Political Determinants of Regional Financing: The case of Spain

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ABSTRACT

We contribute to the literature on the political determinants of regional financing by analyzing the case of Spain, a largely decentralized country. Using a dynamic panel data model, we argue that the rise in relative bargaining power of regional parties in Spain can partly explain the increase in budgetary allocations to regions observed during the period 1986-2006. In particular, our results show that the rise in Parliamentary representation of the nationalist Catalonian party (CiU), measured by the Banzhaf voting power index, has been a significant factor in ensuring increasing financial resources to regional governments. In addition, the traditional hypotheses of the political economy literature on legislative apportionment are tested for the case of Spain, with no significant results observed. The overall distribution of regional financing in Spain seems to be in general well aligned with the basic economic principles of efficiency and equity recommended for such a system.

Countries around the world have embarked in significant decentralization programs over the last decades for a variety of reasons. The latter include political bottom-up democratic pressures, fear of national territorial disintegration from ethnic or cultural separatist demands, or simply disillusion with centralized systems of economic governance and the need to improve the overall efficiency of the public sector.

The decentralization of the delivery of public goods and services should be followed by the implementation of a system of revenue assignments and inter-governmental fiscal grants that ensures the adequate financing of the functions decentralized to sub-national units of government and equity in the distribution of resources. Generally, it is economically efficient to decentralize expenditure responsibilities to a larger extent than revenue sources. However, this tends to generate vertical fiscal imbalances across levels of government that need to be addressed with an adequately designed system of grants. As grants become an integral part of the budgetary structure of sub-national levels of government, they have proved vulnerable to the kind of political bargaining that affects any other government policy. The end result of such a game may be the sub-optimal allocation of resources to regional and municipal government if political interests are primed over technical and policy principles.

This paper analyzes the different mechanisms through which political interests may have affected the distribution of regional financing in Spain. We benefit from a complete fiscal dataset developed by the Spanish Ministry of Finance that allows testing all major hypotheses on the political determinants of regional financing found in the literature. It additionally allows us to define unique, country-specific mechanisms to Spain that reflect the political structure of power in the country and its legislative system.

The paper is structured as follows. First, the economic principles underpinning an efficient system of regional financing are discussed in Section 1. In Section 2, we provide some background on Spain's decentralized system of government and political reality. The hypotheses, data and model used for estimation are outlined in Section 3, while Section 4 discusses the regression results obtained. Finally, some concluding remarks are offered in Section 5.

1. Normative and Positive Foundations of an Intergovernmental Fiscal System

The implementation of a system of intergovernmental fiscal relations is motivated, according to normative economic theory, by the aim of increasing efficiency and equity in the distribution of resources across levels of governments (Musgrave 1959; Oates 1972; Gramlich 1977). Sub-national governments should assume responsibility over the delivery of public services for which they can maximize the tradeoff between losses in economies of scale from centralized production and the benefits from tailoring goods and services to the local electorates. This *principle of subsidiarity*, enunciated by Oates in 1972, provides the building block of the modern theory of fiscal decentralization.

Despite the fact sub-national governments may be more efficient at delivering certain goods and services, the uneven distribution of the economic base of a country limits the capacity of sub-national governments to finance them. Thus, for efficiency sake, the central component of a system of intergovernmental fiscal relations would include grant mechanisms that address the fiscal gap between a region's expenditure needs and its fiscal capacity. In addition, should equitable development be a policy concern, intergovernmental fiscal grant systems can assist in reducing disparities in the development levels across sub-national governments. The general goal would be to assist poorer sub-national governments (regardless of the nature of the observed disparities) to reach levels of development at least similar to the national averages. Best practices advise that separate fiscal mechanisms are devised to distribute funds aimed at efficiency and equity objectives. However, certain grant instruments may allow tackling both the efficiency and equity goals defined.

The central argument of the public choice school, centered on the positive aspects of fiscal decentralization, is the assumption of civil servants (and politicians) as selfish utility-maximizers that will aim to increase their power by maximizing the size of their budgets (Buchanan 1962). In their view, the distribution of fiscal resources to sub-national governments would be less a function of efficiency or equity criteria and more related to the vested interests of those with the power to define fiscal policies.

The argument is straight-forward: politicians will try to implement the system of transfers that better maximizes their own utility, or in more concrete terms, their chances of (re)election. In a democratic state where members of the national Parliament are elected locally, there will be an electoral incentive for politicians to increase the level of transfers to their particular regions. Depending on how the politics play, the process may lead to overspending and/or unequal distribution of fiscal resources (Besley and Coate 2003).

Avenues for Political Influence

The analysis of the political determinants of fiscal transfer systems has a seminal reference in Wright's (1974) analysis of the distribution of New Deal funds to states in the U.S.A. Wright found that political variables had greater explanatory power than economic ones in explaining the pattern of transfer distribution. More recently, a twelve-country review of the determinants of intergovernmental grants by Boex and Martinez-Vázquez (2005) concludes that the political influence of sub-national governments, and not just efficiency or equity considerations, is an important aspect of transfers' distributive patterns.

The literature has explored a number of avenues through which politics may influence intergovernmental fiscal relations. The general model of reference is that of Dixit and Londregan (1998). Under certain conditions, they conclude parties would respond to political productivity incentives. Thus, regions with a higher share of swing voters will be most likely to receive more transfers. Using the same framework, Johansson (2003) finds evidence that intergovernmental grants were used in Sweden from 1981-1995 as an instrument to improve electoral chances.

Evidence of political influence on the distribution of transfers is widespread. Rao and Singh (2001) show that states in India with greater political bargaining power receive larger per capita transfers. Similarly, Worthington and Dollery (1995), and Porto and Sanguinetti (2001) find that the federal governments of Australia and Argentina respectively used the transfer instruments to buy political capital and increase reelection chances. The results are also evident in the analysis of supranational institutions, as

Rodden (2002) observes a linear positive relationship between voting power of European Union states and transfers per capita received from equity-targeted Structural Funds.

The choice of political explanatory variables in the literature adequately depends on the form of the democratic and electoral system in place in the country under study. A good review is offered in Warwick and Druckman's (2006) study of portfolio allocation in coalition governments. Surveying the political science literature in the area, they argue academia has favored traditionally number of seats in parliament as a measure of bargaining power (Gamson 1961, Browne and Franklin 1973). Accordingly, Rao and Singh (2001) use the proportion of the ruling party's Members of Parliament (lower house only) coming from a particular state in India, and a variable measuring whether the same party was in power at the center and the state level. Reflecting the particularities of their representative systems, Porto and Sanguinetti (2001) use instead senators and deputies per capita, per Argentinean province, whereas for Dixit and Lonegan (1998) and Johansson (2003), the critical variable is the number of swing voters by state.

More qualitative variables exploring the avenues for political influence into regional financing levels have additionally been used in the literature. In their analysis of the distribution of New Deal's transfers, Anderson and Tollison (1991) propose parliamentarians' length of tenure, and the holding of critical positions (such as Speaker of the House, or Head of a Committee) in order to distinguish between "powerful" members of Congress and those less able to influence policy decisions. In one of the more complete studies to date, Worthington and Dollery (1995) use the total number of seats of each state in the Australian federal parliament, the proportion of seats held by the incumbent government in each state, and whether the same party is in power at the federal and state level as avenues for political influence in regional financing levels. They also however introduce qualitative dummy variables for elections, recognizing periods in which the distribution of political bargaining may vary from the norm; and, following Bungey et al. (1991), a voting productivity variable is introduced defined as “the proportion of federal seats in the state held with a less than five percent two-party preferred margin”. The latter variable is meant to control for the fact that a state with more “closely fought seats” may receive a larger share of the transfers if political calculations are at play.

The use of voting power indexes to estimate political bargaining power in the legislature has received increasing attention. Rodden (2003) uses the Shapley-Shubik index to estimate the relative power of European Union countries at the European Parliament and Council of Ministers, and finds overrepresentation is linked to increased transfers to smaller states. Equally, Pitlik et al (2001), using the same index, find that smaller, but overrepresented, German länder are able to effectively use their bargaining power in the legislative process to ensure additional financial resources.

In the next section we discuss the relevance of the explanatory variables used in the literature to identify the political drivers of regional financing and describe unique, country-specific patterns that inform our empirical model.

2. Spain's Political Scenario and Intergovernmental Fiscal System

The initial multiplication of political parties during the first Spanish democratic national elections after Franco's dictatorship has given way to acute political concentration, with two major national parties, the social-democrats (PSOE) and the center-right (PP) alternating in power since 1982. The political and electoral system also produced a smaller left-wing national coalition led by the former communists (IU) and, more importantly for our research focus, a group of regionalist parties that have traditionally accounted for key representation at the national parliament while leading their respective regional governments. These include Convergencia i Unió (CiU) and the Nationalist Basque Party (PNV) both located at the center-right of the ideological spectrum.

The territorial organization of the State and the level of self-government granted to the regions have been central issues of Spain's political debate (López-Laborda et al 2006). Spain is currently divided into 17 regions (Autonomous Communities) plus two autonomous cities (Ceuta y Melilla), which in turn include 50 provinces and over 8.000 municipalities. The current political system, were regionalist parties are allowed to obtain representation at the national parliament, was partly designed to respond to the long-suppressed demands for self-government in regions like Catalonia, or the Basque Country. In return for the capacity to influence national political developments, plus the definition of a vertical structure of government with ample flexibility for regional self-governance, regional support for a national Constitution that allowed vertebrating the new democracy was obtained in 1978. Parallel to these political developments, Spain has continued to empower regional and local governments, further decentralizing expenditure and revenue raising powers. Currently, the regional governments in Spain manage almost 36 percent of consolidated public expenditure (over 50 percent if pensions and unemployment benefits are included)[1]. Under this indicator, Spain is among the most decentralized countries in the world.

After a series of absolute majority governments[2], between 1993 and 2000, and again in 2004 and 2008, the political party that won the national elections has required parliamentary support from other political formations to implement their electoral program (see Table 1). Consistently, both PSOE and PP have resorted to regionalist parties, mostly CiU and PNV, as preferred coalition partners[3].

Table 1. Number of Deputies in National Parliament

	1986	1989	1993	1996	2000	2004	2008
Socialists (PSOE)	184	175	159	141	125	164	169
Conservatives (PP)	105	107	141	156	183	148	153
Communists (IU)	7	17	18	21	8	5	2
Social and Democratic Party (CDS)	19	14	0	0	0	0	0
Convergència i Unió (CiU)	18	18	17	16	15	10	11
Basque Party (PNV)	6	5	5	5	7	7	6
Rest of Regionalist Parties	9	14	10	11	12	16	9
Total	350	350	350	350	350	350	350

Source: Spanish Congress (2007)

Spain's System of Intergovernmental Fiscal Relations

[1] Presupuestos Generales del Estado 2008 (www.igae.com)
[2] In Spain's 350 members Congress, absolute majority is reached with 176 Deputies.
[3] It would be more appropriate to call these political arrangements legislature pacts, as no members of the other parties ever became Ministers in the new government.

Spain's constitutional framework states that the regional financial system should be based on the principles of autonomy (regions should have authority to increase or decrease their revenue collection at the margin), sufficiency (regional governments should have enough funds for the delivery of devolved expenditures), solidarity (inter-territorial redistribution to assess different levels of development and fiscal capacity has to be implemented) and coordination between all public administrations (Herrero 2005).

In line with those principles, the regional financial system has been structured along the following instruments:

1. The so-called "devolved taxes", which mainly include those taxing the property and transfer of wealth, over which all regional governments are empowered with administrative powers.
2. The "shared" taxes (existing from 1993), which include the personal income tax (where Autonomous Communities enjoy some normative power), the value added tax and most of existing excise taxes.
3. The formerly called Sufficiency Fund, which works as a form of revenue sharing with equalization purposes, allocates proportionally more resources to those territories with a low fiscal capacity and/or high expenditure needs[4]. Although the criteria defined for the distribution of the fund have traditionally included an important amount of variables that intended to assess differences in the cost of providing services across the regions (such as poverty rates, insularity, etc.), reforms have

[4] In the 2009 reform, the Sufficiency Fund was split into two parts. The so-called Essential Public Services Fund, a horizontal transfer, guarantees the same amount of resources to all ACs for the provision of health, education and social services. The Global Sufficiency Fund, which works as a hold harmless clause, is a vertical transfer that prevents all ACs from worsening their financial situation with the reform. For further details on the reform, see De la Fuente (2009).

continuously increased the relative importance of regional population in the expenditure needs index. [5]

Table 2. Criteria for Distribution of the Sufficiency Fund

	1987-1991	1992-1996	2001-2006
Population	59%, 84.4%[6]	64%, 94%[7]	94%, 75%[8]
Surface	16%, 15%	16.6%, 3.5%	4.2%
Administrative Units	24.3%	17%	
Poverty Rates	4.2%	2.7%	
Insularity	0.7%	0.4%	0.6%
Fiscal Effort	5%, 1.7%	1.82%	

Source: Adapted from Herrero (2005)

4. A range of conditional grants, importantly including the Health Transfer until 2001, and the Inter-territorial Compensation Fund. The former was implemented at the outset of the decentralization of the national health system to the regions, and accordingly disappeared by the end of that process, when it was included in the unconditional transfer program. The latter aims to financially assist the less developed regions of the country, so they can reach average levels of development as measured by national per capita income[9].

Although all these have been structural instruments of the regional financial system since its first implementation in the mid eighties, their relative importance has been evolving

[5] For further details about the distribution of the Sufficiency Fund, see Herrero (2005)
[6] Applicable only for decentralized Education functions.
[7] Applicable only to communities in fast-track decentralization.
[8] Applicable only for decentralized Health functions
[9] Regional governments are also eligible for European Union´s Structural Funds, which allocate capital transfers on regions with per capita income below 75 percent of European average. The inter-territorial compensation fund was reformed with the Spanish membership of the Union, in order to make both instruments compatible in its respective objectives and rationale. As a result, this may have crowded out additional central government contributions to the Compensation fund.

along the period, as a response to the continued decentralization of the expenditure side of the budget. In the late eighties, the objective of enlarging the expenditure autonomy of regional governments prompted an important substitution of conditional for unconditional transfers. The 1990s witnessed in turn an enforcement of financial autonomy through the decrease of transfers, offset however by an important increase of tax revenue sharing, beginning in 1993, when the regional governments started to accrue from a 15 percent of personal income tax collections[10].

The reform of the system conducted in 2001, increased the regional share of the personal income tax up to 33 percent (50 percent from 2009), while implementing a tax sharing system in the VAT collections (35 percent until 2009 and 50 percent form then on) and most of excise taxes (40 or 100 percent until 2009 and 58 and 100 percent there after)[11]. An analysis of the general dynamics of regional financing in Spain should thus include this and any other source of regional funding that may have been used as a bargaining chip between the central and regional levels of government.

The regional financing system has been reviewed every five years. The approval of reforms requires a compulsory absolute majority at the Congress (50 percent of votes plus 1). Single majority in the upper house (Senate) is also required for a reform to be approved, but even rejection in the Senate could be overruled by a second majority in the Congress. The general reform trend over the years has typically consisted on an increase

[10] Furthermore, after 1996 they were empowered to regulate the basic elements of the devolved taxes (including the personal income tax).

[11] This tax sharing system does not include, in most of the cases, regulatory and administrative powers. Therefore, indirect taxes are still subject to a uniform normative framework all over the country.

of regional tax resources (mostly tax revenue sharing), compensated by a (non-proportional) decrease of central government transfers, in order to guarantee the central government´s financial sustainability. On the negative side, the negotiation of each reform has taken place under a soft budget constraint. In practice, regions tend to not exercise their autonomy in raising tax revenues (due to obvious political costs) and instead revert to demanding increased grants from the central administration to cover their budget deficits. The interface of soft budget constraints with electoral dynamics decreases the leverage of the central government for financial reforms very substantially.

A second channel through which political influence on regional financing is exercised is the allocation of the so called "territorial investment", or in other words the regional distribution of national capital investment projects, and the national co-financing of regional investment projects. This is perhaps the most opaque instrument of regional financing, and in practice allows discretionary financial treatment of certain regions in a non-transparent way. If regions with higher political leverage are in fact being favored, it is likely that the distribution of the national government's "territorial investment" will reflect such political dynamics. However, this hypothesis is especially difficult to test. In the first place, due to the difficulty in identifying in the national accounts, by region, capital investment funds from the national government that go to this type of projects. Additionally, it would be difficult to distinguish between the exercise of discretion by the national government on investment allocation (ideally based on return on investment parameters) and political dynamics. Due to these methodological constraints, it is not possible to empirically test this hypothesis in this paper.

3. Hypotheses, Data and Model(s)

We will argue that political variables, and in particular the relative weight of regional parties at the national Parliament, can explain a great deal of the regional financing patterns observed in Spain in the period 1986-2006. In order to identify the political economy mechanisms through which regional financing is affected, we test the major variables explored in the literature, including the use of an indicator not previously considered in the literature on the political economy of fiscal grants in Spain: the Banzhaf voting power index.

Methodology

A dynamic panel data model is used to estimate the hypotheses. Autocorrelation is nevertheless expected in dynamic models. The amount of per capita grants is traditionally a function of the previous year, and regions would negotiate subsequent agreements on the basis of earlier financing levels, which end up establishing a "floor" for future disbursements. Accordingly, lagged values of the independent set of variables in each model are used. We use the General Methods of Moments (GMM)-based Arellano-Bond differences estimator, traditionally used for dynamic models such as this (Arellano-Bond 1991; Roodman 2006). The rationale for the use of this estimator is that the lagged dependent variable used in the right hand side of the equation may be correlated with the error term. Thus the estimates of the coefficients may be biased. In our model specifications, there is risk of endogeneity with the explanatory variables aimed at measuring the current level of regional expenditure decentralization, as it will be discussed. The Arellano-Bond estimator partially corrects for these threats to the efficiency of the estimators.

Data

Regional fiscal data were obtained from Spain's Public Sector Economic Database (BADESPE)[12], published by the Spanish Ministry of Finance. The database provides figures on all major fiscal variables from 1986 to 2006. Socio-economic and demographic data was obtained from Spain's National Statistics Office[13] . For the definition of the political variables, we used voting statistics and Parliamentary representation by political party from the Spanish Congress website[14] .

Model(s)

The analysis of regional financial patterns is structured around three model specifications. First, we analyze total regional financing, including all guaranteed (and subject to political negotiation) sources of revenues available for regions under the current framework of inter-governmental fiscal relations. This includes the Sufficiency Fund (Spain's former equalization grant to regions), revenues from shared and devolved taxes (including importantly the Income Tax, the VAT and excise taxes), revenues from fees attached to the services decentralized, and "guarantee" funds aimed to ensure regions are "hold harmless" once new functions are assigned to them. With this first model specification we start to explore whether overall financing patterns are driven by the political variables discussed in this paper as opposed to purely efficiency and equity

[12] BADESPE: http://www.estadief.meh.es
[13] www.ine.es
[14] www.congreso.es

considerations. Our second model specification concentrates on the analysis of the Sufficiency Fund, the grant instrument defined to ensure adequate financing to regions on the basis of the assignment of responsibilities for service delivery under the current framework of decentralization. The Sufficiency Fund, partially reformed in 2009, is an equalization grant that distributes resources, as explained, on the basis of a region's expenditure needs and revenue generation capacity. Although it evidently addresses equity issues (especially by awarding lower amounts to fiscally "richer" regions), the fund is mostly justified under efficiency considerations. Accordingly, exploring the relative importance of the variables measuring economic efficiency (as opposed to political variables) in the distribution of funds under this grant mechanism may render important insights for the political economy of grant distribution in Spain. Our third model specification uses as dependent variable the amounts perceived by the regions via the Inter-Territorial Compensation Fund (FCI), a grant mechanism aimed at reducing inter-territorial disparities among regions in Spain. Thus the IFC would allow testing the relative importance of political influences on the distribution of a fund with purely equity-based objectives.

In our model specifications, we use the natural logarithms of *total per capita regional financing (TRF), per capita Sufficiency Fund, and per capita FCI*, as the dependent variables. The linear form of the model specification for TRF is outlined in equation (1) below. As discussed, with the choice of TRF as our dependent variable we implicitly argue that political bargaining may affect the distribution of regional funds through every possible source of finance guaranteed to regions and subject to political influence, and as such total regional financing becomes the best available measure for this analysis. The linear form of our model is:

$$(1)\ LnTRFpc = \beta_0 + \beta_1 LnTRFpc\text{-}1 + \beta_2 LnRecExp\text{-}1 + \beta_3 LnGDPpc\text{-}1 + \beta_{4i} Year_i + \alpha(Vector\ of\ Political\ Variables\text{-}1) + \varepsilon$$

In our fixed effects estimation, we include the lagged value of TRF in our model to account for the path dependence of regional financing. Every single reform of the regional financing system in Spain has included a "hold harmless" clause under which the reforms could never result in lower levels of financing for any given year. The set of explanatory variables in our model aims to control for the main criteria measuring both efficiency and equity in the distribution of regional financing. From the efficiency point of view, a system of regional financing should allocate funds according to regional expenditure needs and revenue generating capacity. The process of decentralization in Spain has traditionally followed an asymmetric strategy, where regions assumed expenditure responsibility at different times, depending on regional demands and capacity for self-government. Increased decentralization of government functions leads to increased expenditure needs. In addition, the system of intergovernmental fiscal relations in Spain displays a clear "soft budget constraint". Regional governments have increased their expenditure beyond their capacity assuming the central state would eventually provide the funds. The reality of political bargaining has consistently confirmed the success of this political strategy. As a proxy for expenditure needs, we include the log of annual recurrent expenditure per capita. This presents an obvious problem of endogeneity, as regional financing is highly correlated to the pre-devolution "effective cost” of the government services assumed by the regions. We attempt to solve this problem with the use of the Arellano-Bond estimator. All our independent variables are lagged one year, as it is expected that the results of political influences over the size and distribution of regional financing will only translate into modified transfers a year later once the budget is approved.

In order to control for equity considerations, we measured inter-regional development disparities with the log of per capita GDP. The pursuit of balanced and equitable development is one of the principles explicitly underpinning the regional financing system in Spain and as such included in our first model specification. The relative importance of this variable is however heightened in our third model. In fact, eligibility for funds from the Inter-territorial Compensation Fund (or ICF hereafter), the fiscal instrument aimed at increasing equity across regions in the system, is dependent on a certain threshold of GDP per capita. Should allocations from the ICF be immune to political maneuvering, per capita GDP should largely explain the allocations under this transfer instrument.

There are multiple potential mechanisms through which political influence could have been exercised in the distribution of regional financing in Spain’s case. Thus, the vector of political variables includes, in line with the literature in the area, several options to measure this potential influence.

First, we include a dummy variable measuring the coexistence of governments led by the same party at the national and regional level for every region and year. The expected sign of this coefficient is ambiguous. On the one hand, we could expect that political coexistence of government of the same party would favor larger flows of funds to those regions. However, anecdotal evidence from past negotiations seems to show that it is precisely those regions ruled by the opposition parties that, under the threat of “walking out” from the negotiations on financing reform, manage to get the better “deals”. Party discipline is exerted upon regions governed by the party at the central government to accept these asymmetric deals. Politically, the party in government is thus profiled as bi-partisan and consensus-prone. Using a larger database of Spanish municipalities, a recent contribution by Solé-Ollé and Sorribas-Navarro (2008) shows that party alignment does positively influence the amount of grants received by municipalities from regional governments in Spain. The municipal financing system is however substantially different in design to the regional one, so the influence of partisan alignment may operate in different ways.

In addition, the vector of political variables includes a dummy variable with value one for those regions host to a regionalist party that has achieved representation at the national parliament and enters a legislature pact with the winner of the general election (a measure of influence that would be expected to translate into increased bargaining power for those regions). Two measures of “political productivity” are also incorporated: 1) the share of members of Congress (deputies) from a particular region that belong to the party currently in power (again expected to have a positive effect on regional financing the higher it is); and 2) the distance (in percentage points) between the share of votes of the party in the national government in a particular region and the winner (or runner up if won).

Finally, we calculated the Banzhaf index of voting power for all parties with national parliamentary representation since 1986[15]. The Bhanzaf index shows the probability to change the outcome of a decision with your vote when power is not distributed equally among the players. The index was originally designed to analyze block voting systems, and it is calculated as the percentage of times a given player (political party in this case) is critical to form a winning coalition. The selection of the Banzhaf index over the more popular Shapley-Shubik is due to the fact that, in the latter, players are thought to be joining a sequential coalition one at a time, in the order defined by the permutation. Voting power weights are estimated as every new player joins the coalition. This process however is not an accurate representation of the political game in the Spanish Parliament, were coalitions (legislature pacts) are formed and collective decisions are taken simultaneously, more along the principles of the Banzhaf power index mechanics.

As discussed, the reform of the system of regional financing in Spain requires absolute majority (50 percent plus one vote) or 176 votes out of the 350 members of Parliament. Between 1986 and 1993 first, and later between 2000 and 2004, there was absolute majority in government by one party. Thus their voting index was 100 and the rest zero. However, between 1993 and 2000, and after 2004, legislature pacts were formed and several regional parties increased their parliamentary representation sufficiently so as to be pivotal in these critical decisions. A brief summary of the values of the Banzhaf index

[15] Values were calculated using the Banzhaf Power Index Calculator developed by Bruce Conrad and Dan Reich (http://cow.math.temple.edu/~cow/cgi-bin/manager). Another web-based calculator developed by the University of Warwick in the U.K. confirmed the values obtained (http://www.warwick.ac.uk/~ecaae/ipgenf.html#data_input).

for the major parties with parliamentary representation during the 1986-2006 period is provided in Table 3, while in Table 4 variable labels and descriptions are offered.

Table 3. Descriptive Statistics of Banzhaf Index Values

Party	Obs	Mean	Std. Dev.	Min	Max
PSOE (Socialists)	323	51.00526	40.89605	0	100
PP (Conservatives)	323	33.79737	38.09169	0	100
CIU (Catalonian Party)	323	6.130526	7.320151	0	16.67
PNV (Basque Party)	323	.6773684	1.543689	0	6.67
IU (Former Communists)	323	6.474737	8.07295	0	17.17
ERC (Catalonian Party)	323	.5121053	1.778571	0	8.01
CC (Canary Islands Party)	323	.5115789	.9413085	0	3.52
PA (Aragon Party)	323	.0615789	.2429126	0	1.09
UV (Valencia Party)	323	.0947368	.1735763	0	.43
EA (Basque Party)	323	.1521053	.2804454	0	1.09
NB (Navarra Party)	323	.0573684	.2437713	0	1.09

Source: Own Elaboration

During the period under study, only two regionalist parties achieved the required voting power so as to be pivotal on regional financing reform, CiU (Catalonian) and PNV (Basque), who formed legislature pacts with the national government between 1993 and 2000. However, perhaps only CiU would be amenable of the kind of political bargaining we discuss in this paper. Due to a set of historical circumstances, the Basque Autonomous Region enjoys a fiscal system different from the rest of country[16], whereby all revenue collection –except for Social Security payments- is under the responsibility of the regional government, who returns a certain share ("el cupo", defined by formula) to the central government. Thus, it is unlikely that the PNV would have used up its new gained parliamentary power on the reform of a system that largely does not apply to its region. There is the possibility however that PNV's political leverage is used to renegotiate downwards the contribution the Basque Country makes to the consolidated revenue fund. Due to the different fiscal regime enjoyed by the Basque Country and

[16] Shared also by the region of Navarra for identical reasons.

Navarre, our decision is to eliminate these two regions from our database in order to homogenize the observations.

The region of Catalonia enjoys however the fiscal regime common to the rest of the Spanish regions. The regional government, headed by CiU during most of the 1986-2006 period, has spearheaded the regional front on the negotiations with the central government, to which other smaller regionalist parties have added their numbers eventually. Financial gains due to CiU's enhanced parliamentary influence would have thus benefited the rest of the country's regions. Thus the voting power of CiU becomes the most critical indicator of the influence of regionalist parties and the key variable in our analysis.

4. Results

The results of the first model, using the natural logarithm of total per capita regional financing as dependent variable are shown in Table 5. Overall levels of regional financing are, as expected, significantly determined by the main variables measuring efficiency and equity of the system. As expected, the level of per capita financing in a given year is highly determined by the previous year's, reflecting the influence of the "hold-harmless" approach that has defined every reform of the system. The results are consistent for the different model specifications defined. Recurrent expenditure per capita, as a proxy measuring the share of goods and services delivered at the regional level, is highly significant throughout the different model specifications. As this variable approximates the level of decentralization of expenditure responsibilities at the regional level, it shows as expected a positive correlation with the level of financing. There is admittedly a certain level of endogeneity associated to this variable, but it did not seem to affect the results for the political variables that form the core of the analysis.

An interesting result is the significant and negative correlation between the per capita GDP and the level of regional financing. We should recall that our variable measuring total regional financing does not include allocations for the transfer instruments defined to address inter-regional inequalities, namely, the Inter-territorial Compensation Fund and the European Cohesion Fund (of similar objectives at a European scale). Instead, it aggregates the transfers defined to ensure an efficient delivery of services on the basis of the functions decentralized to the regions. The correlation coefficient between regional recurrent expenditure and per capita GDP is high at .74, reflecting this trend.

Our results show that a one percentage point increase in per capita GDP reduces total regional financing by .74 percent. From a horizontal equity viewpoint, this would be a positive result, especially considering all sources of regional financing are included in the dependent variable of our first model.

The voting power of the major Catalonian political party (CiU) is a significant determinant of total regional financing, in line with the political analysis shown above. When in need of legislature pacts, national parties have always tended to search for parliamentary support on regionalist parties. The only other feasible alternative for a coalition partner, the party of the former communists, was traditionally discarded for ideological reasons, as it would have signaled departure from moderate positions. In fact, CiU has formed part of every legislature pact from 1993 to 2000, regardless of the sign of the party in power. Its political influence has thus extended beyond the mere regional scale to the whole of the regional financing system.

The positive sign of the coefficient shows that an increase in CiU’s voting power is highly correlated with increases in total regional financing, controlling for all of other major determinants of regional funding. The variable’s economic significance appears to be relatively small. A ten point increase in the value of the Banzhaf index for CiU translates into a 0.33 percent increase in total regional financing. This is likely due to the fact that all guaranteed regional sources of financing are included in the dependent variable, while their vulnerability to political negotiation varies. The result underlines equally the critical role that CiU has played in extending expenditure and revenue power to the Spanish regions and the overall level of decentralization.

Table 5. Model 1 - Determinants of Total Regional Financing.
Dependent Variable: Log of Total per capita Regional Financing – GMM Estimation

	(1)	(2)	(3)
Ln TRF pc-1	.7513703** (16.27)	.7195899** (15.12)	.7195898** (15.12)
Ln GDP pc_1	-.6329532* (-2.13)	-.7424907* (-2.47)	-.7424924* (-2.47)
Ln Rec Exp pc_1	.1268976** (3.24)	.1466268** (3.62)	.1466268** (3.62)
Coexistence_1		.0227264 (1.01)	.0227264 (1.01)
Coalnac_1		-.055018 (-1.08)	-.055018 (-1.08)
Sldr_1		.0016126 (1.12)	.0016126 (1.12)
Ppdws_1		.0008067 (0.46)	.0008067 (0.46)
CIU_1			.0322926** (3.31)
1987	.0944278 (1.64)	.0713927 (1.23)	.0713925 (1.23)
1992	.3453659* (2.58)	.3988545** (2.94)	.3982094** (2.94)
1997	.601905** (2.69)	.7043321** (3.11)	.2486849* (2.48)
2001	.8604343** (2.78)	.9853641** (3.14)	.9853659** (3.14)
Observations	285	285	285
Groups	15	15	15

Absolute value of t-statistic in parentheses
*significant at 5%; **significant at 1%

Table 4. Variables Description

Variable Name	Description	Expected Sign
Ln TRF pc-1	Natural log of Total Regional Financing per capita, lagged one year	+
Ln FS pc_1	Natural log of per capita Sufficiency Funds, lagged one year	+
Ln ICF pc_1	Natural log of Inter-territorial Compensation Fund, lagged one year	+
Population_1	Annual regional population, lagged one period	+
Ln GDP pc_1	Natural log of regional Gross Domestic Product per capita, lagged one year	-
Ln Rec Exp pc_1	Natural log of regional Recurrent Expenditure per capita, lagged one year	+
Ln SF EU_1	Natural log of Structural Funds from the European Union	-
Coexistence_1	Dummy variable with value 1 for a region and year where the same party is at government at the national and regional level, zero otherwise. Lagged one year.	+
Coalnac_1	Dummy variable with value 1 for a region and year when a regional party from that region is on a legislature pact with the current central government.	+
Sldr_1	Share of Local Deputies for the party in power in that region and year	-
Ppdws_1	Difference in votes, in percentage points between the winner and second in national elections, at the regional level.	-
PSOE_1	Value of Banzhaf Index for Socialist Party	-
PP_1	Value of Banzhaf Index for Conservative Party	-
CIU_1	Value of Banzhaf Index for Catalonian Party +	

The result is however more important in light of the negative significance of any other variable measuring political influence in the process. Neither the political productivity indexes nor the dummy variables measuring partisan alignment or legislature pacts showed to be of explanatory power.

As expected, the results showed significant changes in the years in which the reforms were implemented. With the exception of 1987, the first years of implementation of reforms to the financing system (i.e. 1992, 1997 and 2001) showed significant jumps associated to the changes. In addition, year 1994, the first in which a legislature pact was reached between a national party and CiU, was equally significant. In 1993 (first implemented in 1994) 15 percent of the collection from the personal income tax was assigned to the regions as part of the financing system, which may affect the results observed.

Models 2 and 3 analyze, respectively, the determinants of two of the main grant instruments in Spain, the Sufficiency Fund and the Inter-territorial Compensation Fund. In Model 2, we test whether the Sufficiency Fund has been distributed according to the efficiency principles it was designed for (i.e. provide sufficient financing for the delivery of decentralized goods and services) or if political maneuvering may be behind the observed patterns.

$$LnFS\,pc = \beta_0 + \beta_1 LnFSpc\text{-}1 + \beta_2 LnGDPpc\text{-}1 + \beta_2 LnRecExp\text{-}1 + \beta_{3i} Year_i + \alpha(Vector\ of\ Political\ Variables\text{-}1) + \varepsilon$$

The Sufficiency Fund, together with shared revenues from national taxes (Income Tax, Value Added Tax and excise taxes) has been the recurrent target of political bargaining since the regional financing system was implemented in 1986. The central government however started sharing revenues from IT with the regions in 1994 and from VAT and excise taxes in 2001. The level of regional revenues from the shared portion of the IT and indirect taxes depends on the overall level of collection and it is not subject, as such, to political negotiation once the percentage shared is defined. Our analysis should thus focus on whether the distributional patterns of the Sufficiency Fund respond to the criteria defined in the law for its allocation or if that distribution was impacted by political agreements.

The results, shown in Table 6, again lend support to the hypothesis that the increased voting power in Parliament of CiU has impacted the level of overall regional financing allocated through the Sufficiency Fund. This time, evidence of a stronger impact is reflected in the size of the coefficient. A ten percentage points increase in the voting power of CiU in Parliament (equivalent to 1.5 standard deviations from the mean) increases the size of the Sufficiency Fund by 3 percent, a more sizeable increase than if total regional financing is used as the dependent variable.

The resources distributed via the Sufficiency Fund are mostly determined by the levels of recurrent expenditure, the best available indicator of the level of decentralization. From that point of view, the results seem to show the distribution of funds is consistent with the objectives defined for this fiscal instrument. Corroborating earlier results, we found that the sign of the coefficient measuring the impact of per capita GDP on the Sufficiency fund is negative. The coefficient however was not significant, although its sign remains consistent through the different model specifications.

Table 6. Model 2 - Determinants of Regional Financing via the Sufficiency Fund. Dependent Variable: Log of Per capita Sufficiency Fund - GMM Estimation

	(1)	(2)	(3)
Ln FS pc-1	.4234835** (8.23)	.4069824** (7.86)	.4069824 (7.86)
Ln GDP pc_1	-.53692 (-0.51)	-.2158726 (-0.20)	-.2158718 (-0.20)
Ln Rec Exp pc_1	.7398069** (7.02)	.7165838** (6.69)	.7165838** (6.69)
Coexistence_1		-.1414798 (-1.88)	-.1414798 (-1.88)
Coalnac_1		-.056458 (-0.35)	-.056458 (-0.35)
Sldr_1		.0030956 (0.62)	.0030956 (0.62)
Ppdws_1		.0083462 (1.32)	.0083462 (1.32)
CIU_1			.3056569* (2.50)
1987	.4993915** (2.72)	.5329113** (2.89)	.5329118 (2.89)
1992	.3307087 (0.71)	.2536717 (0.54)	.2680505 (0.57)
1997	-.861111 (-1.10)	-.988005 (-1.26)	
2001	.3402961 (0.32)	.0427174 (0.04)	.1220506 (0.49)
Observations	270	270	270
	15	15	15
Absolute value of t-statistic in parentheses *significant at 5%; **significant at 1%			

The lack of significance, throughout all model specifications, of traditional variables of the literature, such as the existence of coalition governments, voting productivity indexes and the coexistence of the same party in government at the central and regional level is equally remarkable. The results, for instance, would support the hypothesis that, in order for the central government to reach agreements on the new regional financing frameworks over the years, the party in government not only has not favored those regions where it rules, but has exacted greater financial commitments from them in order to ensure the viability of the system (and thus the negative sign of the coefficient).

In Model 3, we analyze the determinants of the Inter-territorial Compensation Fund, the grant instrument aimed at assisting poorer regions to “catch up” with average national development levels, thus aligned with the normative principle of equity.

$$LnFCI\,pc = \beta_0 + \beta_1 LnFCIpc\text{-}1 + \beta_2 LnGDPpc\text{-}1 + \beta_2 LnSFEU\text{-}1 + \beta_{3i} Year_i + \alpha(Vector\ of\ Political\ Variables\text{-}1) + \varepsilon$$

In line with the objectives of the Compensation Fund, per capita GDP is by far the most important determinant of the distribution of funds. The variable is significant at 95 percent for all model specification and estimators.

The results seem to show that the overall level of financing distributed from the Compensation Fund has been invulnerable to political maneuvering. This a logical conclusion in line with the rest of our results, since Catalonia has not received funds from this source since the early 1990s and thus it has been absent from the political agenda of the Catalonian party. None of the political variables defined are significant in any of the estimations and model specifications. This may not be surprising considering the relatively small size of total financing it represents. Its distribution also could have been affected by the allocation of European Union Structural Funds. Accordingly, a control is included in the second specification of this model, but the distribution of EU structural funds proved to be non significant.

Table 7. Model 3. Determinants of Regional Financing via the Inter-territorial Compensation Fund (FCI). GMM Estimation

	(1)	(2)	(3)
Ln ICF pc-1	.6778024** (11.80)	.6782318** (10.58)	.6782318** (10.58)
Ln GDP pc_1	-1.163513** (-2.64)	-1.072658* (-2.27)	-1.072658* (-2.27)
Ln SFEUpc_1	.0199008 (0.86)	.0365927 (1.48)	.0365927 (1.48)
Coexistence_1		-.0463387 (-1.28)	-.0463387 (-1.28)
Coalnac_1		.081625 (1.07)	.081625 (1.07)
Sldr_1		.0034005 (1.34)	.0034005 (1.34)
Ppdws_1		-.0017284 (-0.68)	-.0017284 (-0.68)
CIU_1			.0350776 (1.86)
1987			
1992	.4902826* (2.51)	.4303757* (2.09)	
1997	.8186851* (2.50)	.7011073* (2.02)	
2001	1.166105** (2.60)	1.000969* (2.10)	
Observations	140	140	140
Groups	15	15	15
Absolute value of t-statistic in parentheses *significant at 5%; **significant at 1%			

5. Conclusions

This paper contributes to the literature on the political determinants of sub-national government financing system by analyzing the case of the largely decentralized Kingdom of Spain. Using a dynamic panel data we test the impact of the increase in political bargaining power of Spain's regionalist parties in the total level of regional financing and on the two major transfer mechanisms.

Our results show that the rise in parliamentary importance of the major regionalist party in Spain, CiU, is partly responsible for the significant increase in total regional financing observed during the 1986-2006 period. By spearheading negotiations within the common regional financing system in Spain, the weight of its political influence during the period 1993-2000 has translated into benefits shared by all Spanish regions. None of the other major avenues for political influence discussed in the literature and relevant to the Spanish case were found significant on this analysis.

Ideally, an intergovernmental fiscal system should be isolated from political bargaining that may lead to sub-optimal financing and "soft-budget constraints". In Spain, the deficient estimation of regional expenditure needs (based on obsolete historical costs) limits the dynamic adjustments of the regional financing system, added to the political leverage of regionalist parties at the national parliament (exemplified by CiU) has resulted in an evident soft-budget constraint where regions increase their expenditure confident that the next reform of the system will bring an increase in transfers.

To avoid this situation, reforms must be designed to adapt the current system of regional financing to the evolving needs of the regions, and reduce the strategic behavior of regional governments.

Bibliography

Anderson Gary M, and Tollison Robert D, 1991, “Congressional Influence and Patterns of New Deal Spending, 1933–1939” *Journal of Law and Economics,* **XXXIV** 161–175.

Arellano, M. and S. Bond, 1991, “Some tests of specification for panel data: Monte Carlo evidence and application to employment equations”, *Review of Economic Studies* **58** 328-52

Besley T and Coate S, 2003, “On the public choice critique of welfare economics”, *Public Choice* **114** 253-273

Boex J and Martinez-Vazquez J, 2005, "The Determinants of the Incidence of Intergovernmental Grants: A Survey of the International Experience ", *Public Finance and Management*, **4(4)** 441-479

Brown E and Franklin M, 1973, “Aspects of coalition payoffs in European Parliamentary Democracies”, *American Political Science Review* **67** 453-469

Buchanan, J and Tullock G, 1962, *The calculus of consent.* Ann Arbor: The University of Michigan Press.

Bungey M, Grossman P, and Kenyon P, 1991, “Explaining intergovernmental grants: Australian evidence”, *Applied Economics* **23(4)** 659–668.

Colomer, Josep M. (2005a), “Its Parties That Choose Electoral Systems (or Duverger’s Laws Upside Down)”, *Political Studies*, **53** 1-21

Colomer, Josep M. (2005b), “*Abajo el bipartidismo*”, El Pais Editorial. August 3.

De La Fuente, A. (2009): “El Nuevo Acuerdo de Financiación Regional: Un Análisis de Urgencia”, *Economic Reports*, FEDEA, nº 08/09

Dixit A and Londregan J, 1998, “Fiscal federalism and redistributive politics”. *Journal of Public Economics* **68** 153–180.

Duverger M, 1954, *Political Parties: Their Organization and Activity in the Modern State*. New York: Wiley.

Gramlich E M, 1977, "Intergovernmental Grants: A Review of the Empirical Literature”, in *The Political Economy of Fiscal Federalism*. Wallace Oates, ed. Lexington, MA: Heath-Lexington, 219-39.

Gamson W, 1961, “A theory of coalition formation”, *American Sociological Review* **26** 373-382

Herrero A, 2005, *Aplicacion de un fondo de nivelacion en el marco de financiacion autonomica estable*, INV. N. 1/05 Instituto de Estudios Fiscales. Madrid, España

Johansson E, 2003, "Intergovernmental grants as a tactical instrument: Empirical evidence from Swedish municipalities", *Journal of Public Economics,* **87 (5-6)** 883-915.

Lopez-Laborda J, Martinez-Vazquez J and Monasterio C, 2007, "The Practice of Fiscal Federalism in Spain", in *The Practice of Fiscal Federalism: Comparative Perspectives,* edited by Anwar Shah. McGill-Queen's University Press

Musgrave R, 1959, *The Theory of Public Finance: a Study in Political Economy*. New York: Mcgraw-Hill

Oates W E, 1972, *Fiscal Federalism*. NY: Harcourt Brace Jovanovich.

Pitlik H, Schmid G and Strotmann H, 2001, "Bargaining power of smaller states in Germany's L¨anderfinanzausgleich 1979-1990", *Public Choice*, **109** 183–201.

Porto A and Sanguinetti P, 2001, "Political Determinants of Intergovernmental Grants: Evidence From Argentina," *Economics and Politics,* **13**(3) 237-256.

Rao GM and Singh N, 2000, "The Political Economy of Center- State Fiscal Transfers in India." University of California at Santa Cruz, mimeo.

Rodden J, 2002, "Strength in Numbers? Representation and Redistribution in the European Union", *European Union Politics* **3**(**2**) 151–75.

Roodman D, 2006, "An Introduction to "Difference" and "System" GMM in Stata", *Center for Global Development*. Working Paper 103.

Samuelson P A, 1954, "The Pure Theory of Public Expenditures", *The Review of Economics and Statistics*, **36**, 387-389

Solé-Ollé A and Sorribas P, 2008, "The effects of partisan alignment on the allocation of intergovernmental transfers. Differences-in-differences estimates for Spain", *Journal of Public Economics* 92(12) 2302-2319. New Directions in Fiscal Federalism

Warwick P and Druckman J, 2006, "The portfolio allocation paradox: An investigation into the nature of a very strong but puzzling relationship", *European Journal of Political Research* **45** 635-665.

Worthington A C and Dollery B E, 1998, "The Political Determination of Intergovernmental Grants in Austria", *Public Choice* **94** 299–315.

Wright G, 1974, "The Political Economy of New Deal Spending: An Econometric Analysis," *Review of Economics and Statistics,* **LVI** 30–38.