery (1998: 306) argument that the returns from purchasing political capital by increasing transfers to local jurisdictions may be off-set by direct returns to central government politicians resulting from increases in national public expenditures, a negative effect should be expected.

<sup>16</sup> Recall that, during the period analysed, municipal elections in Portugal always took place in December.

<sup>17</sup> There are no term limits in Portugal.

<sup>18</sup> In Portugal, the number of deputies in the National Assembly elected by each electoral district (geographically-based constituency upon which Portugal's representative democracy is based) is determined according to their respective share of the national population. Furthermore, in mainland Portugal, there are eighteen electoral districts, each one comprising several municipalities. Therefore, we cannot test whether jurisdictions with a larger representation in the national parliament are treated differently in the allocation of grants.

<sup>19</sup> Johanson (2003) noted that this proxy is only valid if we assume that the distribution of ideological preferences among voters is symmetric and single-peaked. She proposed an alternative way to estimate the number of swing voters based on survey data from Swedish election studies. Unfortunately, we cannot follow this methodology in the Portuguese case because we are dealing with panel data, and there are no election studies covering the whole period analysed.

<sup>20</sup> For a discussion on this issue see Pereira (1996).

<sup>21</sup> Data sources are described in the Data Appendix.

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<sup>22</sup> The optimal number of lags was determined according to their statistical significance and the absence of autocorrelation.

<sup>23</sup> Since there is some persistence of transfers and of some independent variables, it is appropriate to estimate this system-GMM. Furthermore, Sargan tests indicate that, for our data, the system-GMM is preferable to the GMM that only includes the first-differenced equations.

<sup>24</sup> To test the robustness of the results to other econometric methods, we estimated a dynamic model using the Anderson-Hsiao estimator, and a static model with the errors clustered over local governments. Results were similar.

<sup>25</sup> All equations were also estimated including all available instruments, and results were essentially the same. Although there is a gain in efficiency when all available instruments are used, there is a loss of power, since we get weak instruments in the long lags.

<sup>26</sup> Although it is more common to present the one-step results because the two-step standard errors are generally biased downwards, that problem does not apply to our case, since the econometric software *Stata 9.1* uses the finite-sample correction suggested by Windmeijer (2005). Thus, we present the two-step results, as these are consistent in the presence of heteroskedasticity.

<sup>27</sup> The choice of the number of lags to include was based on their statistical significance and on the need to avoid second order autocorrelation of the residuals.

<sup>28</sup> Veiga and Veiga's (2007) empirical results reveal the opportunistic behaviour of the Portuguese mayors, who increase, in pre-electoral periods, expenditure items highly visible to the electorate, such as investment expenditures on overpasses, streets and complementary works, and rural roads.

<sup>29</sup> If we use 1983/1985 as breakings points, the new democracy period only covers two/three elections of the eight included in the sample period. The 1979 election is dropped because the first lag of the dependent variable is included in the model. Nevertheless, estimation results regarding the importance of opportunistic and tactical manipulation of grants in the two periods are essentially the same.

<sup>30</sup> Wald tests allow us to reject the hypothesis of equal coefficients for both municipal and legislative elections. To test the robustness of these results we divided the panel into two sub samples, according to the periods considered. Estimation results were essentially the same as those obtained when using the interaction variables.

<sup>31</sup> Legislative election dates are set exogenously from the perspective of central governments. The President of the Republic decides them.



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## Data appendix

Data on total transfers from the central government to the local authorities and municipalities' area were obtained from the *Direcção Geral das Autarquias Locais's* annual report *Finanças Municipais (Municipal Finances)*. This report exists for the years 1979 to 1983 and 1986 to 2002. For the two missing years, data was obtained directly from the municipalities' official accounts. For these two years the dataset is incomplete: we have 175 observations for 1984 and 180 for 1985. Data on non-formula grants was obtained from the same sources but is available for a shorter time span: from 1984 to 2002.

Data on total population and population by age groups in each municipality was obtained from the Portuguese National Statistics Office (*Instituto Nacional de Estatística – INE*)'s Census operations that took place in 1981, 1991 and 2001. For the remaining years, data on total population was collected from INE's *Estimates of Resident Population*. Data on population by age groups was obtained by assuming a constant growth rate for the period 1979-1989, on the basis of the 1970 and 1981 Census operations; for the rest of the period, annual data was acquired from the INE's *Estimates of Resident Population*. Gross Domestic Product and consumer price indexes were acquired from the International Monetary Fund's *International Financial Statistics*.

Political data, namely election dates and municipal and legislative electoral results, was obtained from the National Electoral Commission (*Comissão Nacional de Eleições*) and from the Technical Staff for Matters Concerning the Electoral Process (*Secretariado Técnico dos Assuntos para o Processo Eleitoral - STAPE*) of the Internal Affairs Ministry.

**Table 1: Legislative elections and parties in government**

Dates of elections	Winning party	Share in Parliament	Prime Minister	Form of government
April 25, 1976	PS	43%	Mário Soares	One party, minority
-	-	-	Mota Pinto	Pres. appointment (1978-79)
-	-	-	M. L. Pintassilgo	Pres. appointment (1979-80)
December 2, 1979	AD	51.2%	Sá Carneiro	Coalition (PSD+CDS+PPM), majority
October 5, 1980	AD	53.6%	Pinto Balsemão	Coalition (PSD+CDS+PPM), majority
April 25, 1983	PS	40.4%	Mário Soares	Coalition (PS+PSD), majority
October 6, 1985	PPD/PSD	35.2%	Cavaco Silva	One party, minority
July 19, 1987	PPD/PSD	59.2%	Cavaco Silva	One party, majority
October 6, 1991	PPD/PSD	58.7%	Cavaco Silva	One party, majority
October 1, 1995	PS	48.7%	António Guterres	One party, minority
October 10, 1999	PS	50.0%	António Guterres	One party, minority
March 17, 2002	PPD/PSD	45.7%	Durão Barroso <sup>(a)</sup>	Coalition (PSD+CDS/PP), majority
February 20, 2005	PS	52.6%	José Sócrates	One party, majority

*Source:* National Elections Commission.

*Notes:* PPD/PSD - People's Democratic Party / Social Democratic Party; PS - Socialist Party; CDS/PP - Democratic and Social Centre / People's Party; PPM - Monarchic People's Party; AD = PSD + CDS + PPM.

(a) In July 2004 Durão Barroso resigned and a new government, also a coalition of PSD and CDS/PP was formed under the leadership of Santana Lopes.

**Table 2: Allocation criteria of unconditional grants to municipalities**

	Law n. 1/79		Decree-law n. 98/84	Law n. 1/87	National Budget Law 1992	Law n. 42/98		National Budget Law 2001		
	artº 5º.b)	artº 5º.c)				MGF	MCF	MGF	MCF	MBF
Population	50%	35%	45%	45%	-	-	-	-	-	-
Population/Nights spent in tourism facilities	-	-	-	-	40%	35%	-	40%	-	-
Area	10%	15%	10%	10%	15%	30% (a)	-	30%	-	-
<i>Per capita</i> direct taxes	40%	-	15%	10%	-	-	-	10%	-	-
Single Income Tax	-	-	-	-	-	10%	-	-	-	-
Fiscal needs index	-	-	-	-	5%	-	-	-	-	-
Number of <i>freguesias</i> (b)	-	15%	5%	5%	5%	15%	-	15%	-	-
Road Network	-	(c)	-	10%	10%	-	-	-	-	-
Number of dwellings	-	-	-	5%	-	-	-	-	-	-
Accessibility index	-	-	-	(d)	5%	-	-	-	-	-
Needs index	-	35%	20%	-	-	-	-	-	-	-
Socio-economic development index	-	-	-	5%	-	-	-	-	-	-
Population under 15 years old	-	-	-	-	5%	5%	-	5%	-	-
Development index (e)	-	-	-	-	-	-	100%	-	100%	-
Equal amount to all municipalities	-	-	5%	10%	15%	5%	-	-	-	100%
	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: Diário da República.

Notes: (a) weighted by a factor related to altimetry; (b) *freguesias* are subdivisions of municipalities; (c) included in the needs index; (d) included in the socio-economic development index; (e) allocated only to municipalities with an index below the national average.

**Table 3: Descriptive statistics**

<b>Variables</b>	<b>N.Obs.</b>	<b>Average</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Grants:</b>					
Total grants (1979-2002)	6 403	248.4	177.4	14.8	1 507.2
Non-formula grants (1984-2002)	5 032	72.5	73.7	0.0	804.2
<b>Political variables:</b>					
Municipal election year	6 889	0.3	0.5	0.0	1.0
Legislative election year	6 889	0.4	0.5	0.0	1.0
Same party	6 877	0.4	0.5	0.0	1.0
Difference_%Votes	6 334	21.9	16.5	0.0	79.4
Years in office	6 870	6.4	4.9	1.0	27.0
<b>Demographic, economic and time variables</b>					
Population (thousands)	6 893	34.7	59.9	1.9	808.0
Population squared	6 893	4 794.0	31 599.0	3.4	652 928.6
% Population under 15 years-old	6 888	19.0	4.7	7.5	36.6
% Population over 65 years-old	6 888	17.5	5.9	5.4	41.7
Growth of GDP at 1995 prices	6 950	2.8	2.4	-1.9	8.4
Trend	6 950	13.0	7.2	1.0	25.0
Trend squared	6 950	221.0	193.1	1.0	625.0

*Sources:* DGAL, INE, IMF and STAPE.

*Note:* All types of grants are expressed in euros (at 1995 prices) *per capita*.

Data for grants goes from 1979 to 2002, for the remaining variables from 1979 to 2003.

**Table 4: Estimation results for total grants (1979-2002)**

	(1)	(2)	(3)	(4)
GRANT(-1)	.84 (50.72)***	.84 (50.66)***	.84 (50.70)***	.85 (52.15)***
MUN_ELECT	16.37 (8.36)***	16.79 (8.49)***		28.19 (9.13)***
MUN_ELECT*SAME_PARTY			15.20 (5.75)***	
MUN_ELECT*DIF_PARTY			17.48 (6.52)***	
MUN_ELECT(-1)				18.47 (6.11)***
LEG_ELECT	11.86 (7.73)***	11.68 (7.58)***		29.75 (8.03)***
LEG_ELECT*SAME_PARTY			15.04 (6.46)***	
LEG_ELECT*DIF_PARTY			9.39 (4.14)***	
LEG_ELECT(-1)				14.08 (4.03)***
SAME_PARTY	1.97 (1.06)		.80 (.34)	2.16 (1.15)
DIFFERENCE_%VOTES	-.14 (-2.78)***	-.09 (-1.48)	-.14 (-2.66)**	-.12 (-2.35)**
YEARS_IN_OFFICE	.39 (1.63)	.37 (1.54)	.40 (1.63)	.30 (1.21)
%VOTES_GOV		-5.95 (-1.45)		
POPULATION(-1)	-.14 (-3.36)***	-.14 (-3.02)	-.16 (-3.25)***	-.15 (-3.15)***
POPULATION_SQ(-1)	.0002 (2.56)**	.0002 (2.57)**	.0002 (2.69)**	.0002 (2.58)**
%_POP_UNDER15(-1)	1.59 (3.69)***	1.69 (3.89)***	1.60 (3.72)***	1.46 (3.41)***
%_POP_OVER65(-1)	4.45 (8.09)***	4.50 (8.29)***	4.44 (8.12)***	4.29 (7.97)***
$\Delta$ GDP(-1)	3.43 (11.04)***	3.38 (10.49)***	3.42 (11.02)***	4.18 (10.39)***
TREND	1.47 (3.27)***	1.37 (3.03)***	1.47 (3.32)***	3.02 (5.49)***
TREND_SQ	.03 (2.13)**	.04 (2.37)**	.04 (2.14)**	-.02 (-.8)
m1	-8.50	-8.53	-8.52	-8.50
m2	.95	1.00	.94	1.00
Sargan (p-value)	.54	.52	.55	.54
No. Observations	5 998	6000	5 998	5 998
No. Municipalities	278	278	278	278

Notes: - Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equation in levels), using the econometric software *STATA 9.1*;  
- two-step results using robust standard errors corrected for finite samples;  
- T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: \*\*\*, 1%; \*\*, 5%; and \*, 10%.  
- m1 and m2 are tests for first-order and second-order serial correlation in the first-differenced residuals, asymptotically distributed as  $N(0,1)$  under the null of no serial correlation.  
- Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically distributed as  $\chi^2$ . P-value is reported.



**Table 5: Total grants: new (1979-1988) versus established democracy (1989-2002)**

MUN_ELECT_NEW_DEM	5.24 (2.15)**
MUN_ELECT_ESTAB_DEM	21.73 (8.55)***
LEG_ELECT_NEW_DEM	5.31 (3.23)***
LEG_ELECT_ESTAB_DEM	18.33 (7.80)***
SAME_PARTY_NEW_DEM	4.41 (2.05)**
SAME_PARTY_ESTAB_DEM	1.65 (.66)
DIF_%VOTES_NEW_DEM	-.32 (-6.05)***
DIF_%VOTES_EST_DEM	-.12 (-1.57)
YEARS_IN_OFFICE_NEW_DEM	.32 (.94)
YEARS_IN_OFFICE_ESTAB_DEM	.23 (1.01)
m1	-8.54
m2	.78
Sargan (p-value)	.55
No. Observations	5 998
No. Municipalities	278

*Notes:* - Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equation in levels), using the econometric software *Stata 9.1*;  
 - two-step results using robust standard errors corrected for finite samples;  
 - T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: \*\*\*, 1%; \*\*, 5%; and \*, 10%.

**Table 6: Estimation results for non-formula grants (1984-2002)**

	(1)	(2)	(3)
GRANT(-1)	.45 (16.83)***	.45 (16.88)***	.45 (17.04)***
MUN_ELECT	15.02 (7.78)***		23.98 (5.49)***
MUN_ELECT*SAME_PARTY		14.94 (4.87)***	
MUN_ELECT*DIF_PARTY		15.83 (5.89)***	
MUN_ELECT(-1)			14.18 (2.91)**
LEG_ELECT	6.58 (4.121)***		19.07 (3.53)***
LEG_ELECT*SAME_PARTY		9.36 (3.52)***	
LEG_ELECT*DIF_PARTY		4.48 (2.06)**	
LEG_ELECT(-1)			11.36 (2.12)**
SAME_PARTY	2.41 (1.15)	1.48 (.59)	2.49 (1.20)
DIFFERENCE_%VOTES	-.05 (-.75)	-.06 (-.79)	-.06 (-.88)
YEARS_IN_OFFICE	.37 (1.44)	.35 (1.39)	.34 (1.30)
POPULATION(-1)	-.18 (-3.58)***	-.17 (-3.56)***	-.17 (-3.46)***
POPULATION_SQ(-1)	.0002 (2.44)**	.0002 (2.45)**	.0002 (2.36)**
%POP_UNDER15(-1)	.01 (.02)	.03 (.05)	.09 (.16)
%POP_OVER65(-1)	2.35 (4.58)***	2.36 (4.60)***	2.39 (4.69)***
ΔGDP(-1)	1.44 (4.41)***	1.45 (4.43)***	1.62 (4.12)***
TREND	7.67 (5.00)***	5.52 (4.81)***	7.67 (5.00)***
TREND_SQ	-.18 (-3.45)***	-.10 (-2.79)***	-.18 (-3.45)***
m1	-7.73	-7.75	-7.70
m2	.15	.14	.10
Sargan (p-value)	.16	.16	.17
No. Observations	4 735	4 732	4 735
No. Municipalities	278	275	278

Notes: - Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equation in levels), using the econometric software *Stata 9.1*;  
- two-step results using robust standard errors corrected for finite samples;  
- T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: \*\*\*, 1%; \*\*, 5%; and \*, 10%.