The Determinants of Intergovernmental Grants in Portugal: a Public Choice Approach

by

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Abstract:

We use a large and unexplored dataset covering all mainland Portuguese municipalities from 1979 to 2001 to evaluate the impact of political forces in the allocation of grants from the central government to local authorities. Empirical results clearly show that, besides variables that proxy the social and economic development of municipalities, political variables also condition the granting system: (1) grants increase in municipal and legislative election years; (2) the larger the number of years a mayor has been in office the larger the amount of funds transferred to his municipality; (3) municipalities ruled by mayors that belong to the prime-minister's party are favored in the grants distribution process.

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1. Introduction

The allocation of grants from central governments to subnational jurisdictions has been a major topic of research for quite a long time. Early studies on this topic viewed the agents responsible for the transfer of resources to local communities as benevolent dictators whose only objective was the maximization of social welfare. More recently, and less naïvely, it has been argued that political factors, such as reelection purposes, partisan effects, and lobbying by interest groups, also play an important role.

This article's main objective is to evaluate the influence of political forces in the allocation of Portuguese intergovernmental grants. We model the central government's behavior in the grants allocation process to municipalities as a function of variables reflecting the twofold desire to improve social welfare and government's self-interests. Results of estimations performed on a large and detailed dataset covering all mainland municipalities, from 1979 to 2001, using the system-generalized method of moments (GMM) for linear dynamic panel data models, allow us to conclude that both social welfare and political variables condition the allocation process. There is strong empirical evidence of grant increases in municipal and legislative election years. Furthermore, municipalities ruled by mayors that stayed longer in office or belong to the prime-minister's party seem to be favored in the grants distribution process.

The paper is structured as follows. Section 2 briefly reviews recent contributions to the literature on this topic. Section 3 describes the institutional framework in which the flow of intergovernmental grants from the central to municipal governments is determined. Sections 4 and 5 describe the dataset and the empirical model, respectively. Section 6 presents the empirical results and, finally, Section 7 concludes the paper.

2. The literature

In this section we review the literature on intergovernmental grants. We start by presenting the normative approach to intergovernmental grants, and then proceed to the public choice view, according to which the self-interest of grant givers should also be taken into account. We focus on empirical contributions that stand out either for the

seminal nature of the formulated hypotheses, or for the scope of the empirical application.

Intergovernmental grants can be classified as *unconditional*, when they may be used according to the wishes of the recipient, and *conditional*, when certain restrictions must be met by the recipient governments (Rosen, 2002). Conditional grants often take the form of *matching* grants: a certain proportion of a specific project is financed by the central government, but must be supplemented with outlays of the recipient governments. This is done in order to induce the latter to take the project's externalities into consideration when deciding on its implementation. Finally, grants can also consist of reimbursements of costs supported by local governments.

The normative approach to intergovernmental grants assumes that central governments are motivated by efficiency, equity or stabilization goals, seeking the maximization of the general welfare of the population[1]. In this context, the settlement of grants is mainly supported by formulas, which use indicators of the needs of the population and of the local fiscal capacity.

The arguments of the traditional approach are, therefore, mainly three[2]. The first concerns efficiency in the provision of public goods, which may depend upon the proximity between the provider and the consumers. In order to provide the lower level governments with the necessary resources to supply local public goods, central governments transfer some fiscal power to the former. In addition to directly providing a source of funds, conditional grants can also generate incentives for local governments to provide larger amounts of local goods. Efficiency in the allocation of local resources may be facilitated by the provision of spending inducements to lower level governments that supply goods creating interjurisdictional beneficial spillovers. If the external utility of these locally provided goods were not considered, they would be supplied in insufficient quantities. Grants from an upper level government reduce the efficiency problems resulting from the fact that the benefits of local expenditures spill over jurisdictional boundaries. Conditional matching grants can be used to bring local incentives in line with efficiency when goods produce positive externalities in neighboring municipalities.

[1] See Musgrave (1998) for a more detailed analysis.
[2] See Gramlich (1998), Snoddon and Wen (1999) and Rosen (2002) for a detailed analysis of the rationales for intergovernmental grants.

A second goal is the achievement of a balance (vertical financial balance) between responsibilities and resources of each governmental level. Revenues may be most efficiently collected by a national government, but most efficiently spent at the municipal government level. Overall efficiency would then require *revenue sharing* between governmental levels. In addition, if equity is a goal, revenue sharing can be used to transfer resources to the most needed regions, that is, those with lower fiscal capacity. In order to provide the necessary amount of local public goods, these regions would otherwise have to impose higher tax burdens on their populations. In this line of reasoning, grants are used to achieve horizontal financial balance (fiscal equalization), that is, geographical equity. Grants aiming at equity are, in general, unconditional grants, so that recipient governments can decide on the best way to spend them.

Finally, there is the economic stabilization argument, according to which the central government budget should be used to stabilize local public expenditures and employment. This argument would also justify the application of taxes to local governments in periods of economic growth but a central government would hardly propose such policy.

The economics literature has also provided some positive explanations for the allocation of intergovernmental grants. Among these, the approaches that emphasize the importance of political factors deserve particular attention. In this view, the policies conducted by the central government are determined, at least partly, by its attempt to maximize its own utility function. When choosing among alternative policies, a government will adopt the one that maximizes its utility, which might simply depend upon the probability of reelection. In this context, the economic literature has analyzed the allocation of intergovernmental grants as a strategic tool (both in terms of the amounts to be transferred and of the allocation formulas) of central governments as aimed at reelection.

In the beginning of the 1980's, pioneering contributions to this literature were performed by Gist and Hill (1981 and 1984). Using data from the *Urban Development Action Grant* (UDAG) program of the USA *Department of Housing and Urban Development* (HUD) they tested if the selection of project applications for funds was conditioned by both public interest goals and bureaucratic motives (bureaucratic goals are described by Niskanen, 1975). Estimations by maximum likelihood methods

generated empirical evidence supporting the Niskanen hypothesis: in the selection process bureaucrats adopted a criterion that, although fulfilling legal obligations, worked in their own interest. In particular, they favored projects with a high probability of success defined in terms of their "financial return", that is those that generated greater prestige to the granting agency.

Alperovich (1984) presented one of the first political economy analysis of intergovernmental grants to local authorities. Using data for 52 local authorities in Israel, for two different years, under two different governments, he tested whether the grant allocation process was determined by the willingness to improve public interest or the desire to be re-elected. Assuming that grants that are predetermined by legislative formulas are not under the discretion of politicians he focused on non-formula grants. The author concluded that there were significant differences in the behavior of the two governments regarding objective variables, such as the size of locality, local deficits, and the ratio of dependent population to population in the labor force. However, both governments followed political objectives in the allocation of grants. They attempted to maximize the prospects for re-election, by pursuing policies that reward their supporters rather than "buy-off" their opponents.

Grossman (1994) extended Alperovich's work by introducing additional political variables. According to his model, federal politicians are self-interested vote maximizers that distribute grants to achieve reelection. Grants are used to buy the support of state voters and the political capital of local politicians, bureaucrats and interest groups which can be used to further increase the support of state voters to the federal politician. He used the percentage of votes cast by the governor's party in office in the state and the percentage of seats in the State House held by the governor's party in office as indicators of the political stance of a state. He also considered interest group pressure by introducing state and local government employment *per capita* and union membership *per capita* as explanatory variables. The model was tested for 49 U.S. states during the years of 1974, 1977, 1980 and 1983. Empirical results suggested that similarity of party affiliation between federal and state politicians increase the amount of grants made to a state, as well as the importance of state interest groups. Contrary to expectations, states with higher income *per capita* received higher grants *per capita*.

Pereira (1996) introduced a new argument: the regressivity or progressivity of *per capita* lump-sum grants towards community size is related mainly to the structure of the lobbying activities of local governments and independent of hypothetical economies or diseconomies of scale in the production of local public goods. An empirical analysis was conducted on 186 Portuguese municipalities (with more than 10 000 inhabitants in 1991 and excluding the three largest municipalities), with 1989 data. The findings supported the political-economic approach and rejected the hypothesis that the economies of scale are the main explanatory cause for the observed regressivity of *per capita* lump-sum grants. The political variable introduced by Alperovich (1984) was not statistically significant. Pereira pointed out two possible reasons for this result: first, the central government can either reward its political supporters or buy the votes of its opponents and, second, the number of votes may be more important to the central government than its proportion.

The studies described so far have not used data pooled over several years. Bungey *et al* (1991) using pooled data for 6 Australian states, for the period 1956-57 to 1985-86, tested two competing models explaining the distribution of federal grants. They considered both the traditional approach, based on efficiency, equity and ideology, and the public choice approach, which attempts to capture vote trading and bargaining by politicians in the determination of intergovernmental grants. Using five political variables, the authors concluded that the public choice model adds nothing to the traditional model. However, they argued that this result did not imply that the public choice argument was invalid since the adopted specification may not have been adequate.

Worthington and Dollery (1998), also using panel data on 6 Australian states, but for a different period (1981-82 to 1991-92) analyzed the determinants of intergovernmental grants in Education, Health and Social Security and Welfare. The main finding was that central government politicians use the grants process to purchase political capital at the federal level in order to enhance their chances of reelection.

Porto and Sanguinetti (2001) researched the determinants of *per capita* federal grants allocation across 22 Argentine provinces during four periods (each one representing a decade). Their analysis suggests that the political representation of jurisdictions at the Congress, measured by the number of deputies and the number of

senators *per capita*, influences the distribution of federal grants. They claim that the significant disparity observed in the *per capita* representation across different provinces is an important factor explaining the allocation of transfers.

Feld and Schaltegger (2002) were the first to present evidence on the determinants of intergovernmental grants in Switzerland. Using yearly data on conditional and unconditional grants for 26 Swiss cantons from 1980 to 1998, the authors analyzed the extent to which the amount of *per capita* grants can be explained by traditional and political-economic arguments. In particular, they investigated whether interest groups (measured by union density) and bureaucracy power (measured by the share of administration employees) had an impact on the granting system. They argued that fiscal referenda have the ability to restrict the impact of interest groups in the determination of intergovernmental grants. In fact, they found evidence that fiscal referenda led to lower grants, reducing the impact of state bureaucrats and trade unions in the determination of grants.

Johansson (2003) tested the hypothesis that grants to local governments are used strategically by the central government to enhance its changes of reelection. Empirical work on a panel dataset consisting of 255 Swedish municipalities, from 1981 to 1995, suggests that municipalities with more swing voters receive higher grants. Therefore, intergovernmental grants are used in order to win votes.

Lowry and Potoski (2004) refined the Grossman's (1994) study, by investigating how interest groups influence federal discretionary grants across seven policy areas. According to their results, interest groups and private and public organizations, by indirectly reflecting citizen preferences, influence the allocation of federal discretionary grants.

The above-mentioned studies present considerable evidence supporting the importance of political factors in the allocation of intergovernmental grants. To our knowledge, there is only one article, Pereira (1996), investigating the determinants of intergovernmental grants in Portugal using a political-economic approach[3]. Other

[3] Santos (1991), in an estimation of the demand for local public services in Portugal, regresses current local expenditures on goods and services on a set of variables that includes a political dummy variable used to test if left-wing parties have a higher preference for publicly provided services. The estimated coefficient is positively signed, as expected, and is statistically significant at the 90% level.

contributions have, however, been produced focusing mainly on efficiency and equity goals. In the next paragraph, we briefly review these contributions.

Cohn and Costa (1986) estimated a production function for municipalities. They concluded that grants lead to inefficiency because the effect of the lower elasticity of public capital in municipalities with greater needs more than compensates the increase in total public expenditure. The purpose of Osório (1998) and Costa and Osório (1999) was to test whether the redistributive nature of unconditional grants led to inefficiency in production. After estimating a cost function for municipalities and calculating a cost-efficiency index, the authors found no evidence of a negative impact of unconditional grants on the cost efficiency of municipalities. Moreover, the results concerning the political variables included in the analysis were not clear. Pereira and Silva (1999) argued that the formula according to which Portuguese grants to municipalities are calculated is not economically rational because it does not properly capture the fiscal capacity and the needs of the population. In order to overcome these caveats, the authors propose a new methodology emphasizing the fiscal capacity of the municipalities. Costa and Silva (2000) investigated, for the municipalities of northern Portugal, the causality between *per capita* grants and the tax capacity (horizontal equity). They concluded that municipalities' tax effort is negatively influenced by *per capita* unconditional grants. Melo's (2000) purpose was to highlight the differences between the Local Finance Law n. 42/98 and the previous legislation, by evaluating vertical and horizontal rebalances. He analyzed the changes in the geographical patterns of unconditional grants allocation to municipalities. Melo stressed the need to complement his descriptive analysis with other approaches, namely the political one.

The main purpose of our research is to shed some light on the influence of political forces in the Portuguese granting system. We extend Pereira's (1996) research by taking into account additional variables in the explanation of the intergovernmental grants allocation process, and by exploring a larger and much more detailed dataset. We use as our laboratory all the mainland Portuguese municipalities for the 1979 to 2001 period.

3. The Portuguese political and institutional framework

Portugal is a recent democracy; democracy was re-established after the April 25th 1974 revolution. A new Constitution came into effect on April 25th 1976 and legislative elections were held on the same day. See table 1 for a summary of legislative electoral results in the post-revolution period.

[Table 1]

The first years of the democratic period were characterized by high political instability. Until 1987, several minority governments ruled but did not manage to stay in office the entire term. In 1979, the first year in our sample, the 5th constitutional government, a care-taking government appointed by the President, was in office and ruled from November 1978 to July 1979. It was followed by a minority government that ruled until January 1980. After that, a government coalition (*Aliança Democrática*) formed by three right-wing parties (PSD-Social Democratic Party, CDS-Democratic and Social Center and PPM-Monarchic People's Party) was in office till June 1983. Another coalition government (*Bloco Central*), formed by a right and a left-wing party (PSD and PS-Socialist Party), stayed in office until 1985. From the end of 1985 until 1995, the party in office was the PSD. In 1987, after two years in office as a minority government, this party won a majority of votes for the first time since the re-establishment of democracy. It repeated the majority in the subsequent balloting held in 1991. At the end of 1995, the party in office changed again: the socialist party (PS) won the elections and stayed in office until 2002. After that the country has been ruled by a coalition formed by PSD and CDS/PP. During the period considered in this paper there were 11 constitutional governments (see table 2).

[Table 2]

Regarding local governments, the first municipal elections were held in 1976 and since then seven ballotings have taken place. Until 1985, municipal elections occurred

every three years, and after that the municipal governments' term was extended to four years. Elections have always taken place in December[4].

The Portuguese Constitution of 1976, the Local Power Law (Law n. 79/77, October 25) and the first Local Finance Law (Law n. 1/79, January 2) brought new responsibilities and more power to municipalities, allowing for a local finance reform through the consolidation of the financial decentralization (Santos and Vasconcelos e Sá, 1996). The implementation of the subsidiarity principle and, subsequently, the principle of local autonomy provided resources and more discretionary power to municipalities.

Portuguese municipalities receive both conditional and unconditional grants. Conditional grants provide a larger degree of discretion to the central government than unconditional grants. European Union's structural funds are a special case of conditional grants. They are allocated to each municipality by a central government agency that must follow the procedures established by a support framework in the selection process of the projects to be financed (Baleiras, 1997). If the project is selected, the municipality receives additional grants against the execution of infrastructure investments in, for example, the road network, the water supply or the sewage collection. Conditional transfers from the central government to municipalities are mainly regulated by contract and specific programs.

The first version of the Local Finance Law (Law n. 1/79) mentioned the possibility of conditional financial help from the central government to municipalities in case of public disaster or unusual circumstances. The Law n. 1/87 (January 6) also considered the possibility of technical and financial cooperation between the central government and municipalities aiming the promotion of regional and local development. The regulatory framework of this system of financial help is established by the central government in the form of decree-laws. In 1998, a new Local Finance Law was enacted (Law n. 42/98, August 6). It still allows for help by the central government if the regional development is at stake or if there is an urgent need of funds that cannot be provided by the municipality. This law also extends the scope of technical and financial cooperation, for example, to municipalities negatively affected

[4] Municipal elections took place at December 12, 1976; December 16, 1979; December 12, 1982; December 15, 1985; December 17, 1989; December 12, 1993; December 14, 1997; and December 16, 2001.

by central government investments or in case of a *freguesia* creation. The regulatory framework is still defined in the form of a decree-law.

As for unconditional grants, the discretionary autonomy of the grant giver is more limited since, in the Portuguese case, they are established by a fiscal rule and are formula-based transfers. According to the Portuguese Constitution, municipalities have the right to share national fiscal revenues. The central government which, as is generally accepted, collects taxes more efficiently than local governments, redistributes part of the tax revenue to local governments through unconditional grants. The next paragraphs briefly review the legal changes that occurred during the period analyzed in the allocation criteria of unconditional grants. Table 3 summarizes these changes.

[Table 3]

Law n. 1/79 (January 2) establishes the framework governing unconditional grants from the central government to municipalities and sets up a direct relationship (of no less than 18%) between the total amount of unconditional grants to municipalities and the National Budget capital and current expenditures. Until 1987, the total amount of unconditional grants was not formula driven and was published each year in the National Budget Law. These grants result from the municipalities right to share tax revenues collected at the central level (artº 5º.b) and other revenues as a financial equilibrium fund (artº 5º.c) and were transferred to local governments in twelve shares.

In the Decree-law 98/84 (March 29), all unconditional grants allocated to municipalities by the National Budget became known as the Financial Balance Fund (*Fundo de Equilíbrio Financeiro*, FEF). Note that this decree-law explicitly allows for the autonomous regions of Azores and Madeira to apply specific rules to their municipalities (artº 30º). The same happens in the subsequent legislation (Law n. 1/87, artº 28º, Law n. 42/98, artº 35º).

Law n. 1/87 (January 6) established that the total amount of FEF should be annually corrected on the basis of the expected change in the value-added tax (VAT) revenue[5] as expressed in the National Budget. A tenth of the FEF's total amount was

[5] $FEF_t = FEF_{t-1}\left(\frac{VAT_t}{VAT_{t-1}}\right)$

equally distributed among all municipalities. The remaining was divided among municipalities in direct proportion of the following set of indicators: population[6], area, *per capita* direct taxes, municipal road network, number of dwellings, number of *freguesias* and a socio-economic development index (computed on the basis of the degree of industrialization, the importance of the primary sector, a total dependency coefficient, an accessibility index, the needs in terms of basic infra-structures and the *per capita* energy domestic consumption). The National Budget Law established, each year, the FEF proportions in terms of capital and current grants, so that the former would be no less than 40% of the total amount.

However, the law defined a transitory regime between 1987 and 1990. In 1987 80% of the FEF was allocated to each municipality according to the 1986 criteria. In the following years this percentage decreased 20 points yearly. The remaining funds were distributed according to the criteria defined by the new law under the condition that no municipality would receive less than it had benefited in the previous year.

Compared to the Law n. 1/79, the 1987 Law attempted to simplify the allocation criteria, by replacing the needs index (as needs were found difficult to measure) by a socio-economic development index based on a set of socio-economic indicators. Still, these allocation criteria were found to be complex (Santos and Vasconcelos e Sá, 1996). The National Budget Law of 1992 simplified the allocation framework: the socio-economic development index was excluded as well as some socio-economic indicators that were on the basis of its calculation. The *per capita* direct taxes criterion was replaced by the difference between *per capita* main direct taxes and the correspondent national average. This tax-base equalization element (a fiscal need index) was introduced with a coefficient of 5%. Nevertheless, more importance was given to the equalization of municipalities' needs than the fiscal capacity of their fiscal capacity.

In 1998 a new law was approved (Law n. 42/98) and replaced the FEF by the Municipal General Fund (*Fundo Geral Municipal*, FGM) and the Municipal Cohesion Fund (*Fundo de Coesão Municipal*, FCM)[7]. The total amount of these funds was established as a proportion (30,5%: 24% for FGM and 6,5% for FCM) of the actual tax revenues generated two years before by the income taxes, and the value added tax. This

[6] Population was considered the main needs indicator with a coefficient of 45% (even if in the National Budget Law of 1992 it was lowered to 40%).

represents an important change from the previous law according to which the amount of funds to be transferred was calculated as a percentage of expected tax collection, leading to systematic under evaluations of the tax revenues. The FGM was created to provide municipalities with adequate financial resources for the execution of their tasks, as a function of their levels of operation and investment. It was computed on the basis of the ratio of nights spend in tourist facilities to population, *per capita* direct taxes, number of *freguesias*, area and the population under 15 years old.

In opposition to the FGM, the FCM is not allocated to all municipalities. The FCM intends to promote an horizontal balance, that is, to reduce inequity among local jurisdictions. This fund is only transferred to municipalities that have a development index (computed on the basis of two indexes: a fiscal need index and an opportunity disparity index) below the national average.

In 2001 (National Budget Law, artº 12º), the Municipal Basis Fund (*Fundo de Base Municipal*, FBM) was created to complement the other two. It allocates an equal amount of resources to each municipality, both in terms of capital and current revenues.

From the description presented above, one can conclude that, during the period under analysis, considerable changes occurred both in the conditional and the unconditional grants allocation process from the central government to local authorities.

4. The dataset

We use as our laboratory a large and unexplored dataset containing information on all Portuguese mainland municipalities (278) from 1979 to 2001[8].

Data on population and on transfers from the central government to the local authorities was obtained from the Municipalities General Direction's ("Direcção Geral das Autarquias Locais") annual report called *Finanças Municipais* (*Municipal Finances*). This report exists from 1978 to 1983 and from 1986 to 2001. For the two

[7] This law established a transitory regime concerning the FGM and FCM total amount and the formula of allocation to municipalities for 1999, 2000 and 2001 (artº 31º).

[8] Overseas municipalities, belonging to the autonomous regions of Azores and Madeira were excluded from the analysis.
Regarding the Portuguese geographical organization, one should mention that during the period analyzed four municipalities were created: Amadora, in 1979, and Odivelas, Trofa and Vizela, in 1998. Other minor changes, like the creation of new *freguesias*, were ignored since the impact of those changes is expected to be negligible.

missing years, 1984 and 1985, data was collected from the annual report *Finanças Locais: aplicação em 1984 /1985* (*Indicadores Municipais*) also from the responsibility of the Municipalities General Direction's.

The illiteracy rate and the data on the percentage of population by sector of activity were obtained from the Portuguese National Statistical Office's (Instituto Nacional de Estatística – INE) Census operation. Data were available for 1981, 1991 and 2001; a constant growth rate was assumed to fill in the missing data. Data on population by age was obtained by assuming a constant growth rate for the period 1979-1989, on the basis of the 1970 and 1981' Census operations; for the rest of the period, annual data was acquired from the Portuguese National Statistical Office's Resident Population Estimates. Purchasing power index data were obtained from the Portuguese National Statistical Office. These data are available for 1993, 1995, 1997 and 2000. We assumed a constant growth rate for the years in between. Consumer price indexes were acquired from the IMF's *International Financial Statistics*.

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

5. The model

In this paper we apply a political-economy approach to investigate the determinants of the grant allocation process from the central government to local authorities. We model real *per capita* grants to municipalities ($GRANT_{it}$) as a function of lags of the dependent variable; a vector of variables related with the public choice idea that policymakers take into account their personal interests in the grant allocation process (PUB_CHOICE_{it}); and, a vector of control variables associated with the normative approach, that views the grant giver as a social well-being maximizer ($NORM_{it}$).

The dependent variable, $GRANT_{it}$, is defined in *per capita* terms in order to take into account size differences among municipalities, and avoid heterosckedasticity problems. It is measured in 1995 euros, to control for price increases over time.

The first vector of variables (PUB_CHOICE_{it}) consists of political variables that allow us to test if grant givers are self-motivated and if local incumbents' pressures influence the granting process. The following variables were considered:

- MUN_ELECT_{it}: dummy variable equal to one in municipal election years, and to zero in the other years. It is our belief that mayors exert pressure on the central government in order to receive a larger amount of funds during municipal election years, so that they have more resources available for electoral campaigns and vote-enhancing expenditures[9]. A positive sign is expected for the estimated coefficient associated with this variable.
- $SAME\_PARTY_{it}$: dummy variable that takes the value of one when the mayor and the prime-minister belong to the same party. This variable allows us to test if similarity of party affiliation between local and central politicians increases the amount of grants made to a municipality.
- $YEARS\_IN\_OFFICE_{it}$: number of years that a mayor has been in office[10]. We expect the ability of a mayor to extract a larger amount of funds from the central government to increase with the number of years he has been in office. Therefore, a positive coefficient is expected for the estimated coefficient associated with this variable.
- LEG_ELECT_{it}: dummy variable equal to one in legislative election years, and to zero in the remaining years. In order to increase its popularity, the central government is likely to transfer a larger amount of funds to municipalities in legislative election years. We expect the estimated coefficient associated with this variable to be positively signed.

The second group of explanatory variables ($NORM_{it}$) consists of demographic, economic and social variables that allow us to test if the granting process strives for improvements of social welfare. These variables proxy the macroeconomic situation of the country, the municipalities' social and economic development, and capture

[9] Recall that during the period analyzed municipal elections in Portugal always took place in December.

differences in local population needs. The following variables are included in this vector[11]:

- POP_CAT_{it}: population category is a discrete variable equal to 1 for Lisbon and Porto, 2 for other municipalities with population over 40000, 3 for municipalities with population between 10000 and 40000 and, 4 for the remaining municipalities[12]. This variable intends to capture differences in municipalities' needs that depend on their population.
- $AREA_{it}$: area in squared kilometers. A positive coefficient is expected for the estimated coefficient associated with this variable, since municipalities with larger areas need more resources for rural roads, etc..
- $COASTLINE_{it}$: dummy variable that takes the value of 1 for municipalities that belong to districts (*Distritos*) along the coastline, and zero for those that belong to districts located in the interior of mainland Portugal. Since the districts along the coastline are the richest and most developed ones, a negative sign is expected for the estimated coefficient.
- DEP_RATIO_{it-1}: percentage of the population under 15 or over 65 years old in the last year. The estimated coefficient associated with this variable is expected to be positive because these groups of the population demand specific services typically provided by local authorities, such as elementary education and facilities for the elderly.
- $ILLITERACY_{it-1}$: illiteracy rate in the last year. This variable allows us to test if the central government intends to promote equity among municipalities. A positive sign is expected for the estimated coefficient.
- $\%POP\_PRIM_{it-1}$ and $\%POP\_TERT_{it-1}$: the percentage of the municipality's population employed, respectively, in the primary sector and in the tertiary sector during the last year. They are control variables that help capture municipalities' differences.

[10] There are no term limits in Portugal.
[11] Although it would be desirable to include in this vector a variable capturing the municipalities' private income *per capita*, this data is not available for the whole period. Data on municipal purchasing power index exists only for 1993, 1995, 1997 and 2000.
[12] These population categories are used in the legislation to determine the mayors' salaries.

- GDP(-1)$_{it-1}$: *per capita* GDP at 1995 prices. Since the macroeconomic performance of the country directly affects tax revenues collected by the central government, it may condition the amount of funds transferred to municipalities. A positive sign is expected for the estimated coefficient associated with this variable.

The last five independent variables are lagged one year because it takes time for economic data to be released and for policymakers to take them into account in the grant allocation process.

Table 4 presents descriptive statistics of the variables used in the empirical work.

[Table 4]

The baseline empirical model is described in equation (1), where *t* represents the year, *i* the municipality, *p* the number of lags of the dependent variable included in the model[13], β and γ are vectors of parameters to be estimated, ν_i is the individual effect of municipality *i*, and e_{it} the error term:

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

$$i = 1 \ldots, N; \quad t = 1, \ldots, T_i \qquad (1)$$

The model described above could be estimated assuming municipalities' individual effects as fixed or random. However, the lagged value of the dependent variable would be correlated with the error term, ε_{it}, even if the latter is not serially correlated, leading to inconsistent model estimates. This occurs because there is a clear dominance of cross sections (N=275)[14] over time periods (T=23) in our sample.

Arellano and Bond (1991) developed a Generalized Method of Moments (GMM) estimator to solve these problems. By first differencing equation (1) individual

[13] The optimal number of lags was determined according to their statistical significance and the absence of auto-correlation.

[14] When taking lags and first-differences, the observations for three municipalities created in 1998 (Odivelas, Trofa and Vizela) are dropped, leading to a panel of 275 municipalities and 20 years of observations.

effects (ν_i) are removed and the resulting equation becomes estimable by instrumental variables:

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

$$i = 1 \ldots, N; \quad t = 1, \ldots, T_i \qquad (2)$$

The valid instruments are levels of the dependent variable, lagged two or more periods; levels of the endogenous variables, lagged two or more periods; levels of the pre-determined variables, lagged one or more periods; and the levels of the exogenous variables, current or lagged or, simply, the first differences of the exogenous variables.

More moment conditions are available if we assume that the explanatory variables are uncorrelated with the individual effects. In this case, the first lags of these variables can be used as instruments in the levels equation. Lagged differences of the dependent variable may also be valid instruments for the levels equations. Blundell and Bond (1998) show that this extended GMM estimator is preferable to that of Arellano and Bond (1991) when the dependent variable and/or the independent variables are persistent[15].

6. Empirical results

In this section we describe the results of our empirical analysis. We started by testing the model using as dependent variable the total amount of grants received by the municipalities (expressed in real and *per capita* terms) and, then, we disaggregated the series in capital and current grants (also in real, *per capita*, terms). Estimation results for the first model, using the method system-GMM for linear dynamic panel data models are presented in table 5. It presents the two-step results, using robust standard errors corrected for finite samples[16]. T-statistics are presented between parentheses and the degree of statistical significance is signaled with asterisks. The results of m1, m2

[15] Since there is some persistence of transfers, it is appropriate to estimate this system-GMM. Furthermore, difference Sargan tests indicate that, for our data, the system-GMM is preferable to the GMM that only includes the first-differenced equations.

[16] Although it is more common to present the one-step results because the two-step standard errors are generally biased downwards, that problem does not apply to our case, since the econometric software *PcGive 10.2* uses the finite-sample correction suggested by Windmeijer (2000). Thus, we present the two-step results, as these have the advantage of being consistent in the presence of heteroskedasticity.

and Sargan tests are reported at the foot of the table, as well as the number of observations and municipalities[17]. All equations were estimated including all available instruments.

[Table 5]

Column 1 shows estimates of our "baseline" model that includes all variables considered in the model description. Several findings are immediately evident. First, the significance of lagged grants suggests that they suffer from some degree of inertia[18]. Second, regarding political issues, the four variables considered turned out to be highly statistically significant. As predicted by public choice theories, namely by the political business cycles literature[19], grants increase during election years. Results indicate that, for all else equal, total grants *per capita* increase by 12.32 euros of 1995 in municipal election years, a relative increase (compared to the sample mean) of 5.1%. This is in accordance with our prior that mayors' lobby to receive more grants during balloting years in order to have more funds available for electoral campaigns and vote-enhancing expenditures[20]. During legislative election years total grants *per capita* also increase by 9.03 euros, a percentual increase of 3.7. This result reveals the central government's opportunistic behavior, which uses grant increases to capture votes and improve its likelihood of reelection. Furthermore, the data suggests that municipalities run by mayors that belong to the prime-minister's party receive a larger amount of grants *per capita* than the others (1.8%). Our estimates also reveal that the longer a mayor has been in office the larger the amount of grants received by his municipality. This may reflect mayors' accumulation of knowledge on how the Portuguese granting system works, and therefore, a stronger ability to extract a larger share of the distributed funds from the grant giver.

[17] See footnote 13.
[18] The choice of the number of lags to include was based on their statistical significance and on the need to avoid second order autocorrelation of the residuals. Although the second lag of *GRANT* is not statistically significant, there is second order autocorrelation of the residuals when it is not included.
[19] According to rational opportunistic business cycles models, such as those presented in Rogoff and Sibert (1988) and Rogoff (1990), incumbents relax fiscal policy before balloting periods to increase their reelection chances.
[20] Veiga and Veiga (2004) empirical results provide evidence of opportunistic behaviour by Portuguese mayors, evidenced by pre-election increases in expenditure items highly visible to the electorate, such as investment expenditures on overpasses, streets and complementary works and rural roads.

Third, regarding the control variables, estimates suggest, as expected, that grants *per capita* increase with the established population categories, with the municipalities area and with their dependency ratio. The variables measuring the percentage of population working in the primary and the tertiary sectors turned out to be statistically significant, positively signed in the first case, and negatively in the second. The estimated coefficient for the dummy variable associated with municipalities belonging to coastline districts is negatively signed, as we expected, but it turned out not to be statistically significant. GDP *per capita*, included to capture the macroeconomic performance of the country, also turned out correctly signed but statistically insignificant. To our surprise, the illiteracy rate is negatively signed and highly statistically significant.

Because the high degree of correlation between the illiteracy rate and the dependency ratio, as well as with the percentage of the population in the primary sector (80% and 70%, respectively), may cause multicollinearity problems, we decided to drop this variable. In the estimation results presented in column 2 we can see that the lags of the dependent variable kept their significance, and that all the political variables are still highly statistically significant. Regarding the control variables, the coastline dummy and the GDP *per capita* variable now turned out to be marginally statistically significant and correctly signed.

We proceeded with our empirical analysis by applying the last model described to real, *per capita*, capital and current grants. Results are presented in table 6. As in the previous table, in both specifications, there is evidence of strong persistence in the series and of the importance of political forces in the allocation of grants from the central government to municipalities. The dummy variable for municipal election years turned out to be statistically significant and with the expected (positive) sign. In legislative balloting years, both capital and current grants transferred to local governments increase, suggesting that governments manipulate grants to attract votes. Furthermore, similarity of party affiliation between local and central officeholders increases the amount of capital and current grants made to a municipality. Regarding the number of years a mayor has been in office, there is evidence that it increases the amount of capital grants received by the municipality, but not of current grants. All the control variables have the same sign as in the previous table, but their degree of

statistical significance is now much smaller, particularly in the estimation for current grants.

[Table 6]

7. Conclusions

Using an unexplored and detailed sample consisting of all Portuguese mainland municipalities for the 1979 to 2001 period we investigate the determinants of the intergovernmental grants allocation system. Our results present strong evidence that political factors exert an important role in this process. During municipal and legislative election years grants transferred to municipalities increase, which may reflect the opportunistic behaviour of incumbent politicians interested in improving their probabilities of re-election. Furthermore, municipalities ruled by mayors that belong to the prime-minister's party seem to be favoured in the allocation process, and the longer a mayor has been in office the larger the amount of grants transferred to his municipality.

Our results also reveal that total grants *per capita* transferred to a local jurisdiction are influenced by social, economic and demographic variables characterizing it, as suggested by the normative approach to intergovernamental grants. The population category, area, dependency ratio, and percentage of the population working in the tertiary sector positively affect the amount of grants received; while the percentage of the population working in the primary sector exerts a negative impact.

The importance of political variables in the granting system, and of the distortions they may generate, has policy implications. First, it highlights the need for the allocation process to be formula driven. That is, the amount of grants transferred to local authorities should not depend on the political cycle nor on party affiliation. Second, our result that the longer a mayor has been in office the larger the amount of grants his municipality receives provides an argument for the introduction of term limits to Portuguese local politicians.

Although preliminary, our results are quite robust. In future research we intend to further disaggregate the data on transfers, and increase the number of socio-economic and demographic variables characterizing the municipalities.

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Table 1: **Legislative electoral results**

	PS	PPD/PSD	CDS/PP	AD	PCP
1975[(a)]	37.87%	26.39%	7.61%		12.46%
1976	34.98%	24.03%	15.89%	-	14.50%
1979	27.43%	-	-	42.24%	18.96%[(c)]
1980	27.13%[(b)]	-	-	44.40%	16.92%[(c)]
1983	36.35%	27.04%	12.38%	-	18.20%[(c)]
1985	20.82%	29.79%	9.74%	-	15.55%[(c)]
1987	22.30%	50.15%	4.34%	-	12.18%[(d)]
1991	29.25%	50.43%	4.38%	-	8.84%[(e)]
1995	43.85%	34.00%	9.09%	-	8.61%[(e)]
1999	44.00%	32.32%	8.38%	-	9.02%[(e)]
2002	37.84%	40.15%	8.75%		6.97%[(e)]

Source: National Elections Commission.

Notes: PS - Socialist Party; PPD/PSD - People's Democratic Party / Social Democratic Party; CDS/PP - Democratic and Social Center / People's Party; AD - Democratic Alliance (PSD + CDS + PPM - Monarchic People's Party); PCP - Portuguese Communist Party. The results for the smaller parties are not shown. There are usually about a dozen parties competing in the legislative elections.

[(a)] The 1975 elections served to elect the members of the Constituent Assembly, which was assigned the task of drafting the new Portuguese Constitution. The country was still ruled by provisional governments and the Junta of National Salvation until April 1976.

[(b)] Socialist Revolutionary Front (FRS): PS + small socialist parties.

[(c)] United People's Alliance (APU): PCP + MDP/CDE (Portuguese Democratic Movement).

[(d)] Unitary Democratic Coalition (CDU): PCP + dissidents of MDP + PEV (Green-Ecologist Party).

[(e)] PCP + PEV

Table 2: **Legislative elections and parties in government since 1979**

Dates of elections	Winning party	Share in Parliament	Prime Minister	Form of government
-	-	-	Mota Pinto	Pres. appointment (1978-79)
-	-	-	M. L. Pintassilgo	Pres. appointment (1979-80)
December 2, 1979	AD	47%	Freitas do Amaral	Coalition (PSD+CDS+PPM)
October 5, 1980	AD	49%	Pinto Balsemão	Coalition (PSD+CDS+PPM)
April 25, 1983	PS	69%	Mário Soares	Coalition (PS+PSD)
October 6, 1985	PPD/PSD	34%	Cavaco Silva	One party, minority
July 19, 1987	PPD/PSD	59%	Cavaco Silva	One party
October 6, 1991	PPD/PSD	58%	Cavaco Silva	One party
October 1, 1995	PS	48%	António Guterres	One party, minority
October 10, 1999	PS	50%	António Guterres	One party, minority
March 17, 2002	PPD/PSD	46%	Durão Barroso	Coalition (PSD+CDS/PP)

Source: National Elections Commission.

Note: PPD/PSD - People's Democratic Party / Social Democratic Party; PS - Socialist Party; CDS/PP - Democratic and Social Center / People's Party; PPM - Monarchic People's Party; AD = PSD + CDS + PPM

Table 3: **Allocation criteria of unconditional grants to municipalities**

	Law n. 1/79 artº 5º.b)	**Law n. 1/79 artº 5º.c)**	**Decree-law n. 98/84**	**Law n. 1/87**	**National Budget Law 1992**	**Law n. 42/98**		**National Budget Law 2001**
						FGM	**FCM**	**FBM**
Population	50%	35%	45%	45%	40%	-	-	-
Population/Nights spend in tourism facilities	-	-	-	-	-	35%	-	-
Area	10%	15%	10%	10%	15%	30% (d)	-	-
Per capita direct taxes	40%	-	15%	10%	-	10%	-	-
Fiscal need index	-	-	-	-	5%	-	-	-
Number of *freguesias*	-	15%	5%	5%	-	15%	-	-
Road Network	-	(a)	-	10%	10%	-	-	-
Number of dwellings	-	-	-	5%	-	-	-	-
Accessibility index	-	-	-	(b)	5%	-	-	-
Needs index	-	35%	20%	-	-	-	-	-
Socio-economic development index	-	-	-	5%	-	-	-	-
Population under 15 years old	-	-	-	-	5%	5%	-	-
Development index (c)	-	-	-	-	-	-	100%	-
Equal amount to all municipalities	-	-	5%	10%	15%	5%	-	100%
	100%	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Diário da República.

Notes: (a) Included in the needs index.
(b) Included in the socio-economic development index.
(c) Allocated only to municipalities with an index below the national average.
(d) Weighted by a factor related to altimetry.

Table 4: **Descriptive Statistics**

Variables	N.Obs.	Average	Standard Deviation	Minimum	Maximum
Grants:					
Total grant	6 131	242.2	169.5	10.3	1 890.5
Capital grant	6 131	133.5	102.6	2.2	1 193.8
Current grant	6 131	108.8	76.3	0.0	696.7
Political variables:					
Municipal Election Year	6 333	0.3	0.5	0	1
Same Party	6 321	0.4	0.5	0	1
Years in Office	6 314	6.4	4.7	1	25
Legislative Election Year	6 332	0.3	0.5	0	1
Socio-economic variables					
Population Category	6 333	3.1	0.7	1	4
Area	6 333	322.22	281.48	8.26	1 720.67
Coast Line	6 333	0.5	0.5	0.0	1.0
Dependency Ratio	6 332	36.6	4.0	23.2	58.2
Purchasing Power Index	2 200	63.3	31.9	10.1	314.2
Illiteracy rate	6 327	18.7	8.2	3.7	55.0
% Population employed in the primary	6 327	25.0	17.8	0.2	84.5
% Population employed in the tertiary	6 327	41.1	14.2	2.0	85.6
GDP *per capita* at 1995 prices	6 327	6 729.5	1 975.6	4 072.2	9 976.7

Sources: DGAL, INE, OCDE, STAPE and municipal official accounts.

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

Table 5: **Estimation results for total grants**

	(1)	**(2)**
Grant (-1)	.81 (25.2)***	.83 (26.2)***
Grant (-2)	-.03 (-.99)	-.02 (-.89)
Grant (-3)	.12 (3.08)***	.11 (2.95)***
MUN_ELECT	12.32 (5.77)***	11.05 (5.14)***
SAME_PARTY	4.45 (2.20)**	5.22 (2.53)**
YEARS_IN_OFFICE	1.14 (4.65)***	1.30 (5.39)***
LEG_ELECT	9.03 (4.98)***	8.36 (4.56)***
POP_CAT	32.54 (8.89)***	27.27 (6.64)***
AREA	.03 (4.68)***	. 01 (2.88)***
COASTLINE	-5.98 (-1.55)	-6.75 (-1.92)*
DEPEND_RATIO(-1)	2.80 (5.17)***	1.74 (3.40)***
ILLITERACY(-1)	-1.91 (-6.42)***	
%POP_PRIM(-1)	-.48 (-3.70)***	-.86 (-7.02)***
%POP_TERT(-1)	.52 (3.55)***	.56 (3.81)***
GDP(-1)	.0009 (1.38)	.001 (1.86)*
m1	-7.92	-7.94
m2	.77	.70
Sargan (p-value)	.194	.166
No. Observations	4 927	4 927
No. Municipalities	275	275

Notes:
- Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equations in levels), using the econometric software *PcGive 10.2*;
- two-step results using robust standard errors corrected for finite samples;
- T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: ***, 1%; **, 5%; and *, 10%.
- m1 and m2 are tests for first-order and second-order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null of no serial correlation.
- Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically χ^2. P-value is reported.

Table 6: **Estimation results for capital and current grants**

	Capital	**Current**
Grant (-1)	.74 (24.9)***	1.11 (88.2)***
MUN_ELECT	8.02 (4.79)***	1.05 (2.66)***
SAME_PARTY	5.73 (3.28)***	1.65 (3.52)***
YEARS_IN_OFFICE	1.04 (5.02)***	.04 (.99)
LEG_ELECT	5.46 (3.61)***	4.65 (9.23)***
POP_CAT	28.20 (9.43)***	-.18 (-.16)
AREA	.01 (3.10)***	. 00004 (.43)
COASTLINE	-2.46 (-.70)	.33 (.66)
DEPEND_RATIO(-1)	1.69 (3.87)***	-.15 (-1.83)*
%POP_PRIM(-1)	-.61 (-7.46)***	.008 (.30)
%POP_TERT(-1)	.61 (5.08)***	-.04 (-2.39)**
GDP(-1)	.0008 (1.41)	.0001 (1.24)
m1	-8.45	-5.11
m2	-.22	.38
Sargan (p-value)	.320	.181
No. Observations	5 671	5 665
No. Municipalities	275	275

Notes:
- Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equations in levels), using the econometric software *PcGive 10.2*;
- two-step results using robust standard errors corrected for finite samples;
- T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: ***, 1%; **, 5%; and *, 10%.
- m1 and m2 are tests for first-order and second-order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null of no serial correlation.
- Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically χ^2. P-value is reported.