

# **Does partisan alignment affect the electoral reward of intergovernmental transfers?**

Albert Solé-Ollé & Pilar Sorribas-Navarro

Universitat de Barcelona & Institut d'Economia de Barcelona (IEB)

## **ABSTRACT:**

In this paper we test the hypothesis that intergovernmental grants allocated to co-partisans buy more political support than grants allocated to local governments controlled by the opposition. We use a rich Spanish database, which provides information on grants received by nearly 800 municipalities during the period 1993-2003 from two different upper-tier governments (i.e., *Regional* and *Upper-local*) and municipal vote data on three electoral contests held at each of these layers during this period. Therefore, we are able to estimate two different vote equations, analyzing the effects of grants given to aligned and unaligned municipalities on the vote share of the incumbent party/parties at the regional and upper-local layers and corresponding elections. We account for the endogeneity of grants by instrumenting them with the overall amount of grants distributed by upper layer governments. The results suggest that grants given to co-partisans buy some political support, but that grants given to opposition parties do not bring any votes, suggesting that the grantee reaps as much as political credit from intergovernmental grants as the grantor.

*Key words:* voting, parties, grants

*JEL codes:* C72, D72

Contact address: Facultat de Ciències Econòmiques  
Universitat de Barcelona  
Avda. Diagonal 690, torre 4, planta 2  
Phone/Fax: 0034934021812/0034934021813  
e-mail:asole@ub.edu: psorribas@ub.edu

This paper has benefited from financial support of SEC2003-01388 (Spanish Ministry of Education and Science) and the project 2005 SGR 000285 (Generalitat de Catalunya).

## 1. Introduction

In recent years, there has been a surge in the empirical literature which tries to explain which the political motives that lead the allocation of intergovernmental grants and other public spending programs are. For example, following the path of previous theoretical papers by Lindbeck and Weibull (1987) and Dixit and Londregan (1998), the work by Case (2001), Strömberg (2002), Johansson (2003) and Dahlberg and Johansson (2004) provide some empirical evidence suggesting that more grants are allocated to jurisdictions where electors are relatively indifferent between the incumbent and the challenger (i.e., there are a lot of ‘swing voters’). Some of these papers try to test this hypothesis against an alternative one (derived from Cox and McCubbins, 1986) that says that –if politicians are risk averse– funds will be allocated to the jurisdictions where voters are clearly attached to the incumbent party (the ‘core supporters’). The results in Dahlberg and Johansson (2004), and Castells and Solé-Ollé (2005) suggest that the evidence in favor of this hypothesis is rather weak, although, as Rodden and Wilkinson (2004) say, the task of separating the ‘swing voter’ and ‘core supporter’ hypotheses is not easy.

In any case, however, this literature misses a fundamental point, which is especially important when dealing with intergovernmental transfers. The models used assume that the grantor government is able to get all the political credit arising from allocating a grant to a given jurisdiction. However, it often happens that the grant is allocated by the upper layer of government but the project funded is implemented by the local government who is able to stand before the citizens as the main responsible of the expenditure. This is not a main problem for the grantor if the local government belongs to its same party, but it might have some adverse consequences when there is no partisan alignment, since the monies sent to a jurisdiction to improve electoral chances can at the end mostly improve those of the opposition. This argument has been recently proposed by Dasgupta *et al.* (2004) and Solé-Ollé and Sorribas-Navarro (2007), who used it to obtain the theoretical prediction that grantors will allocate more grants to aligned local governments than to unaligned ones. Both papers obtain empirical evidence on this hypothesis, for India and Spain, respectively. In the Spanish case, for

example, Solé-Ollé and Sorribas-Navarro (2007) show that municipalities are aligned with an upper layer of government receive up to 40% more grants than those that are unaligned, a number similar to the one found by Weingast *et al.* (2006) for Mexico. This result is robust across several specifications and, therefore, both its reliability and the size of the effect suggest that something important is going on. It is also worth mentioning that other papers –not making any specific statement about the behavioural reason of the finding– did previously find in different settings that ideology matters for the allocation of grants and other public programs (see, e.g., Grossman, 1994; and, Levitt and Snyder, 1995).

But even if the evidence is compelling, nothing is known about the behavioural reasons that make grantors behave that way. As we said above, papers by Dasgupta *et al.* (2004) and Solé-Ollé and Sorribas-Navarro (2007) suggest that the answer lies in the “differential productivity” of grants allocated to aligned vs. unaligned governments. Others suggest, however, that “clientelism” is the reason of the biased allocation of transfers, non-aligned governments being punished by withdrawing transfers in order to force the population to dismiss the incumbent in the following election (see, e.g., Weingast *et al.*, 2006). Although the ‘clientelism’ channel can not be totally discarded in Spain (or at least in some regions), the low share of revenues funded by discretionary grants (see section 3.1) makes us believe that the first explanation (differential productivity) is more plausible. Therefore, in this paper we will concentrate in finding direct evidence that grants allocated to aligned governments do indeed bring more votes than grants allocated to the unaligned ones. We believe there is real value added on this exercise, since we don’t know of any previous attempt to find evidence regarding this issue.

Moreover, the data we use to test this hypothesis is very well suited to this end. We use a rich Spanish database, which provides information on grants received by nearly 800 municipalities during the period 1993-2003 from two different upper-tier governments (i.e., *Regional* and *Upper-local*) and municipal vote data on three electoral contests held at each of these layers during this period. Therefore, we are able to estimate two different vote equations, analyzing the effects of grants given to aligned

and unaligned municipalities by different upper layers of government on the vote share of the incumbent party/parties at the regional and upper-local layers and corresponding elections. We account for the endogeneity of grants by instrumenting them with the overall amount of grants distributed by upper layer governments. The results suggest that grants given to co-partisans buy some political support, but that grants given to opposition parties do not bring any votes, suggesting that the grantee reaps as much as political credit from intergovernmental grants as the grantor.

The paper is organized as follows. In the second section we present a theoretical framework that will allow us to posit the vote share equation to be estimated, and to interpret the coefficients obtained for the grants given to aligned and unaligned governments in terms of the ‘differential productivity’ hypothesis introduced above. The third section discusses carefully the econometrics of the exercise, focusing on the potential endogeneity of grants; to this end we use the theoretical framework developed in the previous section to guess the possible direction and magnitude of the bias and to propose a method to solve the problem. In the fourth section we briefly describe the institutional details of the Spanish case that will help us to understand why we have chosen our particular empirical strategy. The concrete operationalization of the vote equation and the data used to compute the different variables are presented in the fifth section. The sixth section presents the results obtained. Finally, the paper ends with some conclusions and suggestions for further research on this topic.

## **2. Theoretical framework**

In this section we posit a very simple framework in order to describe how a voter decides his vote, depending on the alignment between governments at different tiers. The approach used here is the same than in Solé-Ollé and Sorribas-Navarro (2007), who embed this behavior in a model of electoral competition in order to derive implications regarding the effect of alignment on the amount of grants allocated. We first describe the basic set-up of the model: layers of government and parties. Then we describe how a voter decides his vote, depending on alignment between governments at different tiers, and suggest how the vote equation should be specified in the empirical analysis.

*Basic set-up.* In the model there are two upper-tier governments, each one with a jurisdiction covering the entire country, and a number of local governments. We will call the first tier  $R$  (*Regional*) and the second one  $U$  (*Upper-local*). For illustrative purposes, we assume that a different party controls each upper tier government: the  $R$  government by the right one ( $r$ ) and the  $U$  government by the left party ( $l$ ). Some local governments are controlled by the  $r$  party and some by the  $l$  party. The parties  $r$  and  $l$  use the financial resources available at the layers of government they control to distribute grants to the local governments and advance their electoral prospects. Although each party controls a different government tier, and different elections are held at each tier, the model assumes that they are competing in the same electoral race, without specifying which concrete election we are talking about<sup>1</sup>.

*Voters' behavior.* Voters vote on the basis of two criteria: (i) the welfare generated by grants,  $u(g_J)$ , with  $u'(g_J) > 0$  and  $u''(g_J) \leq 0$ , and where  $g_J = g_J^R + g_J^U$  are per capita grants in municipality  $J$ , coming from  $R$  and  $U$ , respectively; and (ii) ideology. We define  $X_i$  as the ideological bias of voter  $i$  in favor of party  $l$ , which is unknown by the researcher;  $F_J(X_i)$  is a distribution of  $X_i$ , with  $f_J(X_i) = \partial F_J(X_i) / \partial X_i$ , which is common knowledge and which we assume for simplicity symmetric and single-picked. There is an additional component in the voting behavior which is a general popularity shock,  $\delta_J$ , in favor or against the party in the  $R$  and  $U$  governments, which is municipality-specific (but common to all voters) and known before grants are determined. We assume that voter  $i$  votes for party  $r$  if  $u(g_J^R) - u(g_J^U) \geq X_i + \delta_J$ <sup>2</sup>.

Now we assume that the voting decision of voter  $i$  depends on the alignment status of her local government. Following Dasgupta *et al.* (2004), we define  $\theta$  as the

---

<sup>1</sup> This amounts to assume that the politicians at all levels are interested in advancing the prospects of the party in general, and not only in winning the elections held at its layer. This may happen, if campaigns are highly centralized, if the electoral results of a party in a given election and jurisdiction are influenced by the results obtained in other contests, or if winning elections helps the party in rewarding its supporters through the allocation of posts.

<sup>2</sup> The voter will vote for  $r$  if the welfare gain obtained from  $r$  during the last term-of-office relative to the one obtained from  $l$  is higher than the ideological bias in favor of  $l$ :  $\Delta u_J^r - \Delta u_J^l \geq X_i + \delta_J$ . This welfare gain is hypothetical and should be interpreted as the welfare increase caused by grants coming from the government controlled by that party compared to a situation where all the grants came from the government controlled by the other party. It is only in this case that  $\Delta u_J^r - \Delta u_J^l$  reduces to  $u(g_J^R) - u(g_J^U)$ .

proportion of utility from grants attributed to the local government and  $(1-\theta)$  as the proportion of utility from grants attributed to the grantor upper layer of government. If both layers are controlled by the same party, then all the utility from grants is captured by this party. If control is split between the two parties, then utility from grants must be shared. Nothing can be a priori said about the value of  $\theta$ , which will be derived from the estimated vote equation (see below). However, as Solé-Ollé and Sorribas-Navarro (2007) argue, when the objective of the politician is to maximize the expected number of votes, if  $\theta > 0.5$  (i.e., if the grantee captures more benefits than the grantor), the marginal utility of grants would become negative and zero grants would be allocated to unaligned municipalities. This seems to be an extreme case, for, at least, two reasons. First, if parties were not merely office-motivated but also pursue efficiency and/or equity objectives, the marginal benefit of grants would include some additional term, making the corner solution more difficult (e.g. see Dasgupta *et al.*, 2004). Second, there must be an upper bound on the utility derived from grants that spills over the opponent party. In order to avoid this problem these authors assume therefore that  $\theta < 0.5$ , meaning that although the grantee may obtain substantial utility from projects funded by the grantor, the former never obtains more utility than the latter.

Thus, if the incumbent party at municipality  $J$  is  $r$ , i.e.  $J$  is aligned with  $R$ , voter  $i$  votes for party  $r$  if:

$$\underbrace{u(g_J^R) + \theta u(g_J^U)}_{\text{utility captured by } r} - \delta_J > X_{iJ} + \underbrace{(1-\theta)u(g_J^U)}_{\text{utility captured by } l}$$

or,

$$u(g_J^R) - (1-2\theta)u(g_J^U) - \delta_J > X_i \quad (1a)$$

That is, expression (1) says that if the municipality is aligned with  $R$ , all the utility coming from grants allocated by  $R$  is captured by the party  $r$  but, since the municipality is not aligned with  $U$ , also a proportion  $\theta$  of the grants allocated by  $U$  is captured by party  $r$ . Similarly, if the incumbent party at municipality  $J$  is  $l$ , i.e. municipality  $J$  is unaligned with  $R$ , voter  $i$  votes for party  $r$  if:

$$\underbrace{(1-\theta)u(g_J^R) - \delta_J}_{\text{utility captured by } r} > X_{iJ} + \underbrace{u(g_J^U) + \theta u(g_J^R)}_{\text{utility captured by } l}$$

or,

$$(1 - 2\theta)u(g_J^R) - u(g_J^U) - \delta > X_i \quad (1b)$$

Expressions (1a) and (1b) suggest that grants from aligned upper layers of government have a much bigger impact on the incumbent's vote (in absolute value) than grants coming from unaligned governments.

*Vote share equation.* Now we can combine these two expressions to write the vote-share for the incumbent party at, for instance, the regional government in a municipality, as:

$$v_J = F_J(u_J(g_J^a) - (1 - 2\theta)u(g_J^u) - \delta_J) \quad (2)$$

where  $g_J^a$  and  $g_J^u$  are the grants that a local government receives from aligned and unaligned upper layers of government, respectively. Let's assume that utility is linear in grants (i.e.,  $u(g_J) = \beta g_J$ ) and define the dummy variables  $a_J^R$  and  $a_J^U$ , which are equal to 1 if the regional and upper-local governments are politically aligned with the municipality  $J$ . Now, from expressions (1a) and (1b) we can write the utility derived from grants in a municipality aligned and unaligned with the regional government as:

$$a_J^R(g_J^R - (1 - 2\theta)g_J^U) \quad \text{and} \quad (1 - a_J^U)((1 - 2\theta)g_J^R - g_J^U) \quad (3)$$

Adding these two expressions and grouping the variables according to the alignment status, the grants received from aligned and unaligned upper layers of government can be expressed as:

$$g_J^a = a_J^R g_J^R - (1 - a_J^U) g_J^U \quad \text{and} \quad g_J^u = (1 - a_J^U) g_J^R - a_J^R g_J^U \quad (4)$$

Now, using a particular vote distribution function for  $F_J(X_i)$  we can obtain an estimable equation for (2). For example, assuming  $F_J(X_i) \sim N(\mu_J, \sigma^2)$ , being  $\mu_J$  a municipal-specific mean of the distribution and  $\sigma^2$  its variance, which for simplicity we assume constant across municipalities, the vote equation would look like:

$$\tilde{v}_J = \beta_1 g_J^a + \beta_2 g_J^u + \beta_3 \rho_J \quad (5a)$$

where  $\rho_J = \mu_J + \delta_J$  and  $\tilde{v}_J = \Phi^{-1}(v_J)$ ,  $\Phi^{-1}(\bullet)$  standing for the standard normal distribution, and where  $\beta_1 = \beta/\sigma$ ,  $\beta_2 = -(\beta/\sigma)(1 - 2\theta)$  and  $\beta_3 = -1/\sigma$ . We

could use an even simpler approach, assuming  $F_J(X_i)$  is uniform with mean  $\mu_J$  on the support  $[-\Psi + \mu_J, \Psi + \mu_J]$ . In this case the vote equation is:

$$v_J = \beta_0 + \beta_1 g_J^a + \beta_2 g_J^u + \beta_3 \rho_J \quad (5b)$$

where  $\beta_0 = 1/2$ ,  $\beta_1 = \beta/2\Psi$ ,  $\beta_2 = -(\beta/2\Psi)(1-2\theta)$  and  $\beta_3 = -1/2\Psi$ . Note that the specification obtained is practically the same, with the exception that in this case it is no longer necessary to apply any transformation to the vote share. We have estimated both specifications (5a and 5b) using a set of variables to proxy for  $\rho_J$  (i.e., for  $\mu_J$  and  $\delta_J$ ), but since the results are qualitatively similar (see next section for discussion) we will only present those corresponding to the simpler approach (5b).

It is important to stress, however, that the results of both equations have the same interpretation and allow us to test the hypotheses we made regarding the effect of partisan alignment on voter behavior. Note that in both cases if  $\beta_1 > 0$  and  $\theta < 0.5$  then we expect  $\beta_2 > 0$  and  $|\beta_1| > |\beta_2|$ , if  $\theta > 0.5$ , then  $\beta_2 < 0$  and  $|\beta_1| > |\beta_2|$ ; and if  $\theta = 0.5$  then  $\beta_2 = 0$ . That is, in any case, grants to aligned municipalities buy votes, but grants to unaligned municipalities might bring or detract votes depending on the distribution of credit between layers of government; if more credit is attributed to the higher layer of government than to the lower layer these grants should also bring more votes (although less than grants to co-partisans); if more credit is attributed to the lower layer these grants will detract votes (although the impact will be on absolute value lower than the one of grants to co-partisans); and if credit is more or less equally split between layers, grants to unaligned municipalities will not bring nor detract any vote.

Note that the results of the upper level government's elections do not only depend on the grants distributed by the level of government analyzed, but of the grants distributed by all levels of government. For instance, the vote-share obtained by the incumbent at the regional government in a municipality depends on the grants assigned by the regional and upper local governments.

### 3. Econometrics



The main problem in estimating equation (5a) or (5b) is the possible endogeneity of grants. The issue can be described in terms of an omitted variable problem, since both the average ideological attachment of the population and the popularity shock of the government will be very difficult to measure. With  $\rho_J$  omitted from (5a) the model estimated will be simply:

$$\tilde{v}_J = \gamma_0 + \gamma_1 g_J^a + \gamma_2 g_J^u + \eta_J \quad \text{with} \quad \eta_J = \rho_J + \varepsilon_J \quad (7)$$

where we added the  $\varepsilon_J$  i.i.d. term to the equation. Note that, whenever  $g_J^a$  and  $g_J^u$  are correlated with  $\rho_J$ , the coefficients  $\hat{\gamma}_1$  and  $\hat{\gamma}_2$  will be biased (i.e., will differ from  $\beta_1$  and  $\beta_2$ ). In our case this correlation is not just an empirical possibility, but can be a result of the theory. The paper by Solé-Ollé and Sorribas-Navarro (2007), for example, departs from the vote behavior as described in (2) to derive a prediction regarding the effect of alignment on the amount of grants received. They assume that the objective of each party is to maximize the expected number of votes taking the decision of the other party as fixed (i.e., Nash behavior) and subject to a fixed budget constraint. The details of the analysis are referred to that paper; here it suffices to note that after analyzing the F.O.C. they suggest that a specification like the following linear one might be appropriate:

$$g_J^a = \lambda_1 f_J(\rho_J) + \lambda_2 \bar{g}^a + \xi_J \quad (8a)$$

$$g_J^u = \lambda_1 f_J(\rho_J) + \lambda_2 \bar{g}^u - \Omega + \omega_J \quad (8b)$$

where  $f_J(\rho_J)$  is the equilibrium cut-point density (i.e., a measure of the proportion of ‘swing voters’), which depends on the shape of the density function and on the value of the popularity shock,  $\bar{g}^a$  and  $\bar{g}^u$  are average per capita grants allocated to aligned and unaligned local governments,  $\Omega$  is a constant picking up the effect of alignment (unalignment),  $\lambda_1$  and  $\lambda_2$  are positive coefficients, and  $\xi_J$  and  $\omega_J$  are i.i.d. error terms. So, theory seems to suggest that popularity shocks do have some effects on grants allocated, implying that there could be a possible omitted variable bias problem. The formulas for the bias of the estimated  $\hat{\gamma}_1$  and  $\hat{\gamma}_2$  coefficients can be expressed as:

$$E(\hat{\gamma}_1) = \beta_1 + \frac{\lambda_1 (\partial f_J / \partial \rho_J) \cdot \sigma_\rho^2}{\lambda_1^2 (\partial f_J / \partial \rho_J)^2 \sigma_\rho^2 + \lambda_2^2 \sigma_{g_a}^2 + \sigma_\xi^2} \quad (9a)$$

$$E(\hat{\gamma}_2) = \beta_2 + \frac{\lambda_1 (\partial f_J / \partial \rho_J) \cdot \sigma_\rho^2}{\lambda_1^2 (\partial f_J / \partial \rho_J)^2 \sigma_\rho^2 + \lambda_2^2 \sigma_{g_u}^2 + \sigma_\omega^2} \quad (9b)$$

where  $\sigma_\rho^2, \sigma_{g_a}^2, \sigma_{g_u}^2, \sigma_\xi^2$  and  $\sigma_\omega^2$  are the variances of the popularity shock, average grants distributed from aligned and unaligned governments, and error terms of equations (8a) and (8b), respectively. Note that the direction of the bias depends on the sign of  $\partial f_J / \partial \rho_J$ . Suppose for a moment that this derivative is negative (i.e., the shock decreases the proportion of ‘swing voters’, something that happens on the right-wing side of the density function, which we assumed symmetric and single-peaked); in this case, both coefficients are downward biased, since  $\beta_1$  is positive and  $\beta_2$  is expected to be negative or zero. Note also that the bias shall be in both cases of a very similar magnitude, since there are no a priori reasons to expect that  $\sigma_{g_a}^2$  and  $\sigma_\xi^2$  in (9a) are very different than its counterparts in (9b) (i.e.,  $\sigma_{g_u}^2$  and  $\sigma_\omega^2$ ). This means that if  $\beta_1$  is higher (in absolute value) than  $\beta_2$ , the OLS estimates of equation (7) also should give  $\hat{\gamma}_1 > \hat{\gamma}_2$ . Note that if  $\partial \phi_J / \partial \rho_J$  is positive (i.e., the ‘shock’ increases the proportion of ‘swing voters’, something that happens on the left-wing side of the density function) then the coefficients are upward biased; however, also in this case the OLS coefficients should say that  $\hat{\gamma}_1 > \hat{\gamma}_2$  when grants to aligned governments bring more votes than grants to unaligned ones.

But although this is an interesting property to know, it only allow us to guess if our main hypothesis is valid (i.e., grants to co-partisan buy more support than grants to the opposition), without allowing to obtain a more precise estimate of the degree in which credit for grants is transferred from the grantor to the grantee; for this we need to gauge the magnitude of the  $\theta$  parameter, an impossible task given the bias of  $\hat{\gamma}_2$ . It will also be of some help to know something about the direction of the bias, but this depends on the sign of  $\partial f_J / \partial \rho_J$ . Recall that we assumed in section 2 that the density was symmetric and single peaked. In this case, and since we are analyzing the vote for the incumbent and we know that there is some incumbency advantage (see, e.g., Bosch and Solé-Ollé, 2007, and the results in this paper), we might assume that most

municipalities are on the right-hand-side of  $f_J$ , meaning that  $\partial f_J / \partial \rho_J < 0$ . This would mean that there are some arguments to expect that  $\hat{\gamma}_2$  is biased downwards.

Of course, it would be much better to solve the endogeneity problem. Here we propose to use an Instrumental Variables procedure. Note that expressions (8a) and (8b) already propose one instrument for each of our endogenous variables; these are simply the average per capita amount of grants distributed by aligned and unaligned higher layers of government (i.e.,  $\bar{g}^a$  and  $\bar{g}^u$ ). The intuition here is quite clear: municipalities belonging to regions where *Regional* and *Upper-Local* governments distribute huge amounts of grants will receive in general more monies than municipalities belonging to regions where few grants are allocated to local governments. It can be argued convincingly that these two variables do not belong to the vote-share equation. Note that it is difficult to imagine that the effects of grants could spill over to other municipalities belonging to the same geographical area (i.e., receiving grants from the same upper-layer governments) and controlled by the same party. Therefore, being quite plausible that these instruments are not correlated with the error term  $\eta_J$ , its use will allow us to obtain unbiased estimates of the parameters of interest. Moreover, as will be checked in the next section these instruments have a considerable explanatory capacity in the first-stage regression, allowing us to get rid off the problem of weak instruments. This procedure is similar to the one used by Levitt and Snyder (1997) for the U.S. case. The only drawback faced by these authors is the inability to use over-identification tests to check the validity of the instruments. Although they acknowledge the presence of this problem, they believe that the theoretical justification of the instrument is enough to defend its validity. In our case, we will not rely exclusively on intuition in order to justify the instruments used. Note from (4) that both grants coming from aligned and unaligned grantors could be split in two different components. In a similar vein, we can decompose each of our instruments ( $\bar{g}^a$  and  $\bar{g}^u$ ) in two; for example, in the case of  $\bar{g}^a$  we now have  $\bar{g}^{aR} = a_J^R g_J^R$  and  $\bar{g}^{aU} = (1 - a_J^U) g_J^U$ . Having two instruments for each endogenous variable, the model is over-identified, allowing us to use the Sargan test to check the validity of instruments.

## 4. Institutional background of Spain

### 4.1. Layers of government and transfers

Spain is a fiscally decentralized country with three layers of government: *Central*, *Regional*, and *Local*. There are seventeen regional governments, the so-called Autonomous Communities (AC), which have very important spending responsibilities as, for example, the provision of health care, education and welfare. Each AC is composed by one or several provinces. In the ACs composed by more than one province, there exists an upper-tier of local government, called *Diputación*, which we have named in this paper *Upper-Local*. Although this upper-tier of local government has fewer spending responsibilities than the municipalities, which are the mayor players of the local public sector, allocation of grants for capital infrastructure to municipalities is one of their more relevant tasks<sup>3</sup>.

Spain has over eight thousand municipalities although most are quite small. Municipalities are multi-purpose governments, with major expenditure categories corresponding to the traditional responsibilities assigned to the local public sector (environmental services, urban planning, public transport, welfare, etc.) with the exception of education, which is a responsibility of the regional government. Current spending is financed out of own revenues (2/3 aprox.) and unconditional grants (1/3 aprox.) which are allocated by a formula that makes difficult its use for pork-barrel politics. However, the funding of capital spending depends heavily on grants: in 2003, capital grants represented the 13% of non-financial revenues and the 44% of capital spending. These grants came from the three upper-layers of government aforementioned: *Central* (15%), *Regional* (45%) and *Upper-Local* (21%)<sup>4</sup>. Most of the grants take the form of ‘project grants’: there is an open call at regular periods (usually yearly) and the municipality must apply by submitting several infrastructure projects, which are evaluated following some criteria which have been previously established (probably published in the call), but that are subject to the interpretation of the grantor.

---

<sup>3</sup> In ACs with only one province (there are six ACs of this kind), there is not *Diputación*, and its responsibilities are assumed by the regional government.

<sup>4</sup> The remaining 18% correspond to other sources (e.g., the EU) or to unclassified grants.

Therefore, the degree of political discretionarily of these grants should be qualified as high.

#### 4.2. *Elections and parties*

In Spain, central elections use to be held at regular periods of four years, although they can be called before the end of the term-of-office. Municipal and regional elections are held regularly every four years and on the same day in twelve out of seventeen ACs. In the period analyzed, they have been called one year or two before the general election. In the other ACs, elections have been called before the end of the term and, therefore, are held on a different day.

In the elections to the central and regional legislative the electoral districts are the provinces, a different number of representatives is elected in each province depending on its population size, candidates are included in parties' closed lists, and the D'Hondt formula with a threshold is used to translate votes to representatives (Colomer, 1995). Therefore, the system is not entirely proportional and, in fact, it is much easier to win a representative in some provinces (the rural ones) than in others. Due to the closed-list system, the parties are highly disciplined, both inside the legislatures and (to a minor extent) across layers of government. Since the party has a great influence on the future prospects of politicians (through the allocation of posts and places in the lists), they use to be loyal to the party rather than to the constituency.

In municipal elections there are also closed lists, the number of city's councillors depend on population size, and also the D'Hondt rule is used, but in this case there is a single district. As Colomer (1995) states: "these rules provide incentives for sincere voting and promote a high degree of pluralism in city councils". As a result of this, there is a high proportion of coalition governments; for example, in the 1996-99 term 43.3% of the municipalities where governed by coalitions (Solé-Ollé, 2006). Most municipal candidates are aligned along national or regional party lines. The local political system is seen as a first step in the process of recruitment into the regional and national political elite (Magre, 1999). There are no specific elections to the assembly of the upper-tiers of local governments; the representatives of *Diputaciones* are elected as

a product of the results of municipal elections. The votes for each party are aggregated across municipalities and are translated to representatives using again the D'Hondt formula. These upper-tiers of government have been criticized on the grounds of the reduced level of electoral accountability: with few clear responsibilities and no need to go to the polls, politicians controlling this layer of government can use grants to foster the parties' prospects at the next municipal election.

The traits of the Spanish electoral and party system described above mean that the elections held at each layer of government are not entirely independent of the national or regional political situation. In fact, parties are really interested in the results of regional and municipal elections. Since these contests use to happen one year or two before the central elections, they provide an excellent occasion to test the real prospects of the party<sup>5</sup>. Therefore, although most efforts are local, the parties do design a centralized (national and/or regional) strategy for these contests. This strategy includes statements regarding which regions and/or municipalities deserve disproportionate campaign efforts<sup>6</sup>, either because the perceived electoral margin is low or because the region or the city is seen as having special significance in the eyes of voters (e.g., big cities). In the Spanish context, it is therefore natural to believe that just before an election, the parties use the various posts they control at different layers of government to allocate grants to pursue its electoral objectives. The high degree of partisan control exercised both inside and across layers of government facilitates the use of resources coming from different posts for the fulfilment of parties' interests.

## **5. Empirical analysis**

### *5.1. Vote equations*

---

<sup>5</sup> This is due to the fact that national and/or regional political shocks do affect the results of these lower tier elections (see, e.g., Bosch and Solé-Ollé, 2005, and Rodden *et al.*, 2005, for evidence of this effect in Spain and other countries, respectively). In fact, local electoral results are seen as predictors of the parties' prospects for the next general election.

<sup>6</sup> One year before the future May 2007 municipal elections the newspaper *El País* published a report on the prospects for this contest with the title: "PSOE and PP open the battle town by town" which identified the regions and municipalities where each party will concentrate its efforts (source: *El País*, 23th April 2006, p. 26: "*PSOE y PP abren la batalla pueblo a pueblo*").

The specification of our vote equation is built upon the results of the theoretical section. Although the Spanish case described above provides us with three upper-tier grantor governments (*Central, Regional, and Upper-Local*), we will only analyze how the vote results of the incumbent party/parties at the *Upper-Local* and *Regional* levels are affected by the grants allocated by these two upper tiers of government. We decided not to analyze the effects of central grants on the results of the general elections because these grants distribute much less money than the others and because the improvement of municipal infrastructure plays only a minor role in shaping the electoral agenda of the Spanish general legislative elections. This is not the case of the regional and local elections, since the AC's, the *Diputaciones* and the municipalities are all responsible for the delivery of these services. So we are implicitly assuming that the parties use the grants they control at the *Upper-Local* and *Regional* layers to influence the results of both the local and the regional elections.

Thus, we will estimate the following two equations:

$$v_{Jt}^R = \beta_1^R g_J^{aR} + \beta_2^R g_{Jt}^{uR} + \beta_3 \rho_{Jt}^{mR} + \varepsilon_{Jt}^R \quad (10a)$$

$$v_{Jt}^U = \beta_1^U g_{Jt}^{aU} + \beta_2^U g_{Jt}^{uU} + \beta_3 \rho_{Jt}^{mU} + \varepsilon_{Jt}^U \quad (10b)$$

where  $v_{Jt}^R$  and  $v_{Jt}^U$  are the votes shares of the incumbent party/parties in the *Regional* (R) and *Upper-Local* (U) governments in the regional and local elections held at  $t$ , respectively. The grant variables labeled with superscript  $a$  in expressions (10a) and (10b) indicate the per capita amount of money received by municipality  $J$  the two years previous to election  $t$  from the incumbent at the upper-local and regional governments with whom it is aligned, less –when it is not aligned with the incumbent at the level of government that we are analyzing– the per capita amount of money received by municipality  $J$  from the layers of government with which it is aligned. For example,  $g_{Jt}^{aR}$  is computed as:

$$g_{Jt}^{aR} = a_{Jt}^R (g_{Jt}^R + a_{Jt}^U g_{Jt}^U) - (1 - a_{Jt}^R) ((1 - a_{Jt}^U) g_{Jt}^U) \quad (11)$$

where  $a_{Jt}^R$  and  $a_{Jt}^U$  are equal to 1 if the regional and upper-local government are aligned with the municipal government, respectively. The grant variables labeled with

superscript  $u$  in expressions (10a) and (10b) indicate the per capita amount of grants received by municipality  $J$  the two years previous to election  $t$  from the upper level incumbent governments with whom it is unaligned. For example,  $g_{Jt}^{uR}$  is computed as:

$$g_{Jt}^{uR} = (1 - a_{Jt}^R)(g_{Jt}^R + a_{Jt}^U g_{Jt}^U) - a_{Jt}^R((1 - a_{Jt}^U)g_{Jt}^U) \quad (12)$$

Note that although it might seem rather complex, these calculations are nothing more than the transposition of expression (4) to a more realistic setting. The intuition behind the specification in (11) is that the electoral prospects of the incumbent at some high layer of government increases the more grants it is able to channel to aligned municipalities (coming directly from its budget or from the budgets of other layers of government also controlled by the same party) and the less grants other layers of government controlled by the opposition are able to channel to municipalities which are not aligned with it.

It can be said, of course, that this computation is too much complex, since voters are able to disentangle the purpose of the different electoral contests and, therefore, only take into account grants coming from the incumbent at his corresponding election. That is, contrary to what expressions (11) and (12) suggest, *Regional/Upper-Local* grants only have some impact on the vote at regional/municipal elections but not on the elections held at the other layer of government. This means that politicians would not be able to foster the ‘general interests of the party’ (as we assumed in the theoretical section), using grants at his disposal to influence elections at any layer, but will be forced to compete only in one election. To check this possibility we will decompose (11) and (12) into two different variables:

$$g_{Jt}^{aR}(\text{Regional}) = a_{Jt}^R g_{Jt}^R \quad (13a)$$

$$g_{Jt}^{uR}(\text{Regional}) = (1 - a_{Jt}^R) g_{Jt}^R \quad (13b)$$

$$g_{Jt}^{aR}(\text{Upper} - \text{Local}) = (a_{Jt}^R a_{Jt}^U - (1 - a_{Jt}^R)(1 - a_{Jt}^U)) g_{Jt}^U \quad (13c)$$

$$g_{Jt}^{uR}(\text{Upper} - \text{Local}) = ((1 - a_{Jt}^R) a_{Jt}^U - a_{Jt}^R (1 - a_{Jt}^U)) g_{Jt}^U \quad (13d)$$

The fourth variables will be included in the equation. In the event that only (13a) and (13b) are statistically significant, we should conclude that grants only have effect on



the elections were the grantor is the incumbent, and not on elections held at other layer where the incumbent is not the grantor but one of his co-partisans. Obviously, the same treatment will be given to the grants variables included in the vote equation for the *Upper-Local* incumbent (10b).

Note finally that the vote in (10a) and (10b) equations also include a term measuring the ideological attachment of the population and/or the popularity shock experienced by the government, which differs from one equation to the other:  $\rho_{J_t}^{mR}$  and  $\rho_{J_t}^{mU}$ . The  $m$  superscript means that these popularity effects are considered measurable. To account for them we include a set of proxies to be described below. Finally, the equations in (10a) and (10b) include an error term composed by an immeasurable shock and a i.i.d disturbance (e.g.,  $\varepsilon_{J_t}^R = \rho_{J_t}^{iR} + \eta_{J_t}^R$ ). As this popularity shock can be correlated with the amount of grants received (either from aligned or from unaligned grantors), we face a potential problem of endogeneity which recommends the use of instrumental variables, as we have argued in section 3.1.

## 5.2. Data description

**Selecting the sample.** We estimate the effects of grants on the vote share obtained by the incumbent party/parties at higher layers of government at the municipal level. We use a rich database, which provides information on the vote share of parties at different types of elections and on grants received from different grantors for 758 municipalities during the period 1993-2003. The analysis is performed for two different upper-tier governments, *Regional* and *Upper-local*. The data on votes come from the information provided by the Spanish Ministry of the Interior, in the case of the local elections, and directly from each of the *Regional* governments, in the case of the regional elections. The data on grants come from a survey on budget outlays conducted yearly by the Ministry of Economics and Finance. The starting number of municipalities was much higher (2,799), but we lose municipalities due to the lack of data on transfers by grantor. In the case of grants coming from the *Upper-Local* government, the number of municipalities is further reduced to 617, due to the already mentioned fact that there are no *Diputaciones* in ACs with only one province.

**Measuring votes:** The vote variables are calculated as the share of votes obtained by the incumbent party/parties at the *Regional* and *Upper-Local* government in each municipality in regional and municipal elections, respectively. To construct these variables we use the electoral results of the regional and municipal elections of 1991, 1995, 1999 and 2003. Thus, the vote share obtained by the incumbent at the *Upper-Local* government is identified with the electoral result at the municipal elections. Recall that there are no direct elections to the *Upper-Local* governments and that its representatives are elected as a product of the results of the municipal elections.

**Measuring grants.** Our grants variables are capital grants (chapter 7 of the budget) coming from each upper layer of government (*R* and *U*). Grants are added up for the last two years of each term-of-office and then divided by the population of the municipality at the beginning of these two-year periods, using data from the National Institute of Statistics (INE). We have considered that grants received during the election year benefit the incumbent government and not the incoming one. We believe that this assumption is reasonable, given that municipal elections are generally held in the middle of the year (May or June) and that grantor governments usually exhaust their yearly grants budget early, just before the next election. Thus, we set out to explain the effect of grants on the electoral reward the overall amount of grants received in 1994-95 for the term 1991-95, in 1998-99 for the term 1996-99, and in 2002-03 for the term 2000-03. There are three reasons that justify this decision. The first one is the fact that in some AC's it is quite difficult to identify alignment between layers of government given the different timing of regional and local elections. Thus, the alternative procedure of aggregating grants over an entire local term of office would have encountered the problem of changing alignment in the middle of the period (since some regional elections are held at some time between two local elections). The second reason is that by aggregating the grants variable over two years, we reduce the volatility of this variable. The third reason is that, as the political cycle literature has emphasised, the temptation to use public funds to buy votes increases as the next election

approaches, something that suggest that the electoral reward will be higher during those years<sup>7</sup>.

**Measuring alignment.** As discussed in Solé-Ollé and Sorribas-Navarro (2007), the concept of alignment is straightforward in the case of single-party governments. In this case, a municipality is said to be aligned with an upper-layer grantor government if the party controlling the government at both layers is the same. However, in Spain a large number of governments (at all layers) are coalitions. Coalitions make the definition of alignment between layers more difficult. A party at a given layer of government may play at least three different roles: i) the single party in government, ii) the main partner or leader of a coalition, and iii) a mere partner of the leading party in a coalition.

As it has been explained in the theoretical section, the amount of grants transferred to municipalities belonging to each of these types depends on the credit lost by the grantor government. If both layers are controlled by the same single party, there is no credit loss, but if this party is the leader of a municipal coalition, part of the credit will flow to its local partner(s). If this party is only a partner at the municipal level, the party leading the municipal coalition may get a large share of the credit. These considerations do not seem to depend on the status of the upper layer. For this reason, we have decided to use a dummy variable to identify the alignment status that is equal to one when the either the single-party or the leader of the coalition at the municipal government is the same as the one in the upper layer of government (single party, coalition leader or *formateur*). Otherwise, this alignment dummy variable is equal to zero.

To compute these measures of alignment, we use a database provided by the Spanish Ministry of Public Administration, which gives information about the party of the mayoralty and (in the case of coalitions) the other parties in the municipal governments, following the local elections of 1991, 1995, 1999 and 2003. For the upper tier of local government, this database provides information regarding the party of the president and the composition of the assembly. Data on the party of the president of the

---

<sup>7</sup> See, e.g., Castells and Solé-Ollé (2005) for evidence indicating that pork-barrel politics in Spain intensifies as the next election approaches.

AC and the other parties in the regional governments come from [www.eleweb.com](http://www.eleweb.com). In all cases, minority governments have been considered as coalitions. The party of the president or the mayor has been considered the *Leader* and the other parties belonging to the coalition, the *Partners*.

**Control variables.** We include in both vote equation variables accounting for the ideological attachment of the voting population and for the popularity shock experienced by the incumbent previously to each election (i.e., termed  $\rho_{jt}^{mR}$  and  $\rho_{jt}^{mU}$  in equations (10a) and (10b)). First, we include in both equations the lagged vote-share of the incumbent party/ parties in order to account for the persistence of ideological attachments and popularity shocks. Second, to account for national popularity shifts that affect differently each of the parties in different elections, we include a set of election  $\times$  party dummies; we also tried with election  $\times$  region  $\times$  party dummies, but adding the regional dimension did not improve significantly the fit of the equations. Third, to account for structural ideological attachment to some parties by voters in some municipalities we include the average voter of the party/parties in all the elections held since 1979.

Fourth, we also include some traits of the government which might be rewarded or punished by the voters. Concretely, in the case of regional elections, we include a dummy for coalition governments, a dummy picking up whether it is the first term that this party is in the government or not. A government is considered a coalition if the incumbent party had less than 50% of the seats. A government is classified as being in its first term of office if the party of the incumbent had changed between one four –year period and the next. We expect a negative sign for the first variable, indicating that voters dislike coalitions because of its inability to take decisions, and a positive one for the second one, suggesting that voters tend to give a second chance to new governments. Our expectations bear on previous results for the Spanish municipal elections (see, e.g., Bosch and Solé-Ollé, 2007a and 2007b). We also experimented with a more detailed breakdown of both variables, including also dummies for minority governments and for governments in its second and third terms-of-office, but we

exclude these variables from the final regressions because they were not statistically significant.

In the case of local elections we should include variables measuring both the traits of the *Upper-Local* and of the municipal governments. Recall that local elections serve not only to select politicians for the *Upper-Local* government but also for the municipal one. So we tried with dummies indicating if there is a coalition or a first-term government at each of both layers of government. In the case of municipal governments these variables were interacted with a municipal incumbency variable, equal to 1 if the main party or the leader of the coalition at the *Upper-Local* layer is also a member of the municipal government and  $-1$  if this is not the case. This transformation is needed in the *Upper-Local* equation because the variable we are analyzing is vote for the incumbent at the *Upper-Local* level, which may or may not coincide with incumbency at the municipal level. Preliminary results (not shown in the paper) suggest that the traits of the *Upper-Local* incumbent do not have any impact on the vote<sup>8</sup>, so we decided to include only in the equation the traits of the municipal government.

## **6. Results**

PENDING

## **7. Conclusion**

PENDING

---

<sup>8</sup> The results are not surprising, since the indirect nature of the selection procedure at the *Upper-Local* layer and the smaller size of its budget (with respect to municipalities) means that voters are really unaware of the additional utility of their vote and tend to vote only taking into account purely local considerations.

## References

- Bosch, N. and Solé-Ollé, A. (2005): "On the relationship between authority size and the cost of providing local services: Lessons for the design of intergovernmental transfers in Spain", *Public Finance Review* 33, 343-384.
- Case, A. (2001): "Election goals and income redistribution: recent evidence from Albania." *European Economic Review* 45, 405-23.
- Castells, A. and Solé-Ollé, A. (2005): "The regional allocation of infrastructure investment: The role of equity, efficiency and political factors", *European Economic Review*, 49 (5), 1165-1205.
- Colomer, J.M. (1995): "España y Portugal". In J.M. Colomer (ed.), *La política en Europa: introducción a las instituciones de quince países*, Barcelona, Ariel.
- Cox, G., and M. McCubbins (1986): "Electoral politics as a redistributive game." *The Journal of Politics* 48, 370-89.
- Dahlberg, M. and E. Johansson (2002): "On the Vote-Purchasing Behavior of Incumbent Governments," *American Political Science Review* 96, 27-47.
- Dasgupta, S., A. Dhillon and B. Dutta (2001): "Electoral Goals and Centre-State Transfers in India," unpublished paper, University of Warwick.
- Dixit, A., and J. Londregan (1998): "Fiscal federalism and redistributive politics." *Journal of Public Economics* 68, 153-180.
- Grossman, P. (1994): "A political theory of intergovernmental grants". *Public Choice* 78, 295-303.
- Khemani, S. (2003): "Partisan Politics and Intergovernmental Transfers in India", Working Paper No. 3016, Development Research Group, The World Bank
- Johansson, E. (2003): "Intergovernmental grants as a tactical instrument: empirical evidence from Swedish municipalities." *Journal of Public Economics* 87, 883-915.
- Levitt, S., and J. Snyder (1995): "Political parties and the distribution of federal outlays." *American Journal of Political Science* 39, 958-80.
- Levitt, S., and J. Snyder (1997): "The impact of federal spending on House election outcomes", *Journal of Political Economy* 105, 30-53.
- Lindbeck, A., and J. Weibull (1987): "Balanced budget redistribution as the outcome of political competition." *Public Choice* 52, 273-97.
- Magre, J. (1999): *L'alcalde a Catalunya*. Workshop Barcelona 9, Institut de Ciències Polítiques i Socials, Barcelona.
- Rodden, J. and Wilkinson, S. (2004): "The Shifting Political Economy of Redistribution in the Indian Federation", MIT, mimeo, [web.mit.edu/jrodde/www/materials/rodde.wilkinson.isnie2004.pdf](http://web.mit.edu/jrodde/www/materials/rodde.wilkinson.isnie2004.pdf)
- Snyder, J. (1989): "Election goals and the allocation of campaign resources." *Econometrica* 57, 637-60.
- Solé-Ollé, A. (2006): "The effects of party competition on budget outcomes: empirical evidence from local governments in Spain", *Public Choice* 126, 145-176.
- Solé-Ollé, A. and Sorribas, P. (2007): "The effects of partisan alignment on the allocation of intergovernmental transfers. Differences-in-differences estimates for Spain", *Journal of Public Economics* (forthcoming).
- Strömberg, D. (2002): "Optimal campaigning in presidential elections: the probability of being Florida", Seminar Paper 706, Institute for International Economic Studies, Stockholm University.

Table 1:  
*Definition of the variables, descriptive statistics and data sources*

<i>Variable</i>	<i>Description</i>	<i>Mean (S.D)</i>	<i>Source</i>
$v_{Jt}^R$	Vote share of the <i>Regional</i> incumbent party/parties at the regional elections in municipality <i>J</i>	0,502 (0,277)	Ministry of Interior
$v_{Jt}^U$	Vote share of the <i>Upper-Local</i> incumbent party at the local elections in municipality <i>J</i>	0,468 (0,184)	Ministry of Interior
$g_{Jt}^{aR}$	Capital grants from aligned upper-layers of government to municipalities aligned with the <i>Regional</i> government, per capita	36.798 (71.662)	Ministry of Economics and Finance
$g_{Jt}^{uR}$	Capital grants from unaligned upper-layers of government to municipalities unaligned with the <i>Regional</i> government per capita	17.979 (49.803)	Ministry of Economics and Finance
$g_{Jt}^{aU}$	Capital grants from aligned upper-layers of government to municipalities aligned with the <i>Upper local</i> government, per capita	29.243 (75.959)	Ministry of Economics and Finance
$g_{Jt}^{uU}$	Capital grants to municipalities from unaligned upper-layers of government unaligned with the <i>Upper local</i> government, per capita	12.120 (57.374)	Ministry of Economics and Finance
<i>Coalition (Municipal gov.)</i>	1 if coalition in <i>Municipal</i> gov 0 otherwise	0,532 (0,234)	Ministry of Public Administrations
<i>First term-of-office (Municipal gov.)</i>	1 if <i>Municipal</i> gov in its first term, 0 otherwise	0,245 (0,127)	Ministry of Public Administrations
<i>Coalition (Regional gov.)</i>	1 if coalition in <i>Regional</i> gov 0 otherwise	0,267 (0,442)	Ministry of Public Administrations
<i>First term-of-office (Regional gov.)</i>	1 if <i>Regional</i> gov in its first term, 0 otherwise	0,709 (0,454)	Ministry of Public Administrations

Table 2:  
*Effects of grants on the vote share of Regional and Upper-Local grantors*  
(1995, 1999 & 2003 Regional and local elections, respectively). Basic results.

	<i>Upper-Local incumbent</i> <i>(local elections)</i>		<i>Regional incumbent</i> <i>(regional elections)</i>	
	OLS	IV	OLS	IV
<i>Grants</i> (×100 €),				
<i>from aligned grantors</i> ( $g^a$ )	0.025 (4.84) <sup>***</sup>	0.035 (3.71) <sup>***</sup>	0.009 (2.97) <sup>***</sup>	0.028 (4.00) <sup>***</sup>
<i>from unaligned grantors</i> ( $g^u$ )	$7.3 \cdot 10^{-6}$ (0.10)	0.005 (0.33)	$4.2 \cdot 10^{-6}$ (0.13)	0.002 (0.16)
<i>Lagged vote share</i>	0.608 (22.63) <sup>***</sup>	0.606 (22.40) <sup>***</sup>	0.657 (27.30) <sup>***</sup>	0.642 (23.45) <sup>***</sup>
<i>First term</i>	0.040 (4.50) <sup>***</sup>	0.041 (4.53) <sup>***</sup>	0.034 (6.24) <sup>***</sup>	0.038 (6.42) <sup>***</sup>
<i>Coalition</i>	-0.047 (-5.52) <sup>***</sup>	-0.048 (-5.60) <sup>***</sup>	-0.045 (-7.56) <sup>***</sup>	-0.046 (7.37) <sup>***</sup>
<i>Incumbent -municipality</i>	0.004 (1.88) <sup>*</sup>	0.001 (1.69) <sup>*</sup>	-. -	-. -
<i>First term – municipality</i>	0.016 (1.97) <sup>**</sup>	0.016 (1.91) <sup>*</sup>	-. -	-. -
<i>Coalition – municipality</i>	-0.015 (-1.68) <sup>*</sup>	-0.018 (-1.97) <sup>**</sup>	-. -	-. -
<i>Party × Election effects</i>	YES	YES	YES	
<i>Adj R<sup>2</sup></i>	0.924	0.928	0.969	0.971
<i>F-est (zero slopes)</i>	1196.15 <sup>***</sup>	1189.57 <sup>***</sup>	5002.4 <sup>***</sup>	4745.07 <sup>***</sup>
<i>F-est (zero t-J dummies)</i>	30.86 <sup>***</sup>	30.81 <sup>***</sup>	7.98 <sup>***</sup>	7.29 <sup>***</sup>
<i>No obs.</i>	1795	1795	2109	2109

Notes: (1) *t* statistics are shown in brackets; \*, \*\* & \*\*\*: significantly different from zero at the 90%, 95% and 99% levels; (2) Robust standard errors; (3) Dependent variable is the (untransformed) vote share of the party/parties in the *Upper-Local* and *Regional* government in the local and regional elections, respectively.



Table 3:

*Effects of grants on the vote share of Upper-Local and Regional grantors (1995, 1999 & 2003 Local and Regional elections, respectively). Breakdown by layer.*

	<i>Upper-Local incumbent (local elections)</i>		<i>Regional incumbent (regional elections)</i>	
	OLS	IV	OLS	IV
<i>Grants (×100 €),</i>				
<i>from aligned grantors (g<sup>a</sup>):</i>				
<i>- Upper-Local grantor</i>	0.046 (3.21) <sup>***</sup>	0.058 (1.99) <sup>**</sup>	0.015 (1.76) <sup>*</sup>	0.014 (1.89) <sup>*</sup>
<i>- Regional grantor</i>	0.020 (3.48) <sup>***</sup>	0.022 (1.74) <sup>*</sup>	0.006 (1.89) <sup>*</sup>	0.029 (2.67) <sup>***</sup>
<i>from unaligned grantors (g<sup>u</sup>):</i>				
<i>- Upper-Local grantor</i>	0.013 (1.02)	-0.020 (-0.65)	0.005 (0.87)	0.001 (0.10)
<i>- Regional grantor</i>	-0.002 (-0.27)	0.024 (0.80)	-0.001 (-0.28)	0.002 (1.31)
<i>Lagged vote share</i>	0.606 (22.52) <sup>***</sup>	0.607 (22.40) <sup>***</sup>	0.657 (27.28) <sup>***</sup>	0.641 (21.98) <sup>***</sup>
<i>First term</i>	0.039 (4.41) <sup>***</sup>	0.041 (4.48) <sup>***</sup>	0.035 (6.25) <sup>***</sup>	0.038 (6.35) <sup>***</sup>
<i>Coalition</i>	-0.046 (-5.44) <sup>***</sup>	-0.048 (-5.57) <sup>***</sup>	-0.046 (-7.61) <sup>***</sup>	-0.048 (7.47) <sup>***</sup>
<i>Incumbent -municipality</i>	0.004 (1.72) <sup>*</sup>	0.002 (1.73) <sup>*</sup>	--	--
<i>First term – municipality</i>	0.016 (1.89) <sup>*</sup>	0.016 (1.95) <sup>*</sup>	--	--
<i>Coalition – municipality</i>	-0.015 (-1.68) <sup>*</sup>	-0.017 (-1.86) <sup>*</sup>	--	--
<i>Party × Election effects</i>	YES	YES	YES	YES
<i>Adj R<sup>2</sup></i>	0.924	0.925	0.969	0.970
<i>F-est (zero slopes)</i>	1092.86 <sup>***</sup>	1078.54 <sup>***</sup>	4490.75 <sup>***</sup>	4282.12 <sup>***</sup>
<i>F-est (zero t-J dummies)</i>	31.01 <sup>***</sup>	30.15 <sup>***</sup>	8.08 <sup>***</sup>	7.83 <sup>***</sup>
<i>No obs.</i>	1795	1795	2109	2109

Notes: See Table 1.