The effects of partisan alignment on the allocation of intergovernmental transfers. Differences-in-differences estimates for Spain

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ABSTRACT:

In this paper we test the hypothesis that municipalities that are aligned with upper-tier grantor governments (i.e., controlled by the same party) will receive more grants than those that are unaligned. We use a rich Spanish database, which provides information on grants received by nearly 900 municipalities during the period 1993-2003 from three different upper-tier governments (i.e., *Central*, *Regional* and *Upper-local*). Since three elections have been held at each tier during this period we have enough within-municipality variation in partisan alignment to provide difference-in-differences estimates of its effects on the amount of grants coming from each source. Moreover, the fact that a municipality may receive, at the same time, grants from aligned and unaligned grantors allows us to use a triple-differences estimator, which consists of estimating the effects of changing alignment status on the change in grants coming from the aligned grantors relative to the change in grants coming from the unaligned ones. This estimator is more robust to the exclusion from the equation of economic and political determinants of the grants allocated by each upper-tier. The results suggest that partisan alignment has a sizeable effect on the amount of grants received by municipalities.

Key words: grants' allocation, alignment, electoral competition

JEL codes: C72, D72

1. Introduction

The traditional literature on fiscal federalism justifies the use of intergovernmental transfers on efficiency and equity grounds (Musgrave, 1959; Oates, 1972). Under this view, grants should be used to foster spending in spillover-generating services, to reduce the use of inefficient local taxes (Dahlby and Wilson, 1995) or to guarantee similar access to essential public services across the country (Buchanan, 1959). However, many scholars have recognized that what grantor governments 'ought to do' does not help much in explaining what they 'actually do'. For example, Inman (1988) showed that the pattern of allocation of federal grants to the states in the U.S. does not seem consistent with the correction of inefficiencies arising from decentralization. The conclusion of this author is that alternative explanations are needed and that political motives should be considered first.

Recently, many papers have appeared with the purpose of testing several hypotheses regarding the effects of political incentives on the allocation of grants. Some of these hypotheses are derived from electoral competition models. For example, according to Lindbeck and Weibull (1987) and Dixit and Londregan (1998), upper layer governments should allocate more grants to the states with a high proportion of voters that are not particularly attached to any of the parties (the so-called 'swing voters'). The papers by Case (2001), Strömberg (2002), Johansson (2003), Dalhberg and Johansson (2004), and Castells and Solé-Ollé (2005) provide empirical evidence on the validity of this hypothesis. Some of these papers try to test this hypothesis against the alternative one (derived from Cox and McCubbins, 1986) that says that –if politicians are risk averse– funds will be allocated to the states where voters are clearly attached to the incumbent party (the 'core supporters'). The results in Dalhberg and Johansson (2004), and Castells and Solé-Ollé (2005) suggest that the evidence in favor of this hypothesis is not compelling, although, as Rodden and Wilkinson (2004) suggest, the task of separating the 'swing voter' and 'core supporter' hypotheses is not easy.

However, these approaches fail to answer a fundamental question: why should an upper-tier of government be interested in delivering transfers to unaligned govern-

ments (i.e., controlled by opposition parties), which will surely try to use these funds to advance its electoral prospects (and, therefore, to harm those of the grantor government)?. Of course, one may argue that these grants use to be earmarked for specific purposes and that the grantor invests in making clear to the citizens where the monies come from (e.g., by compulsory use of placards stating who is the financial backer of the program). But the crucial point here is that if the grantee is able to claim even some small proportion of the credit provided by the grant, the grantor will find less profitable to allocate funds to non-aligned than to aligned governments (Dasgupta *et al*., 2004). This suggests that local governments that are aligned with the upper-tier grantor governments will receive more grants than those that are unaligned. Several papers have tested this hypothesis: Grossman (1994) and Levitt and Snyder (1995) for the USA, Worthington and Dollery (1998) for Australia, and Dasgupta *et al*. (2004) and Khemani (2003) for India. Most of them confirmed that aligned states receive more funds.

However, a common problem than can be found in most of these empirical exercises is the fact that consider periods of unchanged partisan control at the superior level of government. This characteristic entails some doubts on the validity of the results. For example, Grossman (1994) uses the variables percentage of votes for a democrat governor in the last election and percentage of seats held by democrats in the state legislature; since the federal legislature was controlled by the democrats during all the years of the sample, the author interprets these variables as indicative of alignment. But without change in control at the federal level, the democratic control at the state level can be picking up other factors influencing the allocation of grants (e.g., more needs in poor states controlled by the democrats); this problem is even more striking in that paper, since the analysis was performed with cross-sectional data. Similar problems affected the results by Levitt and Snyder (1995), who also use a cross-section, or the ones by some of the other papers, who use panel data but for time periods of unchanged partisan control at the national level.

In this paper we test this hypothesis with a rich Spanish database, which provides information on grants received by nearly 900 municipalities during the

period 1992-2003 from three different upper-tier governments (i.e., *Central*, *Regional* and *Upper-local*). This database helps us to overcome data quality problems encountered by other authors in trying to test the alignment hypothesis. First, in our database, there is cross-section variation in the partisan control in two of the upper-layer governments (*Regional* and *Upper-local*). Second, since three elections have been held at each tier during this period we have enough within-municipality variation in partisan alignment (due to changing partisan control at all the layers of government) to provide difference-in-differences estimates of its effects on the amount of grants coming from each source. Third, the fact that a municipality may receive, at the same time, grants from aligned and unaligned grantors allows us to use a triple-differences estimator, which consists of estimating the effects of changing alignment status on the change in grants coming from the aligned grantors relative to the change in grants coming from the unaligned ones. This estimator is robust to the exclusion from the equation of economic and political determinants of the grants allocated by each upper-tier. The results suggest that partisan alignment has a sizeable effect on the amount of grants received by municipalities.

The paper is organized in the following way. In the second section we provide a simple electoral competition model that accounts for the differing incentives that grantors have regarding aligned and non-aligned local governments. The third section performs the empirical analysis. In this section we explain the different estimation procedures that we are able to implement, the traits of our database and the way we measure grants and alignment. This section ends up with the presentation of the results. The fourth section concludes.

2. Theoretical model

In this section we develop an electoral competition model with the only aim of provi-ding a simple framework for our empirical exercise. The purpose of the model is to account for the incentives that grantors have regarding aligned vs. non-aligned govern-ments. The section is organized as follows. We first describe the basic set-up of the model: layers of government and parties analyzed. Then we describe how voters

decide its vote, depending on the alignment between governments at different tiers. Then we describe the objective of the upper layers of government (parties) and the results of the electoral game in terms of grants allocated to each local government.

Basic set-up

In our model we have two upper-tier governments, each one with a jurisdiction covering the entire country, and $n+m$ municipalities. We will call the first tier U (*Upper-local*) and the second one R (*Region*). For illustrative purposes, we assume that each upper tier government is controlled by a different party: the U government by the left party (l) and the R government by the right one (r). Of the $n+m$ municipalities, n are controlled by the r party and m by the l party.

The parties r and l use the financial resources available at the layers of government they control to advance its electoral prospects[1]. Although each party controls a different government tier, and different elections are held at each tier, we analyze a game in which they are competing in the same electoral race, without specifying which concrete election we are talking about. We are in fact assuming 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 electoral contests, or if winning elections help the party in rewarding its supporters through the allocation of posts.

Voters' behavior

Voters vote on the basis of two criteria: (i) the welfare generated by grants, $u_j(g_j)$, with $u_j'(g_j)>0$ and $u_j''(g_j)<0$, and where $g_j = g_j^U + g_j^R$ are per capita grants in municipality j, some coming from the U government and the others form the R one; (ii) and ideology. We define X_i as the ideological bias of voter i in favor of the left party l, and it is private information; $\Phi_j(X)$ is a municipality-specific distribution of

[1] Note that the parties do not compete by promising transfer allocations as in more traditional spatial voting settings (see, e.g., Lindbeck and Weibull, 1987), but by distributing real funds. In this sense, this setting resembles more to models of allocation of campaign efforts among districts (see, e.g., Snyder, 1989, and Strömberg, 2002).

X, with $\phi_j(X) = \partial\Phi_j(X)/\partial X$, which is common knowledge. $\Phi_j(X)$ is assumed to be symmetric and single-picked. We assume that voter *i* votes for party *r* if the welfare gain obtained from *r* during the last term-of-office relative to the one obtained from the *l* party is higher than the ideological bias in favor of *l*: $\Delta u_j^r - \Delta u_j^l \geq X_i$. These welfare gains obtained from each party are hypothetical, in the sense that they are defined 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. Note that, in this case, $\Delta u_j^r - \Delta u_j^l$ reduces to $u_j(g_j^R) - u_j(g_j^U)$.

Now we assume that the vote decision of voter *i* depends on the alignment status of her local government. Following Dasgupta *et al.* (2004), we define θ as the proportion of utility from grants attributed to the local government; $(1-\theta)$ is 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. We analyze the decision to vote for party *r*, depending on the alignment status of each local government with the upper layer *R*, which is the one controlled by *r*. If the incumbent party at municipality *j* is *r*, i.e. *j* is aligned with *R*, voter *i* votes for party *r* if:

$$\underbrace{u_j(g_j^R) + \theta u_j(g_j^U)}_{\text{credit captured by } r} > X_i + \underbrace{(1-\theta)u_j(g_j^U)}_{\text{credit captured by } l}$$

or,

$$u_j(g_j^R) - (1-2\theta)u_j(g_j^U) > X_i \qquad (2a)$$

If the incumbent party at municipality *j* is *l*, i.e. municipality *j* is unaligned with *R*, voter *i* votes for party *r* if:

$$\underbrace{(1-\theta)u_j(g_j^R)}_{\text{credit captured by } r} \geq X_i + \underbrace{u_j(g_j^U) + \theta u_j(g_j^R)}_{\text{credit captured by } l}$$

or,

$$(1-2\theta)u_j(g_j^R) - u_j(g_j^U) > X_i \qquad (2b)$$

That is, expression (2a) says that if the muncipality 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 θ of the grants allocated by *U* is captured by party *r*. So, when comparing the utility from grants allocated by *R* and *U*, party *r* gives a

weight of one to grants coming from *R* (the aligned upper tier) and a weight of minus (1-2θ) to grants coming from *U* (the unaligned upper tier).

Parties' behavior

The objective of each party is to maximize the expected number of votes. In the case of party *r* this can be expressed as:

$$\underbrace{\sum_{j=1}^{n} N_j \Phi_j(u_j(g_j^R) - (1-2\theta)u_j(g_j^U))}_{aligned} + \underbrace{\sum_{k=1}^{m} N_k \Phi_k((1-2\theta)u_k(g_k^R) - u_j(g_k^U))}_{unaligned} \qquad (3a)$$

where N_j is the population of municipality *j*. In the case of party *l*, we have:

$$\underbrace{\sum_{j=1}^{n} N_j \left\{1 - \Phi_j(u_j(g_j^R) - (1-2\theta)u_j(g_j^U))\right\}}_{unaligned} + \underbrace{\sum_{k=1}^{m} N_k \Phi_k((1-2\theta)u_k(g_k^R) - u_j(g_k^U))}_{aligned} \qquad (3b)$$

Note that with only two parties the municipalities aligned with *r* (*j*=1,..,*n*) are unaligned with *l*, and those aligned with l (*k*=1,..,*m*). The parties maximize these functions assuming the decision of the other party is fixed (i.e., Nash behavior) and subject to their budget constraints:

$$\sum_{j=1}^{n} N_j g_j^R + \sum_{k=1}^{m} N_j g_j^R = G^R \quad \text{and} \quad \sum_{j=1}^{n} N_j g_j^U + \sum_{k=1}^{m} N_j g_j^U = G^U \qquad (4)$$

where G^R and G^U are the exogenous amounts of resources available to the *R* and *U* upper layer governments.

Solution

The FOC for the party *r* (upper layer of governments *R*) are :

aligned (*j*=1,..,*n*): $$\phi_j(u_j(g_j^R) - (1-2\theta)u_j(g_j^U))\, u_j'(g_j^R) = \lambda^R \qquad (5a)$$

unaligned (*k*=1,..,*m*): $$\phi_k((1-2\theta)u_k(g_k^R) - u_k(g_k^U))\, u_k'(g_k^R)(1-2\theta) = \lambda^R \qquad (5b)$$

The FOC for the party *l* (upper layer of governments *U*) are :

unaligned (*j*=1,..,*n*): $$\phi_j((u_j(g_j^R) - (1-2\theta)u_j(g_j^U))\, u_j'(g_j^U)(1-2\theta) = \lambda^U \qquad (5c)$$

aligned (*k*=1,..,*m*): $$\phi_k((1-2\theta)u_k(g_k^R) - u_k(g_k^U))\, u_k'(g_k^U) = \lambda^U \qquad (5d)$$

The FOC state that the marginal benefit of allocating grants to municipality *j* should be equal to the marginal cost of revenues, λ . The marginal benefit is the product of three terms: (i) the density at the 'cut-point', ϕ, or proportion of 'swing voters'; (ii) the marginal utility of grants; and (iii) in the case of unaligned governments, the transfer of utility to the other party due to unalignment, $(1-2\theta)$. This term is lower than one, reducing the marginal benefit of allocating grants to this municipality.

Note that if θ>0.5 (i.e., if the grantee captures more benefits than the grantor), the marginal utility of grants becomes negative. In this case we will have a corner solution with zero grants allocated to this municipality. However, this seems to be an extreme case, for two reasons at least. First, if parties were not merely office-motivated but also pursue efficiency and/or equity objectives, the marginal benefit of grants in (5) would include an additional term, making the corner solution more difficult. That is, if parties' platforms or legal constraints force the government to distribute grants in an objective and universal manner, it would be difficult to exclude some municipalities because they are unaligned. Second, although the share of utility coming from money distributed by the grantor that spills over to the municipality can be substantial, there must be an upper bound. After all, grantors make enormous efforts in publicizing the amount of resources they allocate to different municipalities. We 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.

Effect of alignment on grants

The analysis of the FOC's allows us to make clear predictions about the effects of the alignment status on the amount of grants allocated. First of all, by comparing the two FOC's for the same grantor government (either *R* or *U*), we are able to show that a grantor government allocates more funds to aligned municipalities than to the unaligned ones. Look at the ratio between (5a) and (5b):

$$\frac{\phi_j(u_j(g_j^R)-(1-2\theta)u_j(g_j^U))\,u_j^{'}(g_j^R)}{\phi_k((1-2\theta)u_k(g_k^R)-u_k(g_k^U))\,u_k^{'}(g_k^R)(1-2\theta)}=1 \qquad (6)$$

Let's assume that $\phi_j = \phi_k = \phi$ and $u_j = u_k = u$, meaning that both the shape of the density function and the utility function are the same in the *j* and *k* municipalities. Given the assumption that θ <0.5, the denominator of the LHS of (6) is multiplied by a factor lower than one. Since $u_j^{'}$ >0 and $u_j^{''}$ <0, then $g_j^R > g_k^R$ is needed to rebalance expression (6). Note that $g_j^R > g_k^R$ is also needed for $\phi(u(g_j^R) - (1-2\theta)u(g_j^U)) < \phi((1-2\theta)u(g_k^R) - u(g_k^U))$, which also rebalances expression (6). So, the *R* upper-tier of government (controlled by *r*) gives more monies to the *j* municipality (controlled also by *r* and thus aligned with *R*) than to the *k* one (controlled by the *l* party and therefore unaligned). When $\phi_j \neq \phi_k$ and/or $u_j \neq u_k$, this result may not hold because the municipality with a higher proportion of swing voters or with a higher spending valuation may receive more grants even if it is unaligned with the grantor. However, controlling for these variables, aligned municipalities would also receive more grants from a given grantor than unaligned ones. This result can be illustrated by assuming that the vote distribution function is uniform (i.e., ϕ_j and ϕ_k are constants) and using the following specific utility function:

$$u_j(g_j) = \kappa + \frac{b_j}{1-1/\alpha}(g_j)^{1-1/\alpha} \tag{7}$$

where κ and α are constants, the latter one measuring the concavity of the utility function; b_j is parameter indicating that spending is more valuable to voters in some places. Substituting this function in (5a) and (5b), we obtain, after some manipulations:

$$\frac{g_j^R}{g_k^R} = \left(\frac{\phi_j b_j}{\phi_k b_k (1-2\theta)}\right)^{\alpha} \tag{8}$$

Second, by comparing the two FOC's for the same local government (either *j* or *k*) we are able to show that a municipality receives more funds from the aligned grantor than from the unaligned one. Look at the ratio between expressions (5a) and (5c):

$$\frac{u_j^{'}(g_j^R)}{u_j^{'}(g_j^U)(1-2\theta)} = \frac{\lambda^R}{\lambda^U} \tag{9}$$

Let's assume that $\lambda^R = \lambda^U$. Since θ <0.5, the denominator of the LHS of (9) is multiplied by a factor that is lower than one. Given that $u_j^{'}$ >0 and $u_j^{''}$ <0, then

$g_j^R > g_j^U$ is needed in order to rebalance expression (9). So, the *j* municipality (controlled by *r*) receives more monies from the *R* grantor (controlled also by the *r* party and therefore aligned with the municipality *j*) than from the *U* grantor (controlled by the *l* party and therefore unaligned). When $\lambda^R \neq \lambda^U$, this result may not hold because the grantor with more resources may spend more in every municipality (aligned or unaligned). However, controlling for the amount of resources at the disposal of *R* and *U*, an aligned upper-tier government also allocates more grants to a given municipality than an unaligned one. This result can be illustrated by using the same utility function than above. Substituting this function in (5a) and (5c), summing each expression over all municipalities and using the budget constraint, we obtain:

$$\frac{g_j^R}{g_j^U} = \left(\frac{G^R}{G^U}\right)^{\alpha} \frac{1}{(1-2\theta)^{\alpha}} \tag{10}$$

where G^R / G^U is the ratio between the exogenous amount of resources available to the grantors *R* and *U*, respectively.

3. Empirical analysis

3.1. *Background information on Spain*

Layers of government. 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. The province is, at the same time, the electoral district of the elections to the central and regional legislatives and, in the AC's composed by more than one province, it is also the jurisdiction of an upper-tier of local government, called *Diputación*. This upper-tier of local government has fewer spen-ding responsibilities than the municipalities, which are the mayor players of the local public sector. The more remarkable responsibilities of *Diputaciones* are to give financial and management assistance to the municipalities, with a special focus on the smaller ones. Allocation of projects grants for capital infrastructure to municipalities is one of its more relevant tasks. In AC's with only one province (there are six AC's of

this kind), there is not *Diputación*, and its responsibilities are assumed by the regional government. In the two island regions (the Canary and the Balearic Islands) there is not *Diputación* but an upper layer of local government for each of the islands, the so-called *Cabildos* and *Consells*, respectively. Therefore, although there are fifty provinces, there are forty-two *Diputaciones* and nine island governments, making a total of fifty-one upper-tier local governments.

Spain has over eight thousand municipalities. Most are quite small (90% have less than 5,000 inhabitants and account for no more than 5% of the population). 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: capital grants represented in 2003 the 13% of non-financial revenues and the 44% of capital spending. These grants came from the three upper-layers of government aforementioned: *Central* (12%), *Regional* (46%) and *Upper-Local* (24%)[2]. 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. Therefore, the degree of political discretionarily of these grants should be qualified as high.

Elections and parties. 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 elections and regional elections in twelve out of seventeen AC's are held regularly every four

[2] The remaining 18% correspond to other sources (e.g., the EU) or to unclassified grants.

years and on the same day[3]. In the period analyzed, they have been called one year or two before of the general election. In the other AC's, elections have been called before the end of the term and, therefore, are held on a different day[4].

In the elections to the central and regional legislative the electoral districts are the provinces, a different number of representatives is elected depending on the population size of the province, 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 easy to win a representative in some provinces (the rural ones) than in others. The system allows a certain degree of plurality in the parliament, especially in the case of regional parties which concentrate the vote in a few districts. As a result of this, two main parties (PSOE on the left, and PP on the right) concentrate a great share of the vote and alternate in power in the central government, although with occasional parliamentary support of the third 'national' party (IU, former communists) and of some regional parties. Something similar happens at the regional government, but here some regional parties have been able to gain office, either with a single-party government, a coalition or a minority government with occasional parliamentary support of other parties. Due to the closed-list system, these parties are highly disciplined, both inside the legislatures and (to a minor extend) 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,

[3] During the period analyzed, Central elections were held on the following dates: 6th June 1993, 3rd March 1996, 12th March 2000, and Regional and Municipal elections on: 25th May 1991; 28th May 1995; 16th June 1999; 23rd May 2003.

[4] For example, in Andalucia Regional elections were held on: 23rd June 1990; 23rd October 1994; 3rd March 1996; 12th March 2000; in Catalunya: 15th March 1992; 15th November 1995; 17th October 1999; 16th November 2003; and in Galicia: 16th October 1993; 19th October 1997; 21st October 2001

there is a high proportion of coalition governments; for example, in the 1992-95 term-of-office 30.3% of the municipalities where governed by coalitions, and this share increased to 43.3% during the period 1996-99 (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). It is quite common, for example, to see former successful mayors upgraded to regional or national cabinet ministers. Therefore, with few exceptions, incumbents can be classified according to ideology. This becomes, in fact, more difficult in the case of small municipalities, both because the proportion of independent candidates increases a lot and because even party labels are meaningful in this context.

There are no specific elections to the assembly of the upper-tiers of local governments; the representatives of *Diputaciones*, *Cabildos* and *Consells* are elected as a by-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. The representatives of this assembly use to be local politicians who also concur to the municipal elections, and it is quite often to find mayors, municipal councillors, and candidates unable to win in their own municipality, performing this job. 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, the politicians controlling this layer of government can use discretionary grants to foster the par-ties' 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 political situation. In fact, parties are really interested in the results of Regional and Local 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[5]. Therefore, although most efforts are regional or local, the parties do design a centralized

[5] This is due to the fact that national 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 several countries, respectively), they are seen as predictors of the parties' prospects for the next general election.

strategy for these contests. This strategy includes statements regarding which regions and which municipalities deserve disproportionate campaign efforts[6], 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 also grant monies 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.

3.2. *Econometric framework*

Our econometric framework is built upon the results of the theoretical section. Since the Spanish case described above provide us with three upper-tier grantor governments (*Central*: *C*, *Regional*: *R*, and *Upper-Local*: *U*) we can posit three equations, one for the grants allocated by each of these tiers:

$$g^{C}_{j,\ell,t} = \beta_1\ a^{C}_{j,t} + \beta_2\ \phi_{j,t} + \beta_3\ b_{j,t} + f_j\ + f^{C}_{\ell,t} + \varepsilon^{C}_{j,t} \tag{11a}$$

$$g^{R}_{j,\ell,t} = \beta_1\ a^{R}_{j,t} + \beta_2\ \phi_{j,t} + \beta_3\ b_{j,t} + f_j\ + f^{R}_{\ell,t} + \varepsilon^{R}_{j,t} \tag{11b}$$

$$g^{U}_{j,\ell,t} = \beta_1 a^{U}_{j,t} + \beta_2\phi_{j,t} + \beta_3 b_{j,t} + f_j\ + f^{U}_{\ell,t} + \varepsilon^{U}_{j,t} \tag{11c}$$

where $g^{C}_{j,\ell,t}$, $g^{R}_{j,\ell,t}$ and $g^{U}_{j,\ell,t}$ are per capita grants allocated by the *C*, *R* and *U* grantors, respectively, to the *j* municipality, located in the ℓ (national and regional) electoral district, and the municipal term-of-office *t*. The effects of alignment are picked up by the dummies $a^{C}_{j,t}$, $a^{R}_{j,t}$ and $a^{U}_{j,t}$, which are equal to one if municipality *j* is aligned with the *C*, *R* or *U* grantor during the term-of-office *t*. The terms $\phi_{j,t}$ and $b_{j,t}$ measure the effects of 'swing voters' (i.e., cut-point density) and needs-preferences (i.e., marginal utility of spending) depicted in the theoretical section. We provide more details regar-ding how we measure these variables in the next section. In any case, since

[6] 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"*.

these effects will be difficult to measure, we should account for omitted political and economic influences through the inclusion of municipal effects, f_j. Moreover, we include electoral district × term-of-office effects, $f^C_{\ell,t}$, $f^R_{\ell,t}$ and $f^U_{\ell,t}$. These effects account for the different amounts of resources available to different grantors in different terms-of-office, and for potential omitted political variables that change from district to district and from one electoral contest to the other, but which are constant across municipalities of the same district[7]. Finally, $\varepsilon^C_{j,t}$, $\varepsilon^R_{j,t}$ and $\varepsilon^U_{j,t}$ are well-behaved error terms.

The database (to be explained below) allows us to exploit the cross-section and time-series variation across different upper-layers of grantor governments to deal with potential omitted-variable problems and identify the effects of alignment on grant allocation. To exemplify the advantages of our methodology, it is convenient to explain the four different procedures we use step by step, from the simpler to the most complex one. The first and third procedures are based on the proposition that says that a grantor will give more monies to aligned municipality than to unaligned ones (expressions (6) and (8)). The second and fourth procedures are based on the proposition that says that a municipality will receive more monies from aligned grantors than from unaligned ones (expressions (9) and (10)). The first procedure (called *cross-section*) consists of using only the cross-section variation in the grants allocated by each grantor separately. Studies that do not have access to panel data or that do not have information regarding different grantor governments are forced to use this procedure. Let's assume, for example, that we only have information on the grants distributed by *R* during one term-of-office:

$$g^R_{j,\ell} = \beta_1\ a^R_j + \beta_2\ \phi_j + \beta_3\ b_j + f^R_\ell + \eta^R_j \qquad (12)$$

where $\eta^R_j = f_j + \varepsilon^R_j$.

If $cov(a^R_j, \varepsilon^R_j) = 0$, we can obtain an unbiased estimate of β_1 by controlling appropriately for ϕ_j and b_j and by including a full set of electoral district dummies,

[7] The votes obtained in one municipality may be more valuable if the municipality is located in an electoral district where less votes are needed to gain a representative (because of lack of proportionality) (see, e.g., Castells and Solé-Ollé, 2005, for evidence on this).

f_ℓ^R. Things are not that easy in practice. For example, would there be only one upper-layer government covering all the jurisdiction of the country (as often occurs in empirical analyses; e.g., Grossman, 1994), then a_j^R would not measure alignment but differences in party control among municipalities. And, as party control uses to be correlated with omitted socio-demographic variables (e.g., the left uses to control 'poor' municipalities, at least in Spain), the parameter β_1 will be biased unless the list of variables included in b_j is exhaustive (i.e., $cov(a_j^R, \varepsilon_j^R) \neq 0$). Similarly, a_j^R may be correlated with ϕ_j if, for example, left governments tend to win by thin margins while the electoral advantage of right ones is substantial (or vice versa). Note also that ϕ_j is quite difficult to measure; some scholars suggest using the vote or seat margin in the last election (Case, 2001; Johansson, 2003), but others recommend to compute the density by more sophisticated methods (Dalhberg and Johansson, 2004). Moreover, the 'swing voter hypothesis' is not the only possibility of accounting for the tactical motives of the grantor (see Rodden and Wilkinson, 2005, for a survey), making more difficult to control for such incentives. So this procedure is far from perfect. Nevertheless, we will use it in our empirical exercise for two different reasons. First, to exemplify the differences between this procedure and the alternative ones (see below). Two, because in two of our upper-layer governments, the country is divided in several jurisdictions, and not all of them are controlled by the same party, attenuating the first of the problems mentioned above.

The second procedure (called *time differences-in-differences*) consists of collecting data on the grants allocated by one grantor government in successive terms-of-office, to be able to estimate the effects of changes in alignment on changes in grants received. With this information we will able to estimate equations (11a) to (11c) after taking first-differences. As an example, in the case of the *R* government, we have:

$$\Delta g_{j,t}^R = \beta_1 \Delta a_{j,t}^R + \beta_2 \Delta \phi_{j,t} + \beta_3 \Delta b_{j,t} + f_{\ell,t}^R + \Delta \varepsilon_{j,t}^R \qquad (13)$$

where Δ indicates that the variable has been computed as the difference in the values from two consecutive terms-of-office and β_1 is now the *differences-in-differences* estimator. The main advantage of this procedure is the attenuation of the omitted-variable

problem, especially in the case of needs variables (b_j) since some of them could reasonably be considered fixed (e.g., land area and other physical traits). Some electoral traits (ϕ_j) might also be quite stable; however, others may change from one term-of-office to the other and this change might be correlated with changes in alignment status ($\Delta a^R_{j,t}$). Moreover, in some samples, the change in alignment may come only from a change in control at the municipal level; this may happen if control at the grantor level remains stable. In this case, the second procedure retains some of the problems of the first one.

The third procedure (called *grantor differences-in-differences*) consists of using data on grants allocated to local governments by different grantor upper-layer governments in a given term-of-office. Subtracting expression (12) for two grantor governments, *R* and *U*, we have:

$$g^R_{j,\ell} - g^U_{j,\ell} = \beta_1 (a^R_j - a^U_j) + f^{RU}_\ell + \varepsilon^{RU}_j \qquad (14)$$

where $f^R_\ell = f^R_\ell - f^U_\ell$ and $\varepsilon^{RU}_j = \varepsilon^R_j - \varepsilon^U_j$. Now the estimator β_1 is unbiased provided that we include a full set of electoral district dummies in the equation, f^{RU}_ℓ. Note that this procedure permits the estimation of the effects of alignment by running a simple regression between the $a^R_j - a^U_j$ dummy and the difference in the amount of resources received by a municipality from two different grantor governments. The β_1 parameter is the *differences-in-differen*ces estimator, obtained by using as a control group the same local governments, but imagining that they are in a different situation (i.e., receiving grants from an upper-layer government controlled by a different party). Nonetheless, this procedure may be also far from perfect once we relax some of the assumptions we have implicitly made to obtain equation (14). First, it may happen for instance that that the grants distributed by the two layers of government are not totally substitutive, in the sense that they are distributed for different purposes and (probably) using different need indicators in their distribution criteria. This means that a given variable included in b_j may be weighted differently by the *R* and *U* governments. Second, since we have more than two parties, it may happen that the density at the cut-point ϕ_j is no longer the same for all the parties. Third, as these variables may be measured with error, we are forced

to assume that the municipal effects f_j are no longer the same in the two grantor equations. If we take this into account, expression (14) becomes:

$$g^R_{j,\ell} - g^U_{j,\ell} = \beta_1 (a^R_j - a^U_j) + \beta_2 (\phi^R_j - \phi^U_j) + (\beta^R_3 - \beta^U_3) b_j) + f^{RU}_\ell + \eta^{RU}_j \qquad (15)$$

where $\eta^R_j = (f^R_j - f^U_j) + (\varepsilon^R_j - \varepsilon^U_j)$

With these new assumptions, the *grantor differences-in-differences* estimator no longer provides unbiased estimates of the alignment effect. We propose, therefore, a fourth procedure (called *third-differences* estimator) which uses panel data on grant allocation to local government by different upper-layer government in successive terms-of-office. The expression using the *R* and the *U* upper-layers of government is:

$$\Delta g^R_{j,\ell} - \Delta g^U_{j,\ell} = \beta_1 (\Delta a^R_j - \Delta a^U_j) + \beta_2 (\Delta \phi^R_j - \Delta \phi^U_j) + (\beta^R_3 - \beta^U_3)\Delta b_j + f^{RU}_\ell + \Delta \varepsilon^{RU}_j \quad (15)$$

In this case, the alignment effect is identified by a regression which uses as a dependent variable the difference between the grant increase (in two consecutive terms-of-office) of two grantor governments and as explanatory variables the change in alignment status vis a vis one grantor minus the change in alignment vis a vis the other. This amounts to say that, if local government *j* switches from *l* to *r* after an election, the increase in grants received from *R* should be higher than the increase in grants received from *U*, after controlling for the possible change in the relative cut-point densities of the two grantors and in those needs criteria that are weighted differently at different. This estimation should be more robust than the previous ones due to the omission of political and economic variables in the equation.

3.3. *Sample and data*

Selection of the sample. We will estimate the effects of alignment on grant allocation with data on Spanish municipalities. We use a rich database, which provides information on grants received by nearly 900 local governments during the period 1993-2003 from three different upper-tier governments (i.e., Central, Regional and Upper-Local). The data comes from a survey on budget outlays undertaken yearly by the Ministry of Economics and Finance. The survey covers all the big municipalities and a representative sample of the smaller ones. The starting number of municipalities is

much bigger, but lack of data forced us to reduce the size of the sample. For example, we discarded some municipalities with a mayor belonging to a local party, because of the difficulty of assigning an ideological label to these parties. We also do not use the information coming from the municipalities with population lower 1,000 inhabitants, due to lack of socio-economic data used as controls. We had also to take off a small number of municipalities for which we had data problems. After this we had information on 2,799 municipalities. The problem with this sample was that the information on grants received was supplied with the desired breakdown (by upper-tier grantor government) only for the period 2000-2003 (i.e., the last term-of-office we wish to analyze). In order to be able use the panel data procedures described above, we decided to delete all the municipalities without the desired breakdown during the terms-of-office 1991-95 and 1996-99. This gives us the number of 869 municipalities finally used to estimate the equations of grants coming from the *C* and *R* governments. In the case of grants coming from the *U* government this number is further reduced to 755, due to the already commented fact that there are not *Diputaciones* in AC's with only one province.

We estimate the effects of alignment for the three terms-of-office mentioned above. However, we only use the last two years of the term to perform our analysis. So, we try to explain the effects of alignment on the overall amount of grants received the years 1994-95 for the term 1991-95, the years 1998-99 for the term 1996-99, and the years 2002-03 for the term 2000-03. There are three reasons that justify this decision The first one is the fact that it is quite difficult to identify alignment between layers of government given the different timing of central and (some) regional elections. So, the alternative procedure of aggregating the grants over an entire local term-of-office would have encountered the problem of changing alignment in the middle of the period (since regional and central election are held at some moment between two local elections). But since the vast majority of regional and central elections have been held either at the same time that local election or during the first two years of the local term-of-office, we can skip this problem by using the last two years. So, by using this procedure, we are able to guarantee that the alignment status at the beginning of each two-year period

analyzed is the same than the one at the end of this period. The second one is that by aggregating the grants' variable over two years we reduce the volatility of this variable. The third one is that, as the political cycle literature has emphasized the temptation to use public funds to buy votes increases as the new election approaches[8].

Measuring grants. Our grants variables are capital grants (chapter 7 of the budget) coming from each upper-layer of government (*C, R* and *U*). Grants coming from the Upper-tier of local government (*U*) include those coming either from *Diputaciones*, *Cabildos* or *Consells*. This is the first time that the database of the Ministry of Economics and Finance provides such a detailed breakdown of grants to municipalities. Grants are summed up for the last two years of the term and then divided by the population of the municipality at the beginning of this two-year period, coming from the National Institute of Statistics (INE). Note that we have considered that grants received during the election year benefit the incumbent government and not the new one entered after the contest. We believe that this assumption is reasonable given that municipal election use to be held at the middle of the year (May or June) and that grantor governments use to exhaust early its yearly grants' budget just before a new election.

Measuring alignment. 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, as we explained above, in Spain a high share of governments (at all layers of government) are coalitions. Coalitions make the definition of alignment between layers more difficult because more than one party could belong to each government. Note that a party at a given layer of government may play at least three different roles: i) Being the single party in the government, ii) Being the main partner or leader of a coalition, and iii) Being just a partner of the main party of the coalition. The combination of these roles by pairs defines nine different relationship types between a municipality and a higher layer of government, which are illustrated in Table 1.

[8] See, e.g., Castells and Solé-Ollé, 2005, for evidence indicating that pork-barrel politics in Spain intensifies as the new election approaches

(Insert Table 1)

The amount of grants transferred to municipalities belonging to each of these types depends on two different factors. First, as was explained in the theoretical section, it depends on the credit lost by the grantor government. In 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 high share of the credit. These considerations do not seem to depend on the status of the upper-layer, and, thus, grants' amount should decrease as we move from left to the right in Table 1. Second, it depends on the ability of the upper-layer of government to secure a large share of the funds available to be distributed. Of course, a single party government is able to use all the grants' budget at its will, without having to share it with other parties. But we need to rely on coalition theory to answer which of the other two types is more able to obtain funds. Some papers suggest that the coalition leader or *formateur* (i.e., the party charged with the task of forming a coalition) is able to secure a larger share of benefits than the other coalition members (Baron and Ferejohn, 1989). However, other papers suggest that the ability to obtain benefits for the party will be greater when it can pivot between alternative minimum winning coalitions (Schofield, 1976, Ansolabehere and Snyder., 2004; see Rodden and Wilkinson, 2004, and Castells and Solé-Ollé, 2005 for empirical evidence). This clearly means that strong coalition partners will receive more grants than the weak ones. Nevertheless, it is not clear at all, that these strong partners will be able to secure more funds than the coalition leader. Moreover, we have not been able to identify if coalition partners are or not pivotal in all the cases, so our sample of *Partners* mix both pivotal parties and weaker ones. Therefore, we still expect that leaders are able to secure more funds than coalitions partners.

The use of such a high number of categories in the empirical analysis is not operative, since most of them are empty or have a very low share of municipalities. For this reason, we decided to use only four groups (see Table 1), defined as follow: (a) *Single party*: the same party controls a single-party government at both layers; (b) *Leader*: the party which controls a single-party government at one layer is the leader of

the coalition at the other layer; (c) *Municipal partner*: a party belonging to the upper-layer of government (being either the single party, the leader of a coalition or a simple partner) is just a partner in a municipal coalition; and (d) *Upper-layer partner*: the party which is a partner at the upper-layer is either the single party or the leader of a coalition at the municipal level. We expect to find the highest grants in (a) because here both the effect of the loss of credit and of the ability of securing funds go in the same direction. The lowest grants are expected in (c), meaning that the loss of credit effect dominates. As we said before, we expect more grants in (b) than in (d) since, given the similar ability to retain credit, single parties and coalition's leaders will be able to secure more funds, unless very powerful pivotal parties predominate. In the empirical analysis we will provide results also for the (*a*+*b*) category, with the argument that this definition fits better with the concept of party alignment, since its computation only uses the identity of the main party of the government.

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 mayor and the other parties in the municipal governments (in the case of coalitions) formed after the local elections of 1991, 1995 and 1999. The results of the 1991 election are used for the years 1994-95, those of the 1995 election for the years 1998-99, and those of the 1999 one for the years 2002-03. This database also provided information regarding the party of the president and the composition of the assembly of each upper-tier of local government (either *Diputación*, *Cabildo* or *Consell*). Data on the party of the president of the AC and the other parties in the regional and national governments come from www.eleweb.com. In all the cases, minority governments have been considered as coalitions. The party of the president or the mayor has been considered the *Leader* and the other ones belonging to the coalition the *Partners*.

Our alignment measures have some properties that make them quite appropriate for the empirical analysis we wish to perform. First of all, for each of the upper-layer of government and in each term-of-office, there is a high share of municipalities which are unaligned (see Table 2). This share goes from a minimum of 24.1% for the *Regional* government in the third term to a 57.0% for the *Central* government during the same

term. Aligned governments are concentrated in the (a) and (b) categories. Second, a high share of municipalities changed alignment status from one term-of-office to the following one, as the transition matrices of Table 3 show. The share of municipalities which changed its alignment status with the *Central*, *Regional* and *Upper-Local* layers from 1994-95 to 1998-99, were 70.7%, 69% and 59.6%, respectively. These shares were around 45% in the three cases for the transition to the period 1998-99 to 2002-03.

(Insert Tables 2 and 3)

Measuring 'cut-point' density. The theoretical model suggests that we should include in the equations a measure of the 'cut-point density', ϕ_j, or proportion of 'swing voters'. To make this variable operative we need to decide first which electoral data (*Central*, *Regional* or *Municipal*) will be used to compute this variable. We decided to use only vote data on the last municipal elections. There are several arguments that justify this decision. First, it is not advisable to include a separate measure for each of the elections, since the three would be highly correlated[9]. Second, one of the grantor governments (*Upper-Layer*) is directly interested in these elections since their representatives are elected indirectly using the municipal vote results (see section 3.1). Third, our grant's variable is an average of the grants received by the municipality two years before the municipal elections; at that moment the parties will be interested in winning the next elections, which are the municipal ones.

Then, we must decide how to measure this 'cut-point density', ϕ_j. Most of the papers in the literature use the electoral margin of the party (i.e., vote share less 50% in absolute value) at the last election as a proxy of ϕ_j (Case, 2001, and Strömberg, 2001, Dasgupta *et al.* 2004, and Kehmani, 2003)[10]. However, the electoral margin may be a misleading measure in the case of more than two parties. When none of these parties wins a majority of the vote in the municipal election, taking or loosing office and

[9] For example, the correlation coefficient between the vote-share of the socialist party (PSOE) at the *Central* and *Regional* elections (using the data of the *Regional* election previous to the *Regional* one) at the provincial level is 0.92. The correlation between the *Central* and *Municipal* elections is 0.81 and the correlation between the *Regional* and *Municipal* elections is 0.83.

[10] Other papers use more sophisticated measures. For example, Johansson (2003) and Dalhberg and Johansson (2004) estimate a vote density function for each municipality and then compute the 'cut-point' density. The data requirements of this procedure make it not useful in our case.

reaping the best posts (i.e., the mayor and higher number of councilors) depends crucially on the probability of being the leader of *formateur* of the coalition. The party winning a higher share of the vote use to be able to do this job. This is true in our sample, since in the most voted party hosts the mayor in the vast majority of cases[11]. In this case, therefore, the relevant electoral margin should be computed as the difference (in absolute value) between the vote share of the party in the government and the vote share of the following party (either with more or with fewer votes). This is precisely the variable we include in the equation. To compute this variable we use two databases. First, we use information on the mayor's party coming from the database commented above (Spanish Ministry of Public Administration) with vote information by party for the 1991, 1995 and 1999 elections, provided by the Spanish Ministry of Interior.

Control variables. We include some variables that measure the marginal valuation of spending b_j (see Table 4 for definitions, data sources and descriptive statistics). First, we control for the population size of the municipality. In Spain, current grants are clearly biased against small municipalities (Bosch and Solé-Ollé, 2005) and capital grants are biased against big municipalities. There are several explanations to this pattern. It may be that small municipalities find harder to finance infrastructure projects either with current savings or with access to the credit market. It may be also that the upper layers are paternalistic with small municipalities, allocating project grants that must be supervised by the grantor instead than unconditional current grants. We expect, thus, that per capita grants will decrease as population size increases. Second, we control for the land area of the municipality, to account for the increasing expenditure needs generated by urban sprawl. We expect this variable to have a positive effect on the amount of grants. The assessed value of the property is included to account for the fiscal capacity of the municipality, since in some cases the grantor allocates more money to poor municipalities. We also include the nominal property tax rate, since some grantors take into account the fiscal effort made by the municipality when allocating grants. We

[11] Of course, we can find examples of Spanish municipalities where the mayor is taken by a pivotal party, or even where two parties with similar votes shares agree to alternate the mayor (the two first years of the term for one party and the last two for the other). However, these cases represent a really negligible share and can be safely disregarded in the empirical analysis.

expect thus that, once we control for tax capacity, grants should be higher in municipalities with higher tax rates. Finally, we include the ratio between the debt burden and current revenues. There may be two different effects here. On the one hand, grantors may want to give more money to more indebted municipalities, providing some sort of bail-out (Wildasin, 2004). But on the other hand, most of the grants allocated are project grants funded only partially by the grantor. Therefore, a municipality with a high level of debt will also find difficult to obtain the funds to pay for its share of the cost.

(Insert Table 4)

3.4 *Results*

Tables 5 and 6 present the results of the estimation of the grant's equation. Table 5 includes the results of the estimation using the first two methods introduced in section 3.2: (i) *Cross-section*, and (ii) *Grantor differences-in-differences*. Table 6 presents the results obtained using the other two methods: (iii) *Time differences-in-differences* and (iv) *Triple differences*. The two tables are organized in a similar way. We present six different results for methods (i) and (iii) and four for methods (ii) and (iv). In the (i) and (iii) methods we show the results using per capita grant coming from the *Central*, *Regional* and *Upper-local* layers of government; grants are used in levels in the first case and in first-differences for the other; for each layer we show the regression using the (*a*+*b*) alignment types first, and then using the full typology of alignment (*a* to *d*) introduced in the previous section. In the methods (ii) and (iv) the grants are computed as the difference between per capita grants allocated by two grantors; we make two pairs of grantors: *Regional* vs. *Upper Local* and *Regional* vs. *Central*; these variables are introduced in levels in (ii) and in first-differences in (iv); for each of these cases we also show two regressions: with the (*a*+*b*) definition of alignment and with the full set of dummies (*a* to *d*). In all the cases, a full set of provincial dummies or term provincial dummies have been included; at the bottom of the table we include a test showing that they are statistically significant. The explanatory performance of the equations is reasonable, with an adjusted R^2 between 0.3 and 0.4 in the cross-section case and

around 0.2 in the panel case. In all the cases, the full set of variables is statistically significant.

The results obtained suggest that partisan alignment between the municipality and the grantor government has a sizeable impact on the grants allocated by this grantor to the municipality. This conclusion does not really depend on the method of estimation used, and is therefore robust to the increasing robustness checks which are imposed when going from method (i) to methods (ii), (iii) and (iv). When using the (*a*+*b*) definition of alignment (i.e., recall that this includes only alignment between governments which are single party or where the party is the leader of the coalition), alignment has a statistically significant effect at the 95% levels in all the cases, to the exception of the *Central* government case in method (i) *Cross-section* (column 5.1), and the *Regional* case in method (iii) *Time differences-in-differences* (column 6.3), where the coefficient is statistically at the 90% level. When using the full set of dummies (*a* to *d*), the results are similar than before for the *a* dummy (which represents the case of party alignment between two single-parties, one at each layer); in this case, all the coefficients are statistically significant at the 95%, to the exception to the *Central* government case in method (i) *Cross-section* (column 5.2), where the coefficient is significant at the 90% level. The results are similar in the case of the *b* dummy (which represents the case of party alignment when the party is the leader of a coalition in one or both of the layers). The coefficient is always statistically significant at the 95% when using grantor differences methods (ii) and (iv). The effects of the *c* dummy (which represent the case of alignment between an upper-layer single party or leader government and a municipal coalition partner) are always positive but statistically significant at the 95% only in one case (*Regional* government in method (ii)) and at the 90% in other two cases (*Central* and *Upper-layer* in method (iii)). Moreover, this variable is not statistically significant when using the more robust method (iv) *Triple differences*. Things are a little different in the case of the *d* dummy (which represents the case of party alignment between an upper-layer partner and a municipal single party or leader government). In this case, the coefficient is statistically significant (although at the 90% level) in most cases (the exception the *Regional* case in method (iii)). Moreover, the coefficient is statistically

significant at the 90% in the three cases when the more robust method (iv), *Triple differences,* is used.

(Insert Tables 5 and 6)

Therefore, we should conclude that there is strong evidence that upper layer-governments allocate more grants when the municipality is aligned, in the sense that both layers are controlled by the same party and this party is either the single party in the government or the leader of the coalition. There is no evidence that partners at municipal coalitions receive more grants, with the more robust method clearly rejecting this proposition. There is (weaker) evidence that partners at upper-layer coalitions are able to secure more grants for their municipalities. In this case, the coefficients obtained with the *Triple differences* method are statistically significant at the 90% level. Moreover, the effects identified are sizeable. To illustrate this point, we will use the estimates coming from method (iv) *Triple differences*, because they are, in theory, the most robust. In this case, as in method (ii) *Grantor differences-in-differences*, the coefficients should be interpreted as the additional grants received from one grantor with respect to the other one. For example, when using the *Regional grants–UpperLocal grants*, the coefficients tell us how much additional grants are received from the *Regional* government with respect the *Upper-Local* one if a municipality is aligned with the former but not with the latter. In order to be able to interpret the coefficients, it would be better to express them in % with respect to the base grantor government. So, we divide the coefficients of columns (6.8) and (6.10) by the average grants' per capita in the sample coming from the *Upper-Layer* and *Central* grantors, respectively. Using column 6.8 (6.9), the results of this calculation are the increase in grants due to alignment is 52.4% (41.7%) in the case of *Single-party* alignment (*a*), 21.5% (16.4%) in the case of *Leader* alignment (b), and 10.2% (19.4%), in the case of *Upper-Layer partner* alignment (d). The estimated coefficients for the case of *Municipal partner* alignment (c) imply an effect equal to 12.0% (12.3%), but these estimates are not reliable, given the very high standard errors. In any case, these results are in line with the expectations: the alignment effect is stronger in single-party governments but is also present in the other cases, to the exception of *Municipal partner*

alignment. *Upper-Layer* alignment effects are not stronger than *Single-party effects* but can, in some cases, be at least equally strong than *Leader* alignment effects. Recall that our *Upper-Layer* partners include both pivotal parties and weaker partners. This means, that our estimate should be considered a floor for the effect of pivotal parties, which may be much higher. In future work we will try to disentangle both categories to be able to obtain more precise estimates of the pivotal party effect.

Finally, to conclude this section, we comment on the results of the control variables. First, when using the methods (i) and (iii), the electoral margin variable has the expected negative sign but is not statistically significant at conventional levels in the vast majority of cases. This variable is statistically significant only in the case of the *Central* government and when using method (i) *Cross-section*, which is the less reliable The point estimate implies that a 10% reduction in the electoral margin with respect to the next party implies an increase in grants of 3.76 euro (a 22.9% of the grants received from the *Central* government). The coefficient estimates for the other layers of government are lower, but are not commented here because the higher standard errors make them unreliable. The coefficient of the margin is zero when using methods (i) and (iv) meaning that 'cut-point' density has a similar effect on grants allocated by all the layers of government. The inability to obtain significant negative effects for the margin variable is a little bit disappointing, but is in accordance with the literature (see, e.g.; Kehmani, 2003; and Rodden and Wilkinson, 2004). It may be due to different reasons. First, the perceived margin may have shifted since the previous election. More sophisticated methods of calculation (see, e.g., Dalhberg and Johansson, 2004) might solve these problems. Second, the theoretical model posited here may not be the only possible and other theories may lead to different relationships between margin and grants. For instance, as Cox and McCubbins (1986) suggest, if politicians are risk averse, they would allocate more resources to safe than to marginal districts, and more funds to marginal than already lost districts. To account for this possibility, we re-estimate our equations by including interactions between the margin variable with a set of dummies identifying safe and marginal municipalities. We defined a 'safe' municipality as the one with a positive margin higher than 15% (sample average + one

standard deviation), a ‘marginal’ municipality as the one with a margin (positive or negative) lower than 15% (in absolute value), and a ‘already lost’ municipality as the one with a negative margin lower than -15%. In the cross-section estimations, and to be able to estimate the shape of the grants-margin function, we also include (in methods (i) and (ii)) two of these dummies, using the already lost dummy as the base category. Admittedly, these thresholds are rather arbitrary, but they have been selected after some trials as the ones providing a better fit. The results (not reported here to save space) confirm our expectations. For the *Regional* and *Upper-Layers* of government, the margin has a negative slope only in the ‘already lost’, the intercept is positive but the slope is zero in ‘marginal’ municipalities, and both the intercept and the slope are positive for ‘safe’ municipalities, although the coefficients are imprecisely estimated. Thus, the grants-margin function seems to be asymmetric, a lower margin increasing grants when negative and reducing them when positive. For the *Central* government, however, the grants-margin function has the traditional U-inverted shape. But the most important thing for our purposes is that this new way to specify the ‘cut-point’ density variable does not qualitatively change the results regarding the alignment status dummies.

Second, the results regarding the rest of the control variables are also consistent with the expectations. When using methods (i) and (ii), we obtain that more populated municipalities receive lower per capita grants. The population coefficient is negative and statistically significant for the three grantor governments, but the effect is lower in the case of the *Central* government. Grants also grow with the urban land area of the municipality, except in the case of the *Central* government. The three upper-layer governments also allocate more grants to municipalities with low fiscal capacity (low assessed property values), although the coefficient of this variable is much lower in the case of the *Central* government. A higher fiscal effort (high property tax rate) also deserves more grants from the three grantor governments, but the effect is much higher in the case of *Upper-Local grants*. Finally, the effect of the fiscal burden is negative in all the cases, but it is statistically significant only in one case. Most of these variables are statistically significant when using the (ii) and (iv) methods. Only in some cases, the

coefficients identify significant differences in the weight given by the different grantors to each variable. For example, the results suggest that the *Upper-Local* grantor gives more weight to the fiscal capacity indicator than the *Regional* one, and that this one gives more weight to that variable than the *Central* grantor.

4. Conclusion

In this paper we have tested the hypothesis that local governments that are aligned with upper tier grantors (i.e., controlled by the same party) do receive more grants than those that are unaligned. We have developed a simple electoral competition model between parties controlling different layers which suggest that: (i) a given grantor government gives more monies to the municipalities which are aligned, and (ii) a given municipality receives more monies from the grantor/s which with which is is aligned. These two propositions form the basis of the empirical procedures we use to test the alignment hypothesis. Our database provides information on grants received by nearly 900 Spanish local governments during the period 1993-2003 from three upper-tier governments (i.e., *Central, Regional* and *Upper-Local*) and allows us to use several alternative estimation procedures. The first proposition is tested with a cross-section estimation for the average of the period. However, since three elections have been held at each tier during this period we have enough within-municipality variation in partisan alignment to provide difference-in-differences estimates of its effects on the amount of grants coming from each source. The second proposition is tested by estimation of a regression were the dependent variable is the difference between the grants coming from two different layers. The availability of panel data allows us to use a triple-differences estimator, which consists of estimating the effects of changing alignment status on the change in grants coming from the aligned grantors relative to the change in grants coming from the unaligned ones. This estimator is robust to the exclusion from the equation of economic and political determinants of the grants allocated by each tier.

The results suggest that partisan alignment has a sizeable effect on the amount of grants received by municipalities. The effect is much stronger when the aligned

governments are single-party governments at both layers. There is also a significant effect when the party at one or both layers is the leader of a coalition, and when a single-party or a party leading a coalition at the municipal level is also partner of a coalition at the upper level. However, parties which are mere partners at the municipal level do not seem to get more grants from upper-tiers of governments controlled by the same party. The size of the alignment effect is also worth to mention, since in the single-party case aligned municipalities receive 50% more grants than to unaligned ones. Moreover, since it is possible for a municipality to become aligned/ unaligned with all the upper-layer grantors, there will be some municipalities that will receive an overall amount of grants 50% higher than others. In other cases, however, alignment with one layer will compensate for unalignment with the other.

These results open new questions for the researcher. For instance, if voters are rational, they may vote at the local election for the party in charge at the upper-layer, in order to avoid becoming unaligned and therefore to get more grants. So, a party gaining office at the central and regional elections (only when they are held previously than the municipal ones) will see its vote-share increasing at the municipal elections. The testing of this hypothesis will be part of our future work.

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Table 1:

A typology of alignment status

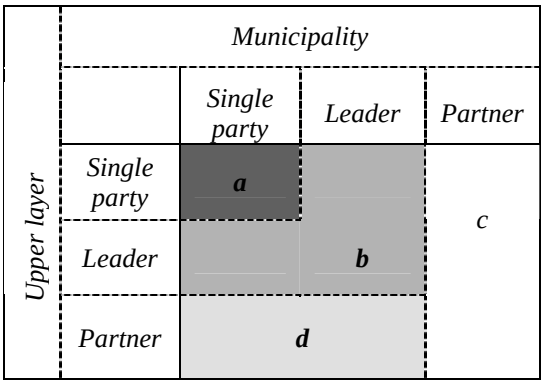

Table 2:

Share of municipalities (*in %*) *aligned with each of upper-tier in Spain, Periods* 1994-95, 1998-99, 2002-03 *and* 1994-2003

	Type of alignment				
	a	*b*	*c*	*d*	*u*
			Period 1994-95		
Central	0.0	51.7	6.9	1.3	38.2
Regional	37.0	28.24	2.0	2.7	29.4
Upper-Local	36.5	23.2	1.7	20.0	27.9
			Period 1998-99		
Central	0.0	34.82	7.0	3.7	53.1
Regional	16.1	43.5	2.2	4.5	24.6
Upper-Local	29.6	28.6	2.6	7.3	31.9
			Period 2002-03		
Central	25.7	14.5	0.0	1.6	57.0
Regional	25.0	33.1	2.0	6.8	24.1
Upper-Local	38.6	20.8	0	6.3	35.6

Notes: (1) Regional: Comunidades Autónomas (Basque Country and Navarra excluded); Upper-Local: Diputaciones + *Cabildos* + *Consells*;. (2) The number of governments in the table coincides with the ones selected in our sample (1 Central, 15 Regional, 51 Upper-Local and 869 Municipalities). (3) Type of alignment: *a* = ingle-party, *b* = Leader, *c* = Municipal partner, *d* = Upper-layer partner; *u*=unaligned.

Table 3:
Share of municipalities (*in %*) *that changed alignment status between in Spain between periods* 1994-95 and 1998-99, *and between periods* 1998-99 *and* 2002-03

Alignment with the Central government

		From 1994-95						*From* 1998-1999				
		a	*b*	*c*	*d*	*u*		*a*	*b*	*c*	*d*	*u*
To 1998-99	*a*	0	0	0	0	0	*To* 2002-03 *a*	0	21.3	0.1	0	5.1
	b	0	10.7	0	0	25.1	*b*	0	8.7	0.1	0.1	6.0
	c	0	0.8	4.8	0	1.6	*c*	0	0	0	0	0
	d	0	1.3	1.6	0	0.9	*d*	0	0.1	0.1	1.3	0.1
	u	0	40.3	0.7	1.4	13.8	*u*	0	5.7	6.9	2.4	45.0

Alignment with the Regional government

		From 1994-1995						*From* 1998-1999				
		a	*b*	*c*	*d*	*u*		*a*	*b*	*c*	*d*	*u*
To 1998-99	*a*	9.4	2.3	0	0.5	4.4	To 2002-03 *a*	11.4	10.1	0.1	0	4.1
	b	22.3	8.4	1.3	0.3	12.5	*b*	1.4	22.7	0.6	0.8	8.7
	c	0%	0.8	0.1	0.1	1.3	*c*	0	0.2	0.8	0.7	0.3
	d	0.1	0.8	0.3	0.8	2.6	*d*	0.1	3.6	0.8	0.9	1.6
	u	6.2	9.1	0.3	0.8	18.3	*u*	3.7	8.3	0	2.2	19.9

Alignment with the Upper-Local government

		From 1994-1995						*From* 1998-1999				
		a	*b*	*c*	*d*	*u*		*a*	*b*	*c*	*d*	*u*
To 1998-99	*a*	16.4	4.8	0	0.5	7.8	*To* 2002-03 *a*	22.4	10.5	0.1	1.6	4.0
	b	8.3	8.2	0.4	0.3	11.4	*b*	2.6	9.8	0.7	1.4	6.2
	c	0	0.1	1.6	0	0.9	*c*	0	0	0	0	0
	d	3.4	1.7	0	0.4	1.8	*d*	0.9	3.0	0	1.2	1.2
	u	8.2	7.8	1.3	0.8	13.8	*u*	3.6	5.3	1.8	3.0	20.5

Notes: (1) See Table 2. (2) Columns indicate alignment status the previous term-of-office, and rows the alignment status in the following one.

Table 4:
Definitions of the variables, Descriptive Statistics and Data sources

	Definition	*Mean* (*Standard dev.*)	*Source*
Central grants	Capital grants from the central government per capita (item 7.2 of the revenue budget)	16.050 (35.933)	Ministry of Economics and Finance
Regional grants	Capital grants from the Regional government (AC) per capita (item 7.5 of the revenue budget)	48.792 (64.958)	
Upper-Local grants	Capital grants from Upper-Local governments (Diputaciones, Cabildos and Consells) per capita (item 7.6.1 of the revenue budget)	22.728 (34.969)	
Debt Burden	Debt service (capital, item 9 of the spending budget, + interests, item 3) as a share of current revenues	0.241 (0.844)	
Margin	Vote share of the party - vote share second party in absolute value	0.089 (0.072)	Ministry of Interior & Ministry of Public Administration
Población	Population	28,834 (129,826)	National Institute of Statistics
Land area	Urban land are per capita, including both build up area and unbuilt land plots	333.765 (388.173)	Centro de Gestión Catastral y Cooperación Triburaria
Property value/pop.	Assessed property value per capita	17,975 (15,160)	
Property tax rate	Nominal property tax rate (IBI), % on assessed property value	0.585) (0.172)	

Table 5

Effects of alignment on grants allocated municipalities. Cross-section estimation, average of periods 1994-95, 1998-99 *and* 2002-03

	(i) *Cross section*						(ii) *Grantor differences-in-differences*			
	Central grants		*Regional grants*		*Upper-Local grants*		*Regional grants.– UpperLocal gant*		*Regional grants – Central grants*	
	(5.1)	(5.2)	(5.3)	(5.4)	(5.5)	(5.6)	(5.7)	(5.8)	(5.9)	(5.10)
(*a* + *b*) (*Single party + Leader*)	4.430 (1.544)	--.--	13.937 (5.854)**	--.--	6.745 (3.982)**	--.--	9.309 (3.457)**	--.--	14.977 (8.229)**	--.--
a (*Single party*)	--.--	7.039 (1.878)*	--.--	16.773 (5.075)**	--.--	12.406 (6.007)**	--.--	10.341 (2.792)**	--.--	18.539 (8.175)**
b (*Leader*)	--.--	2.489 (0.671)	--.--	15.177 (5.054)**	--.--	1.943 (0.904)	--.--	10.223 (3.008)**	--.--	9.974 (6.926)**
c (*Municipal partner*)	--.--	1.588 (0.800)	--.--	7.455 (0.684)	--.--	2.467 (0.508)	--.--	7.109 (0.633)	--.--	6.223 (2.576)**
d (*Upper-layer partner*)	--.--	13.223 (2.342)**	--.--	35.646 (4.152)**	--.--	7.849 (1.872)*	--.--	16.564 (1.962)*	--.--	19.892 (3.672)**
Margin	-0.366 (-4.358)**	-0.376 (-4.423)**	-0.210 (-1.288)	-0.203 (-1.368)	-0.152 (-1.563)	-0.205 (-1.432)	0.012 (0.023)	0.006 (0.134)	-0.098 (-0.181)	-0.065 (-0.176)
Population (x 10^{-6})	-0.001 (-0.385)	-0.005 (-2.020)**	-0.015 (-3.727)**	-0.011 (-2.757)**	-0.017 (-7.237)**	-0.017 (-5.775)**	-0.004 (-0.793)	-0.005 (-0.376)	-0.004 (-2.981)**	-0.011 (-0.668)
Land area/Pop.	-0.002 (-2.907)**	-0.002 (-2.939)**	0.015 (6.847)**	0.015 (6.841)**	0.089 (5.073)**	0.091 (5.261)**	-0.009 (-1.789)*	-0.014 (-1.552)	0.009 (5.516)**	0.006 (0.346)
Property value./Pop. (x 10^{-3})	-0.049 (-1.786)*	-0.062 ((-1.906)*	-0.187 (-2.495)**	-0.179 (-2.243)**	-0.293 (-6.382)**	-0.249 (-6.582)**	0.027 (2.844)**	0.061 (1.987)*	-0.217 (-4.479)**	-0.200 (-1.650)*
Property tax rate (x 10^{-2})	0.091 (5.019)**	0.071 (3.847)**	0.120 (3.673)**	0.097 (3.021)**	0.183 (9.033)**	0.186 (9.109)**	-0.069 (-0.332)	-0.088 (-0.230)	0.169 (1.456)	0.170 (1.500)
Debt charges/Revenue	-0.050 (-0.765)	-0.048 (-0.754)	-0.126 (-1.104)	-0.129 (-1.073)	-0.117 (-1.694)*	-0.090 (-1.333)	-0.008 (-0.924)	-0.011 (-0.976)	-0.040 (-0.926)	-0.040 (-0.826)
Adj R^2	0.435	0.420	0.398	0.399	0.301	0.310	0.407	0.411	0.284	0.297
F-est. (*zero slopes*)	19.523**	18.663**	16.333**	14.455**	8.013**	8.038**	14.626**	14.623**	5.123**	5.919**
F-est. (*Provincial dummies*)	12.156**	11.781**	12.489**	10.219**	7.190**	7.549**	7.340**	7.349**	7.912**	7.556**
No Obs.	1,738	1,738	1,.38	1,540	1,540	1,540	1,540	1,540	1,738	1,738

Notes: (1) *t* statistics are shown in brackets; (2) *&**=significantly different from zero at the 90%, 95% and 99% levels; (3) Provincial dummies included in all the equations.

Table 6

Effects of alignment on grants allocated municipalities. Panel estimation, periods 1994-95, 1998-99 *and* 2002-03

	(iii) *Time differences-in-differences*						(iv) *Triple differences*			
	ΔCentral grants		*ΔRegional grants*		*ΔUpper-Local grants*		*ΔRegional grants.– ΔUpperLocal grants*		*ΔRegional grants – ΔCentral grants*	
	(6.1)	(6.2)	(6.3)	(6.4)	(6.5)	(6.6)	(6.7)	(6.8)	(6.9)	(6.10)
(*a* + *b*)	6.418		2.994		7.898		6.546		5.889	
(*Single party + Leader*)	(2.439)**	--.--	(1.977)*	--.--	(3.277)**	--.--	(2.722)**	--.--	(2.918)**	--.--
a		8.476		3.198		12.274		12.048		6.666
(*Single party*)	--.--	(2.440)**	--.--	(2.548)**	--.--	(4.269)**	--.--	(3.669)**	--.--	(2.867)**
b		7.351		3.100		7.351		4.943		2.627
(*Leader*)	--.--	(2.343)**	--.--	(0.911)	--.--	(2.343)**	--.--	(2.379)**	--.--	(2.457)**
c		4.508		3.473		4.786		2.075		1.935
(*Municipal partner*)	--.--	(1.917)*	--.--	(0.992)	--.--	(1.900)*	--.--	(0.423)	--.--	(0.261)
d		4.554		4.491		4.635		2.339		3.062
(*Upper-layer partner*)	--.--	(1.950)*	--.--	(1.127)	--.--	(1.948)*	--.--	(1.680)*	--.--	(1.729)*
Margin	-0.187	-0.183	-0.176	-0.157	-0.171	-0.177	0.003	0.029	-0.120	-0.033
	(-1.293)	(-1.817)	(-1.239)	(-1.018)	(-1.398)	(-1.276)	(0.129)	(0.155)	(-0.091)	(-0.238)
Population	-0.004	-0.005	-0.008	-0.011	-0.012	-0.017	-0.005	-0.005	-0.005	-0.011
	(-3.068)**	(-2.020)**	(-8.670)**	(-2.757)**	(-3.275)**	(-5.775)**	(-0.414)	(-0.376)	(-0.206)	(-0.668)
Land area/Pop.	-0.001	-0.002	0.009	0.015	0.017	0.091	0.012	0.014	0.007	0.006
	(-1.250)	(-2.939)**	(5.351)**	(6.841)**	(4.321)**	(5.261)**	(1.498)	(1.552)	(0.399)	(0.346)
Property value./Pop.	-0.033	-0.062	-0.245	-0.179	-0.291	-0.249	0.053	0.061	-0.221	-0.200
	(-1.983)*	(-1.906)*	(-6.207)**	(-2.243)**	(-2298)**	(-6.582)**	(2.380)**	(1.987)*	(-1.865)*	(-1.650)*
Property tax rate	0.074	0.071	0.115	0.097	0.367	0.186	-0.093	-0.088	0.171	0.188
	(3.961)**	(3.847)**	(5.663)**	(3.021)**	(5.567)**	(9.109)**	(-0.193)	(-0.230)	(1.832)*	(1.963)*
Debt burden/Revenue	-0.069	-0.048	-0.126	-0.129	-0.105	-0.090	-0.008	-0.011	-0.030	-0.029
	(-1.423)	(-0.754)	(-1.104)	(-1.073)	(-1.009)	(-1.333)	(-0.924)	(-0.976)	(-0.334)	(-0.229)
Adj R^2	0.191	0.192	0.199	0.199	0.165	0.169	0.194	0.193	0.184	0.187
F-est. (*zero slopes*)	4.472**	4.413**	4.519**	4.455**	4.120**	4.141**	3.672**	3.610**	4.022**	3.973**
F-est. (*Time* x *prov.dummies*)	9.778**	9.975**	10.001**	10.219**	8.918**	9.093**	7.340**	7.452**	8.762**	7.876**
No Obs.	1,738	1,738	1,738	1,540	1,540	1,540	1,540	1,540	1,738	1,738

Notes: (1) *t* statistics are shown in brackets; (2) *&**=significantly different from zero at the 90%, 95% and 99% levels; (3) Time x Provincial dummies included in all the equations: