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**POLITICAL DETERMINANTS OF
MUNICIPAL ACCOUNTS: QUASI-
EXPERIMENTAL EVIDENCE FROM
PORTUGAL**

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Political determinants of municipal accounts: quasi-experimental evidence from Portugal.

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Abstract

This study investigates the impact of electing a majority in a municipality's legislative body on different items of the local current and capital accounts. Inference is based on a RDD approach and a dataset containing electoral and financial information for a sample of 278 homogeneous municipalities over 32 years. Results provide evidence of a significant causal impact of treatment on the most relevant items of the current and capital revenue and expenditure accounts. In particular, municipalities ruled by a legislative majority raise more revenues through current and capital transfers, but also have higher expenditures with personnel and investment goods.

Keywords: Public finance, absolute majority,

JEL codes:

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1 Introduction

There are few issues that raise as much interest as the financial performance of national and sub-national governments. Which explains the vast literature on the economic, institutional and political determinants of public finance. This paper in particular, contributes to the growing body of quasi-experimental evidence on the political determinants of local public finance. More specifically, the impact of political fragmentation on municipal accounts.

A popular branch of the literature emphasizes the importance of fragmentation at both the executive and legislative levels of political institutions. It finds theoretical support on two well known models dealing with the division of political power that predict similar outcomes. First, the seminal work by Alesina and Drazen (1991) on disagreement among agents in the decision making process. Versions of this model try to explain why coalition governments have a disadvantage in building consensus based on the premise that the larger the number of players the harder it is to achieve cooperation. Second, ‘the common pool problem’ as presented in Weingast et al. (1981) and Shepsle and Weingast (1981). The first empirical application of this theoretical idea to political fragmentation by Kontopoulos and Perotti (1999) argues that internalizing the costs of fiscal policy is intrinsic to the fiscal policy decision making process itself. This led to a focus on the number of decision makers involved in the process which has been translated into empirical variables measuring either the number of parties in a coalition, on the legislative side, or the size of the cabinet, i. e. the number of spending ministers, on the executive side.

The present analysis innovates by applying a quasi-experimental method, the Regression Discontinuity Design (RDD), to the study of the most basic form of political fragmentation; majority vs. minority ruling. Early empirical literature studying the policy implications of majorities vs. minorities or coalition governments relies on qualitative or self-constructed variables of ‘government weakness’ (e. g. Roubini and Sachs (1989a,b)). In contrast, this

paper takes advantage of a particular institutional feature ruling Portuguese local elections to causally identify the impact of having an elected majority in a municipality's legislative body on local current and capital accounts. It is not the first time RDD is employed in the political fragmentation literature (Pettersson-Lidbom, 2008, 2012). Yet, to my knowledge it is the first time it is used to explicitly study the majority vs. minority dichotomy.

Results show that, in line with previous studies relying on quasi-experimental evidence, stronger governments, i. e. less fragmented, do not unambiguously provide for stronger finances. If on the one hand, municipalities run by a legislative majority are able to raise higher revenues. On the other hand, they also have significantly higher expenditures. All in all, majorities are related to a larger government size.

The rest of the paper is structured as follows. The next section deals with the related literature on political fragmentation. Section 3 provides relevant aspects of the institutional framework. Section 4 describes the data and presents a first analysis of the financial and political landscape under study and section 5 explains the empirical methodology. Section 6 presents the main results while section 7 provides a robustness check. Finally, section 8 concludes.

2 Literature Review

The unprecedented attention devoted to fiscal policy in the last quarter of the twentieth century was largely due to the ever-increasing role of the government in industrial economies. Particularly the recurrent large deficits incurred by several OECD countries leading to significant rises in public debt. In this context, extensive research emerged trying to uncover the link between political or institutional arrangements and fiscal developments.

The early literature however, heavily relied on cross-country variation and was thus prone to suffer from omitted variable bias and provided contradictory and inconclusive results.¹

Later, the focus on local level data brought methodological improvements as relying on an homogenous set of units subject to the same institutional rules, reduces the risk of bias due to omitted variables. Yet, early studies still relied on self-constructed indexes qualitatively measuring the strength or conversely the weakness of governments (Kalseth and Rattso, 1998; Borge, 1995, 2005, 2000). Such approach implies ex-ante assumptions being carried over to the regression framework. To overcome this drawback, other measures of political fragmentation were devised, the most popular being the Herfindahl index and cabinet and coalition sizes. In general, the more fragmented is the local government, as measured by these three variables, the more harmful is the impact on local finances (Kalseth and Rattso, 1998; Borge, 2005; Ashworth and Heynelds, 2005; Schaltegger and Feld, 2009; Baqir, 2002).² There are however, important exceptions that also use these and other tailored measures of government fragmentation. Rattso and Tovmo (2002), relying on data from Danish local governments, find no significant impact on total revenues nor expenditures of council fragmentation as measured by the Herfindahl index. Also, in the German Laender, public debt depends on the power of the finance minister rather than the composition of the state government (Jochimsen and Nuscheler, 2011), cabinet size does not have a relevant impact on public expenditure nor is the latter significantly different

¹Depending on the choice of countries, time-frame, fiscal variables and index of government fragmentation, different studies report that weaker forms of government such as multi-party coalitions or minority governments either act poorly in reducing budget deficits in times of adverse economic shocks (Roubini and Sachs, 1989a,b; Edin and Ohlsson, 1991), have no impact at all on government spending (De Haan and Sturm, 1994, 1997) and on public debt and its growth (De Haan and Sturm, 1994, 1997; De Haan et al., 1999; Woo, 2003), or conversely are more fiscally conservative presenting actually lower deficits (Borrelli and Royed, 1995; Sakamoto, 2001).

²These alternative measures also gained traction in the cross-country context. For instance, for various samples of OECD countries, the number of parties in government and cabinet size appear to increase government spending as a fraction of GDP (Bawn and Rosenbluth, 2006) as well as the growth of the debt-to-GDP ratio (De Haan et al., 1999; Ricciuti, 2004), and are a significant determinant of central government expenditures (Volkerink and De Haan, 2001; Kontopoulos and Perotti, 1999; Perotti and Kontopoulos, 2002; Harrinvirta and Mattila, 2001). But Harrinvirta and Mattila (2001) do not find evidence of multi-party government having higher budget-deficits than one-party governments.

between coalition and single-party governments (Baskaran, 2013). In Swiss Cantons, the number of parties in government has no robust effect on public revenues nor expenditures (Schaltegger and Feld, 2009). And in the U.S., even though divided state governments are generally credited with larger deficits (Alt and Lowry, 1994; Poterba, 1994), Bohn and Inman (1996) find no significant evidence of an adverse impact of divided governments on deficit behaviors.

Finally, relying on a RDD approach, Pettersson-Lidbom (2008, 2012) shows that small Swedish coalitions spend significantly more than larger ones and that in both Sweden and Finland larger cabinets are significantly related to lower public expenditure and employment. All in all, the literature provides largely inconclusive evidence. Still, recent studies focused on the local level and employing quasi-experimental designs increasingly defy the premises established in the theoretical literature predicting a negative impact of fragmentation on public finances.

3 Institutional Framework

The laws regulating local authorities are bound to the principle of administrative decentralization. Local governments have their own assets, finances and personnel, and seek to ensure the well-being and pursue the interests of their population. Municipalities have responsibilities within several areas of the public sphere from the supply of public goods (energy, transportation and communication, education, culture, sports, health, housing, sanitation, social welfare and civilian and environmental protection) to territorial organization, promotion of local development and external cooperation.³

Local authorities' administration is the responsibility of their own political organs; the municipal assembly and the municipal council. The former having decision-making pow-

³Law No. 159/99 in *Diario da Republica* 215, Series I-A, 14th September 1999.

ers, and the latter, the collegial executive organ, being accountable to the assembly. The competences of the municipal assembly encompass not only the oversight of the municipal council and municipal services' activities, but also in its role as the legislative body to approve the budget plans and revisions, establish fees and their values, determine the remuneration of the municipal services administrative council members, approve the creation or reorganization of municipal services as well as their staff members, among others, under the municipal council's proposals.⁴ It thus make sense to focus on municipal assemblies.

Political parties, individually or in coalition, and independent lists of organized registered electors may contest municipal elections.⁵ Municipal assemblies are elected simultaneously countrywide every four years through a proportional representation system of closed lists with seats distributed according to the D'Hondt method.⁶ The president of the assembly is elected by secret suffrage among the members of the assembly. In addition to the directly elected members also the chairmen of the municipality's parish councils constitute the municipal assembly.⁷

There is no requirement for a majority in the municipal assembly. Additionally, electoral rules do not allow for post-election official coalition formations. Camoes and Mendes (2009) actually describe cases of bargaining activity at the level of the local executive council. By the same token, informal coalition formation can be expected in the legislative body where deliberation processes are finalized through a roll call plurality voting, with the president of the assembly voting last and having the deciding vote in case of a tie.

⁴Law No. 169/99 of 18th of September amended by Law No. 5-A/2002 in *Diario da Republica* 288, Series I-A, 11th January 2002.

⁵In the following and for simplicity all forms of political platforms contesting municipal elections are referred to as parties.

⁶Until 1985 local elections took place every three years.

⁷Yet, the number of directly elected members is by law greater than that of the chairmen of the parish councils. Even though the chairmen of the municipality's parish councils are less in number than the directly elected members, their presence threatens any majority position acquired by the latter as a results of the voting process. Still, given that all local elections take place at the same date, majorities in the municipal assembly are likely also reflected at the parish level.

4 Data

The analysis is based on financial and electoral data on all 278 Portuguese mainland municipalities for 32 years, from 1981 to 2012, and nine out of eleven local elections.⁸ Electoral data, in particular the election dates and the municipal assembly elections results are available at the National Electoral Commission (*Comissão Nacional de Eleições*) and the General Directorate for Internal Affairs (*Direcção Geral da Administração Interna*) websites.⁹ The nine elections under study took place in the following years: 1979, 1982, 1985, 1989, 1993, 1997, 2001, 2005 and 2009. Except for the last two, which happened in October, all other elections took place in December.

Financial data on the municipalities' local accounts are from the General Directorate for Local Authority's (*Direcção Geral das Autarquias Locais*) annual publication entitled Municipal Finances (*Finanças Municipais*) for the period between 1981 and 2002.¹⁰ From the year 2003 onwards data on municipal finances is available at the institution's website.¹¹ All fiscal variables are deflated to the year 2005 by the national consumer price index acquired from the World Economic Outlook Database of the International Monetary Fund. Additionally, this study uses the per capita values of the different fiscal variables, relying on the annual data on resident population per municipality from the Portuguese National Statistics Institute (INE).

4.1 Municipal Accounts

Municipalities present their financial accounts yearly. They are divided into both current and capital accounts. The first are of an operative and year-by-year nature, while the

⁸Lack of critical data before 1981 and after 2012 leads to the exclusion of the 1976 and 2013 elections.

⁹<http://www.cne.pt> and <http://www.dgai.mai.gov.pt>

¹⁰This report was not compiled for the years 1984 and 1985. Data for these years are from the municipalities' official accounts and are incomplete.

¹¹<http://www.portalautarquico.pt/>

latter often involve long-term commitments less susceptible to change or repetition. Both consist of revenues and expenditure, each disaggregated into five main categories.

Current revenues and expenditures are of an operative nature and ensure the short-term needs for the daily municipal affairs. Current revenues consist mainly of (1) current transfers, (2) income from taxes, (3) income from fines and fees and (4) proceeds from the sale of goods and provision of services. Subfigure (a) of figure 1 shows the average percentual composition of current revenues. Current transfers are the main source of income accounting for close to 60% of total current revenues. These come primarily from the central government or other central administration and the EU. The second most important source of current income are taxes which amount to over 20% of current revenues. Yet, municipalities enjoy little tax autonomy and therefore tax revenues are not included in the analysis.¹² Despite the relatively small magnitude, income raised from fines and fees is subject to further analysis. These are in general revenues coming from the application of pecuniary sanctions in the exercise of public law, or from the attribution of licenses e. g. for owning pets or fire guns, as well as hunt licenses.

Subfigure (b) of figure 1 in turn, provides the structure of municipal current expenses. These comprise primarily (1) expenditures with personnel, (2) the acquisition of goods and services, (3) current transfers and (4) debt charges. Expenditures with personnel alone account on average for almost half of total current expenditures. The acquisition of goods and services in turn, amounts to over 30% of current expenses. Still, as any major sale or acquisition of goods must be approved by the local council this item is left out of the analysis.

Subfigures (a) and (b) of figure 2 provide the same graphical analysis for capital revenues and expenditures, respectively. Capital accounts usually imply a change in financial liabilities or fixed assets which are often subject to long-term depreciation. Capital revenues

¹²Municipal tax parameters and basis are in general set by higher tiers of governments and thus exogenous to local authorities.

thus primarily include (1) capital transfers, (2) financial liabilities and assets and (3) the sale of investment goods. Capital transfers, accounting on average for approximately 80% of total capital revenues are the sole item under study on the income side. These are financial contributions meant to finance capital expenses coming from the central government, other central administrations and the EU.

Finally, capital expenditures consist mainly of (1) the acquisition of investment goods, (2) capital transfers and (3) financial assets and (4) liabilities. Only the acquisition of investment goods accounting on average for over 80% of total capital expenditures is subject to further analysis. These are expenses that imply an increase in fixed assets and can result from own production or the purchase from a third party.

4.2 Municipal Politics

Election dates in Portugal are defined exogenously from the perspective of local authorities. Local politics are dominated by the local branches of the main parties represented in the national parliament. Additionally, and with increasing success, independent local lists also run for the elections. In contrast to the national level, at the local level pre-electoral coalitions are common even amongst the larger parties.¹³

Pre-electoral coalitions run a single list with one policy platform and thus aligned interests. Negotiation of terms and bargaining occurs therefore pre-elections and typical post-election coalition dynamics are thereby limited. As there is no expressed need for a majority in the assembly for the normal course of operations there are two post-election case scenarios. The first, where there is a majority in the assembly with a party having at least half of the directly elected seats. Or there is no party with a majority of seats. In this case consensus may be difficult to build as every representative belongs to a minority.

¹³The center-left PS and center-right PSD, which usually gather more than 40% votes in national elections, often run together with political allies in municipal elections.

Given that formal post-electoral coalitions are not laid down by law, negotiation and bargaining take place with the formation of unofficial coalitions even if vote by vote where the usual dynamics seen in post-electoral coalition formation processes are at play. As such, in this context the cut-off between treatment and control groups is whether a list has a majority of seats in the municipal assembly or not.

Figure 3 provides some insight on the distribution of majority and minority assemblies across the relevant time-frame. Even though majority assemblies are the most common scenario, subfigure (a) shows that in every election at least around a quarter of all municipalities had a minority assembly. Subfigure (b) in turn, provides information on within municipality assembly variation. It shows that the majority of municipalities, over 200 out of 278, had during the period under study both majority and minority assemblies. Around 40 municipalities always had a majority in the assembly and less than ten always had minorities. Finally, Figure 4 shows the distribution of majority and minority assemblies for all elections across the 18 Portuguese districts.¹⁴ The purpose of these graphs is simply to provide evidence on within and between variation and show that minority or by the same rational majority assemblies are not correlated geographically but rather randomly distributed across the country.

5 Econometric Strategy

Since Hahn et al. (2001) formally recognized the RD design as superior to other non-experimental approaches, its presence at large in the economics literature considerably increased. This ascribed superiority is due to several features that bring this method close to a random experiment. The identification strategy behind this quasi-experimental design relies on the assumption that the probability of receiving treatment changes discontinuously

¹⁴Municipalities are grouped into 18 districts created in 1835.

as a function of one or more underlying variables. If the individuals are unable to precisely control this underlying assignment variable, treatment variation is as a consequence ‘as good as random’ (Lee, 2008).

As is standard in the literature, this section presents the RD design in the context of the Rubin Causal Model set up with potential outcomes (Hahn et al., 2001; Lee and Lemieux, 2010). In general, the objective is to identify the causal effect of a binary treatment variable on an outcome variable across individuals. For each individual there is a pair of potential outcomes depending on whether or not they receive treatment. Formally, let Y_i be any of the fiscal outcome variables, where i indexes municipal assemblies. Then, $Y_i(0)$ and $Y_i(1)$ are the pair of potential outcomes, with $Y_i(0)$ being the outcome without exposure to treatment and $Y_i(1)$ the one with exposure. Since it is not possible to observe both outcomes, the common practice is to look at averages of $Y_i(1) - Y_i(0)$ over sub-populations, i. e. average effects of the treatment. In this context, treatment refers to whether there is a majority in the municipal assembly. As such, let $M_i \in 0, 1$ determine assignment to treatment, with $M_i = 0$ if i has no majority in the assembly, and $M_i = 1$ otherwise. The observed outcome can be written as:

$$Y_i = (1 - M_i) \cdot Y_i(0) + M_i \cdot Y_i(1) = \begin{cases} Y_i(0) & \text{if } M_i = 0 \\ Y_i(1) & \text{if } M_i = 1 \end{cases}$$

Assignment to treatment depends on an underlying variable, known in the literature as ‘running’ or ‘forcing’ variable, being on either side of a fixed cut-off. In the present framework, the existence of a majority in the municipal assembly depends on whether a party has at least 50% of the seats. If S_i measures the maximum seat share held by a party in any given assembly, the point $S_i = c = 50\%$ determines the discontinuity in the assignment variable. This renders a treatment assignment mechanism typical of a sharp RD design, where M_i deterministically depends on S_i . Formally, $M_i = 1 \{S_i \geq c\}$, with all

units scoring at least c receiving treatment, and all units scoring less than c being assigned to the control group. Thus, one only observes $E[Y_i(0)|S]$ to the right of the cutoff and $E[Y_i(1)|S]$ to the left, and estimates:

$$\lim_{s \downarrow c} E[Y_i|S_i = s] - \lim_{s \uparrow c} E[Y_i|S_i = s] \quad (1)$$

which equals

$$E[Y_i(1) - Y_i(0)|S_i = c] \quad (2)$$

interpreted as the average causal effect of the treatment at the cut-off. This inference is only possible due to the assumed continuity of the underlying functions $E[Y_i(0)|S]$ and $E[Y_i(1)|S]$ (Hahn et al., 2001). Consequently, the average outcome of the minority assemblies can be seen as a valid counterfactual to the average outcome of the majority assemblies.

Baseline results are derived using a parametric series estimation approach relying on different bandwidths around the cut-off and different polynomial functions of the running variable (up to a quartic degree). While robustness tests rely on nonparametric local linear regression as suggested in Hahn et al. (2001). Best practices dictate that the two methodologies should be regarded as complements rather than substitutes. Both are estimated relying on the following general RD model:

$$y_{i,t} = \tau M_{i,t} + f(S_{i,t}^n) + M_{i,t} f(S_{i,t}^n) + \alpha_i + \lambda_t + \epsilon_i \text{ if } |S_i^n| < h, \quad (3)$$

where τ is the average treatment effect estimate, $y_{i,t}$ is any of the fiscal outcomes variables, $M_{i,t}$ is the assignment to treatment binary variable and $S_{i,t}^n$ is the normalized maximum seat share held by a party in the assembly. Normalizing the running variable so that the cutoff equals zero is a standard procedure in the literature. It involves a simple calculation,

$S_{i,t}^n = S_{i,t} - c$, so that the assignment variable $M_{i,t}$ changes discontinuously from zero to one when $c = 0$. Additionally, $f(S_{i,t}^n)$ is a flexible polynomial of the normalized seat share that is linear in the context of a nonparametric regression analysis but goes up to higher degrees in case of parametric series estimation. The interaction term allows the regression function to have different slopes to the right and left of the cut-off. Finally, α_i and λ_t control for individual and time fixed effects, respectively.¹⁵

The choice of bandwidth involves a tradeoff between precision and bias, as a larger bandwidth is more precise given the increase in the observations but less likely to fit a linear specification. As such, baseline estimates rely on polynomials up to a quartic specification. Estimates from the nonparametric approach provided as robustness tests on the other hand rely on significantly smaller bandwidths around the cut-off. The disadvantage of this approach resides on its reduced sample size.¹⁶

The validity of an RD design ultimately depends on the individuals' ability to precisely influence the assignment variable. As it deterministically depends on the outcome of the universal, direct and secret suffrage of the citizens of every given municipality, manipulation of the assignment variable is ruled out. This renders a variation in treatment in the neighborhood of the cutoff 'as good as randomized'. This implies that any discontinuous jump identified in the outcome variable in this neighborhood can be entirely attributed to the change in treatment assignment at that point and interpreted as the causal effect of treatment.

¹⁵Fixed effects are included as is common practice in the literature in order to improve efficiency and reduce finite sample bias.

¹⁶Still, it is critical that results using both methodologies are aligned as theoretically randomization is only guaranteed in the neighborhood of the fixed cutoff point.

6 Results

6.1 Current Accounts

Figure 5 and 6 provide the RDD graphs for current revenues and expenditures, respectively. Subfigures (a), (b) and (c) of figure 5 correspond to current transfers, income from fines and fees and total current revenue, while subfigures (a) and (b) of figure 5 depict the change in expenditures with personnel and total current expenditures. All subfigures show a discontinuous positive jump at the zero cut-off. Graphical evidence identifies an increase both in revenue and expenditures under a legislative majority ruling.

The corresponding regression results are collected in Table 1 and 2. All regressions use as dependent variables the per capita logarithm values of the different revenue and spending items. In line with the graphical analysis, coefficient estimates are always positive and mostly significant for each of the items under study. On the revenue side, a legislative majority attracts significantly higher current transfers and appears more able to raise income from fines and fees, however not significantly. Both translate into a positive and mostly significant average treatment effect on the aggregate current revenue account. On the spending side, expenditures with personnel increase significantly once there is a majority in the assembly. As do total current expenditures.

6.2 Capital Accounts

Figure 7 and 8 show the RDD graphs for the capital revenues and expenditures items, respectively. Subfigures (a) and (b) of figure 7 show the change in capital transfers and total capital revenue, and subfigures (a) and (b) of figure 8 provide the change in investment and total capital expenditure. Similar to what happens for the current accounts, also all subfigures show a positive discontinuity at the zero cut-off.

Regression results are collected in Table 3.4. Again in line with the graphical evidence, coefficient estimates are always positive and often significant particularly with respect to revenues. A legislative majority collects additional capital transfers leading to an increase in aggregate capital revenues. Still, results also suggest an increase in expenditures with investment goods but no significant increase in total capital expenses.

6.3 Discussion

Overall, there appears to be a significant average treatment effect on local public finances from having a legislative majority. The impact is identified, to different extents, on the major components of current and capital revenues and expenditures and consequently also at the aggregate level. Still, further investigation is needed in order to assess whether this implies an improvement or deterioration of the current and capital accounts.

So far this results are in themselves revealing of local politics' dynamics. The most relevant result is perhaps the magnitude and significance of the increase in overall transfers to municipalities ruled by a legislative majority. The reason is twofold. First, municipalities heavily depend on these transfers. Second, whilst there may be an increased bargaining power of majorities versus their minority counterparts, there are strict formulas devised to determine transfers in accordance to certain parameters supposedly free of political manipulation (da Silva, 2008). However, this result is backed by existing evidence on the impact of politics on the distribution of intergovernmental transfers, grants and EU funds in Portugal (Veiga and Pinho, 2007; Veiga, 2012; Veiga and Veiga, 2013). This paper adds a new political determinant of intergovernmental transfers: local legislative majorities. Estimates vary considerably, but on average suggest that having a majority in the municipal assembly brings around 15% more revenues per capita in current transfers, and 20% more in capital transfers. As average current and capital transfers per capita amount to around 210€ this

means an additional revenue of 30€ in current transfers and 40€ in capital transfers per capita in municipalities receiving treatment.

The significant treatment effect on revenues from fines and fees is also worthwhile mentioning. It appears as though municipalities having a majority in the assembly pay more attention to the enforcement of the public law and are more successful in collecting related revenues. Despite the low economic relevance of this source of revenue which accounts on a per capita average for only 12€, the magnitude of the effect is worth mentioning. Having a majority in the municipal assembly raises additional revenues from fines and fees of around 5€ per person.

On the expenditure side it is particularly significant the increase in personnel related expenditures under a legislative majority. It amounts to around 29% which scaled by the average per capita expenditures across municipalities and time translates into spending 30€ more per person in municipalities having a majority in the assembly. Unfortunately, there is no information on whether this increase is the result of setting higher salaries, providing further work related contributions or the hire of a larger staff. Investment in turn, is on average 8% higher in treated municipalities. Taking into account the average investment level this correspond to an additional 20€ per capita spending on investment goods.

All in all, an hypothetical municipality with average population size and average values of the different current and capital revenue and expenditure items on the one hand spends around 1M€ more in personnel, and 0.7M€ more on investment goods, but on the other hand raises extra revenues of 2.6M€, from current and capital transfers (1M€ and 1.4M€, respectively) and proceeds from fines and fees (0.2M€).

7 Robustness Test

As a robustness check of the findings provided by the baseline estimates equation 3 is estimated by nonparametric local linear regression relying on very small bandwidths. Robustness is also tested with regards to the choice of kernel with the use of both a triangular and a rectangular kernel in the estimation process. Results are collected in Tables 5 and 6.

Coefficient estimates are consistently positive reinforcing the baseline results. While most of the coefficient estimates remain significant, results for the average treatment effect on total current and capital expenditures, total capital revenues and investment are never significant. However, this might be simply due to the lower sample size implied by the small bandwidths employed.

Moreover, the magnitude of the present coefficients differs from the ones in the baseline regressions. As precision increases with sample size, estimates provided by the baseline parametric regressions are likely more reliable. Economic implications of the treatment should therefore be based on the previous coefficient estimates as done in section 6.3.

8 Conclusion

This paper studies the impact of fragmentation at the level of the local assembly on current and capital accounts. Given the underlying political framework, particularly the lack of a majority requirement for the normal functioning of the local political affairs, there are both assemblies that have a party holding a majority and where no party holds a majority of seats.

Contrary to theoretical expectations, which dictate that both minorities and coalitions spend more resources as a consequence of bargaining and lack of political power, results

suggest that majorities spend more. Still, on the other hand are also able to raise higher revenues.

As recent work on political fragmentation argues, concentration of political power can be just as harmful as its dispersion. Just as a majority has the power of building consensus around important spending decisions, it also has the power to increase spending without having to face a powerful opposition. While neither majorities nor minorities can be legitimately avoided, it is important to understand the advantages and limitations of both political outcomes and that one is not necessarily better than the other.

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Table 1: CURRENT REVENUES.

| | 5 | 7.5 | 10 | 15 | 50 |
|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Tranfers | | | | | |
| Linear | 0.120*** (0.040) | 0.032 (0.022) | 0.014 (0.019) | -0.001 (0.015) | 0.038*** (0.014) |
| Quadratic | 0.098 (0.105) | 0.144*** (0.055) | 0.081** (0.041) | 0.046 (0.029) | -0.007 (0.021) |
| Cubic | | 0.307** (0.132) | 0.221*** (0.076) | 0.137*** (0.053) | 0.071** (0.033) |
| Quartic | | | 0.203 (0.136) | 0.259*** (0.088) | 0.153*** (0.053) |
| Fines and Fees | | | | | |
| Linear | 0.061 (0.108) | 0.062 (0.062) | 0.082 (0.054) | 0.024 (0.042) | 0.064* (0.038) |
| Quadratic | 0.477** (0.212) | 0.016 (0.127) | 0.059 (0.111) | 0.085 (0.080) | 0.018 (0.053) |
| Cubic | | 0.588** (0.233) | 0.170 (0.157) | 0.210 (0.137) | 0.040 (0.088) |
| Quartic | | | 0.743*** (0.280) | 0.066 (0.199) | 0.149 (0.134) |
| Total | | | | | |
| Linear | 0.059** (0.027) | 0.034** (0.015) | 0.020 (0.012) | 0.015 (0.011) | 0.037*** (0.010) |
| Quadratic | 0.027 (0.066) | 0.060* (0.035) | 0.059** (0.029) | 0.035* (0.020) | 0.002 (0.016) |
| Cubic | | 0.118 (0.082) | 0.068 (0.050) | 0.084** (0.038) | 0.047* (0.027) |
| Quartic | | | 0.164* (0.093) | 0.080 (0.056) | 0.072* (0.037) |
| N | 3732 | 5239 | 5814 | 7346 | 8596 |

This table presents RD regressions for revenues from current transfers and fines and fees, and total current revenues. Estimates for the average treatment effect of having a majority in the municipal assembly are reported for different bandwidths (5.0, 7.5, 10, 12.5, 15, 50) and different polynomial specifications of the running variable (from linear to quartic). Municipality and year fixed effects are included in all models. Standard errors are clustered at the municipality level and robust to heteroscedasticity. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***).

Table 2: CURRENT EXPENDITURES.

| | 5 | 7.5 | 10 | 15 | 50 |
|------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Personnel | | | | | |
| Linear | 0.178*** (0.042) | 0.070*** (0.022) | 0.061*** (0.019) | 0.047*** (0.017) | 0.069*** (0.017) |
| Quadratic | 0.172* (0.099) | 0.229*** (0.056) | 0.114*** (0.040) | 0.075** (0.030) | 0.025 (0.022) |
| Cubic | | 0.367*** (0.124) | 0.314*** (0.080) | 0.189*** (0.055) | 0.075** (0.034) |
| Quartic | | | 0.323*** (0.123) | 0.359*** (0.091) | 0.196*** (0.052) |
| Total | | | | | |
| Linear | 0.111*** (0.033) | 0.041** (0.018) | 0.031** (0.015) | 0.028** (0.014) | 0.050*** (0.014) |
| Quadratic | 0.126* (0.074) | 0.170*** (0.043) | 0.083** (0.033) | 0.047** (0.023) | 0.015 (0.018) |
| Cubic | | 0.192** (0.096) | 0.234*** (0.061) | 0.137*** (0.044) | 0.061** (0.028) |
| Quartic | | | 0.195* (0.099) | 0.294*** (0.074) | 0.143*** (0.044) |
| N | 3732 | 5239 | 5815 | 7352 | 8601 |

This table presents RD regressions for expenses with personnel and total current expenditures. Estimates for the average treatment effect of having a majority in the municipal assembly are reported for different bandwidths (5.0, 7.5, 10, 12.5, 15, 50) and different polynomial specifications of the running variable (from linear to quartic). Municipality and year fixed effects are included in all models. Standard errors are clustered at the municipality level and robust to heteroscedasticity. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***).

Table 3: CAPITAL REVENUES.

| | 5 | 7.5 | 10 | 15 | 50 |
|------------------|--------------------|--------------------|---------------------|---------------------|--------------------|
| Transfers | | | | | |
| Linear | 0.139** (0.055) | 0.049 (0.034) | 0.035 (0.029) | 0.017 (0.025) | 0.032 (0.022) |
| Quadratic | 0.280** (0.120) | 0.166** (0.079) | 0.108* (0.058) | 0.054 (0.043) | 0.018 (0.031) |
| Cubic | | 0.268 (0.188) | 0.269*** (0.094) | 0.165** (0.070) | 0.051 (0.049) |
| Quartic | | | 0.219 (0.196) | 0.333*** (0.121) | 0.118* (0.067) |
| Total | | | | | |
| Linear | 0.143** (0.056) | 0.068** (0.034) | 0.053* (0.029) | 0.026 (0.025) | 0.041* (0.022) |
| Quadratic | 0.243 (0.148) | 0.170** (0.074) | 0.137** (0.057) | 0.107** (0.042) | 0.029 (0.032) |
| Cubic | | 0.350** (0.163) | 0.277*** (0.096) | 0.199*** (0.070) | 0.112** (0.049) |
| Quartic | | | 0.190 (0.202) | 0.347*** (0.119) | 0.175** (0.072) |
| N | 3615 | 5078 | 5632 | 7107 | 8319 |

This table presents RD regressions for revenues from capital transfers and total capital revenues. Estimates for the average treatment effect of having a majority in the municipal assembly are reported for different bandwidths (5.0, 7.5, 10, 12.5, 15, 50) and different polynomial specifications of the running variable (from linear to quartic). Municipality and year fixed effects are included in all models. Standard errors are clustered at the municipality level and robust to heteroscedasticity. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***).

Table 4: CAPITAL EXPENDITURES.

| | 5 | 7.5 | 10 | 15 | 50 |
|-------------------|------------------|-------------------|--------------------|--------------------|-------------------|
| Investment | | | | | |
| Linear | 0.081 (0.061) | 0.066* (0.038) | 0.058* (0.034) | 0.023 (0.030) | 0.050* (0.027) |
| Quadratic | 0.121 (0.156) | 0.065 (0.086) | 0.123** (0.061) | 0.094** (0.046) | 0.018 (0.035) |
| Cubic | | 0.174 (0.175) | 0.048 (0.117) | 0.108 (0.082) | 0.073 (0.055) |
| Quartic | | | 0.251 (0.188) | 0.059 (0.134) | 0.078 (0.080) |
| Total | | | | | |
| Linear | 0.054 (0.052) | 0.037 (0.033) | 0.040 (0.028) | 0.007 (0.024) | 0.027 (0.022) |
| Quadratic | 0.058 (0.136) | 0.009 (0.070) | 0.046 (0.054) | 0.073* (0.040) | 0.000 (0.030) |
| Cubic | | 0.166 (0.139) | 0.050 (0.090) | 0.062 (0.067) | 0.064 (0.047) |
| Quartic | | | 0.128 (0.156) | 0.024 (0.099) | 0.041 (0.066) |
| N | 3615 | 5078 | 5634 | 7114 | 8324 |

This table presents RD regressions for investment expenses and total capital expenditures. Estimates for the average treatment effect of having a majority in the municipal assembly are reported for different bandwidths (5.0, 7.5, 10, 12.5, 15, 50) and different polynomial specifications of the running variable (from linear to quartic). Municipality and year fixed effects are included in all models. Standard errors are clustered at the municipality level and robust to heteroscedasticity. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***).

Table 5: CURRENT ACCOUNTS.

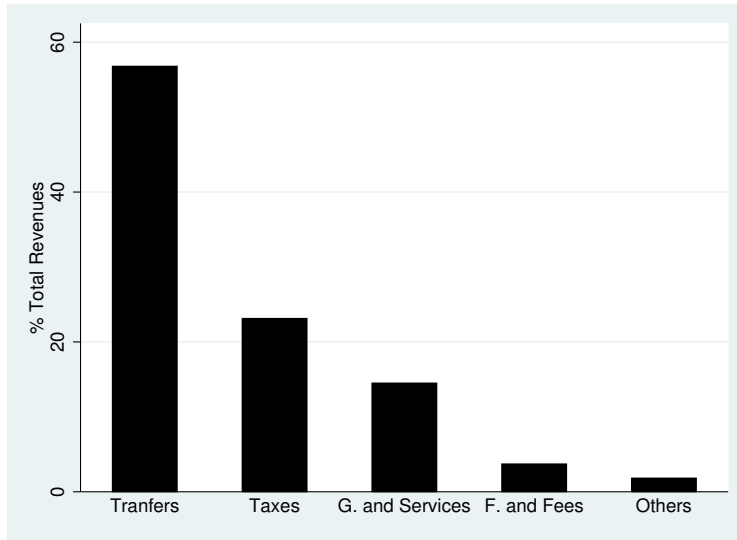
| | Triangular Kernel | | | Rectangular Kernel | | |
|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 0.8 | 0.9 | 1.0 | 0.8 | 0.9 | 1.0 |
| Current Revenues | | | | | | |
| Transfers | 0.134*** (0.048) | 0.134*** (0.046) | 0.134*** (0.045) | 0.135*** (0.036) | 0.135*** (0.036) | 0.135*** (0.037) |
| Fines&Fees | 1.777*** (0.351) | 1.761*** (0.341) | 1.749*** (0.337) | 1.680*** (0.300) | 1.680*** (0.300) | 1.680*** (0.302) |
| Total | 0.279*** (0.078) | 0.275*** (0.076) | 0.272*** (0.075) | 0.255*** (0.067) | 0.255*** (0.067) | 0.255*** (0.068) |
| Current Expenditures | | | | | | |
| Personnel | 0.220*** (0.079) | 0.227*** (0.078) | 0.232*** (0.079) | 0.260*** (0.079) | 0.260*** (0.079) | 0.260*** (0.080) |
| Total | 0.157 (0.119) | 0.156 (0.116) | 0.155 (0.116) | 0.151 (0.106) | 0.151 (0.106) | 0.151 (0.107) |
| N | 166 | 172 | 181 | 166 | 172 | 181 |

This table presents RD regressions for the different items of current revenues and expenditures. Estimates for the average treatment effect of having a majority in the municipal assembly are reported for different bandwidths (0.8, 0.9, 1.0), for a triangular and rectangular kernel and a linear polynomial specification of the running variable. Municipality and year fixed effects are included in all models. Standard errors are clustered at the municipality level and robust to heteroscedasticity. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***).

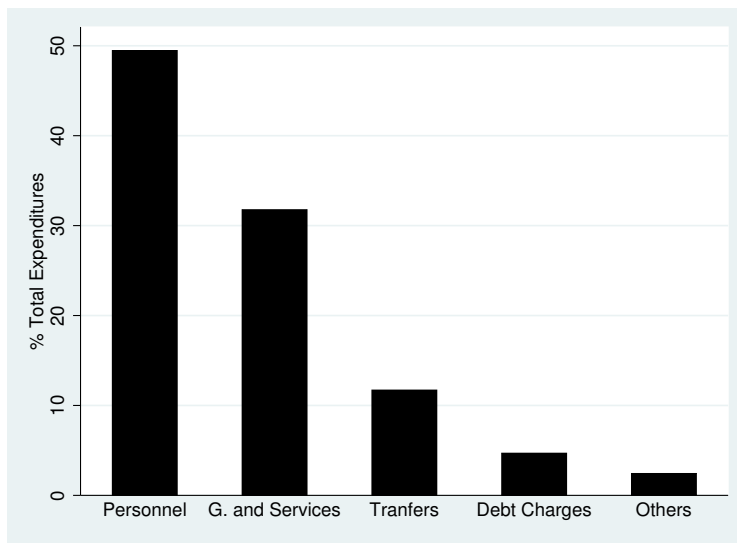
Table 6: CAPITAL ACCOUNTS.

| | Triangular Kernel | | | Rectangular Kernel | | |
|-----------------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|
| | 0.8 | 0.9 | 1.0 | 0.8 | 0.9 | 1.0 |
| Capital Revenues | | | | | | |
| Transfers | 0.103** (0.051) | 0.104** (0.048) | 0.105** (0.047) | 0.108*** (0.042) | 0.108*** (0.042) | 0.108*** (0.042) |
| Total | 0.089 (0.147) | 0.092 (0.141) | 0.095 (0.138) | 0.108 (0.117) | 0.108 (0.117) | 0.108 (0.118) |
| Capital Expenditures | | | | | | |
| Investment | 0.227 (0.146) | 0.223 (0.141) | 0.219 (0.139) | 0.200 (0.124) | 0.200 (0.124) | 0.200 (0.125) |
| Total | 0.151 (0.128) | 0.151 (0.125) | 0.150 (0.123) | 0.147 (0.111) | 0.147 (0.111) | 0.147 (0.112) |
| N | 166 | 172 | 181 | 166 | 172 | 181 |

This table presents RD regressions for the different items of capital revenues and expenditures. Estimates for the average treatment effect of having a majority in the municipal assembly are reported for different bandwidths (0.8, 0.9, 1.0), for a triangular and rectangular kernel and a linear polynomial specification of the running variable. Municipality and year fixed effects are included in all models. Standard errors are clustered at the municipality level and robust to heteroscedasticity. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***).

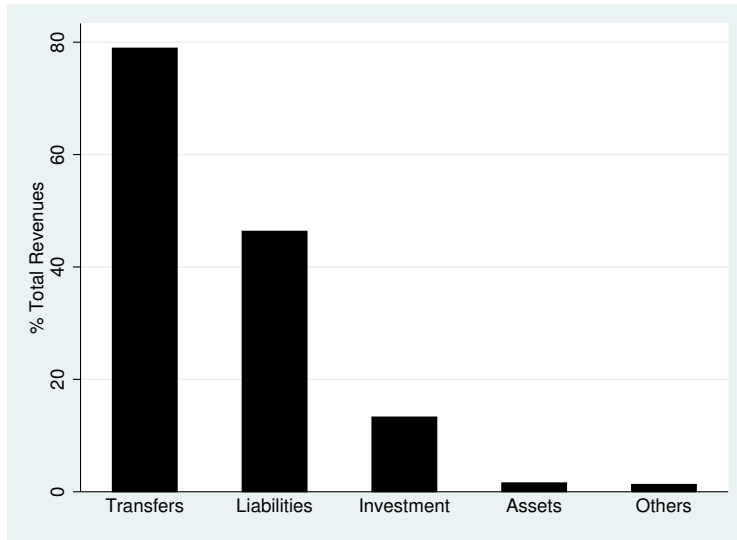


(a) Current Revenues

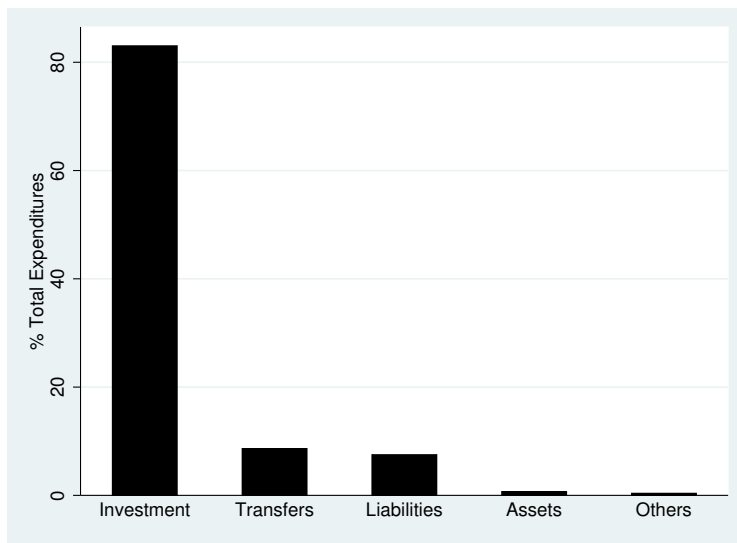


(b) Current Expenditures

Figure 1: Overview of Current Accounts. This figure shows the percentage each category of the current accounts weights in total revenues (a) and expenditures (b).

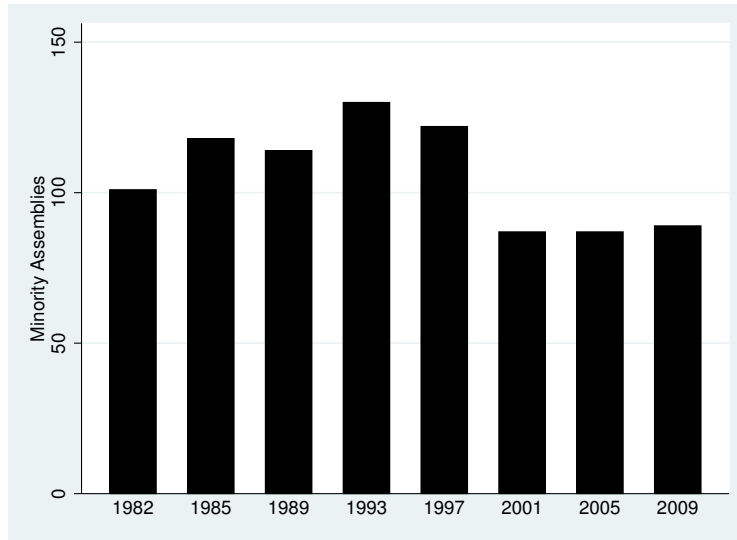


(a) Capital Revenues

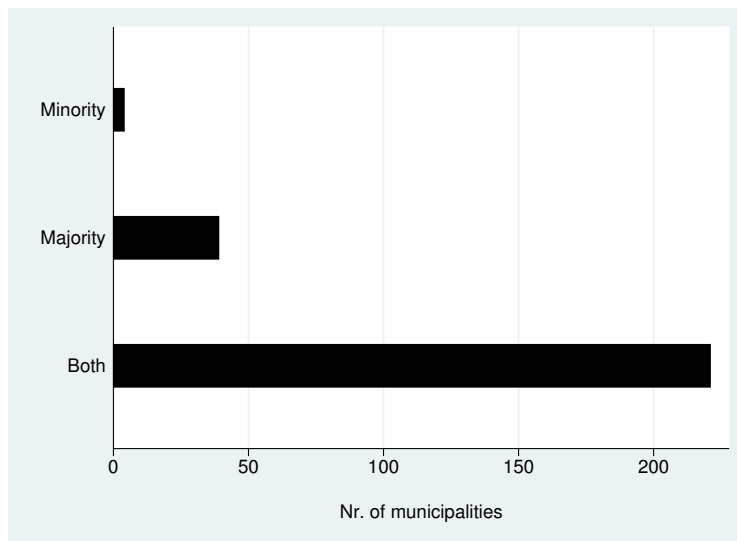


(b) Capital Expenditures

Figure 2: Overview of Capital Accounts. This figure shows the percentage each category of the capital accounts weights in total revenues (a) and expenditures (b).

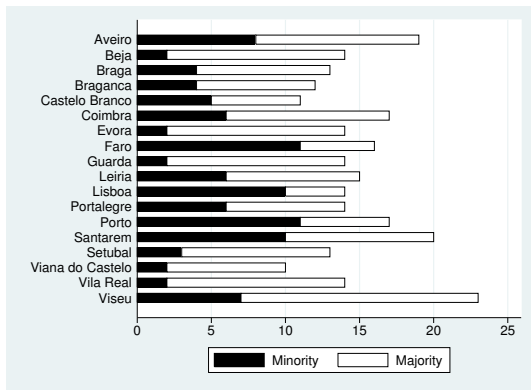


(a) Minorities

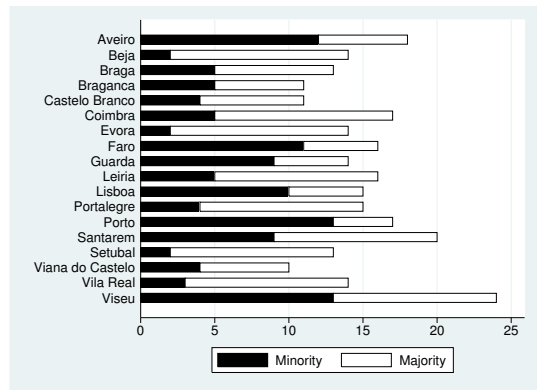


(b) Assemblies

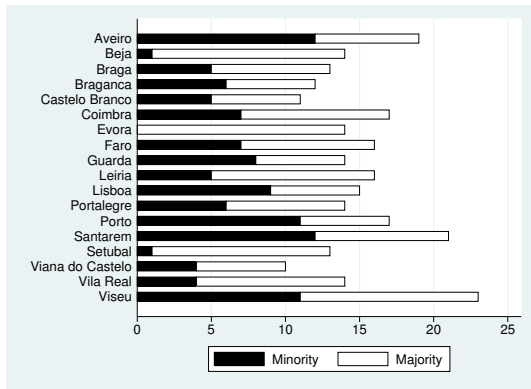
Figure 3: Political Landscape. This figure provides evidence of between and within variation of assembly types across the 278 municipalities from 1981 to 2012.



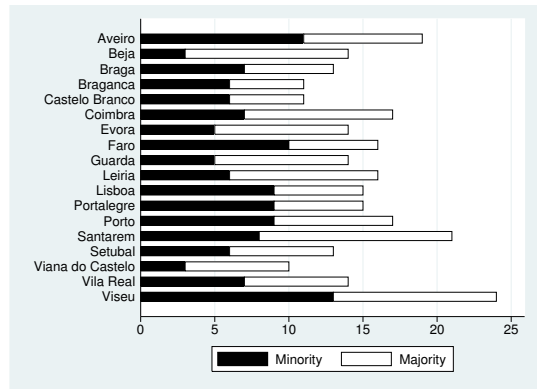
(a) 1982



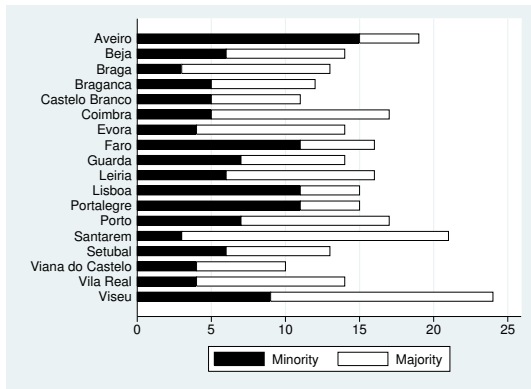
(b) 1985



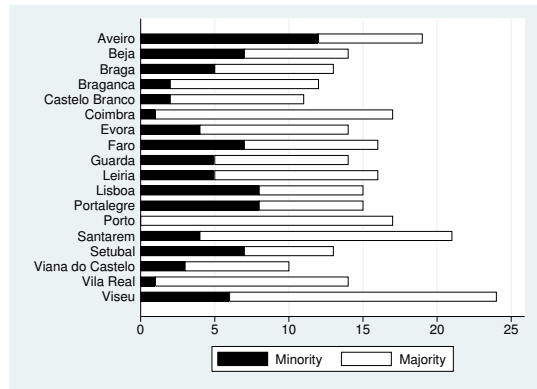
(c) 1989



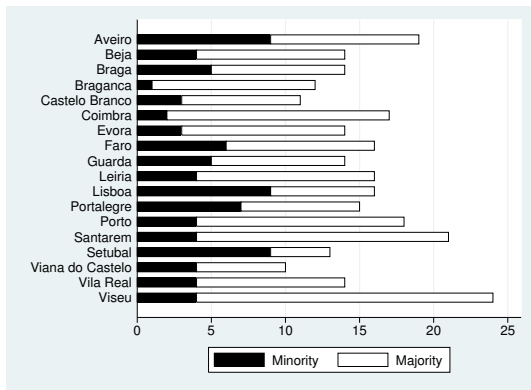
(d) 1993



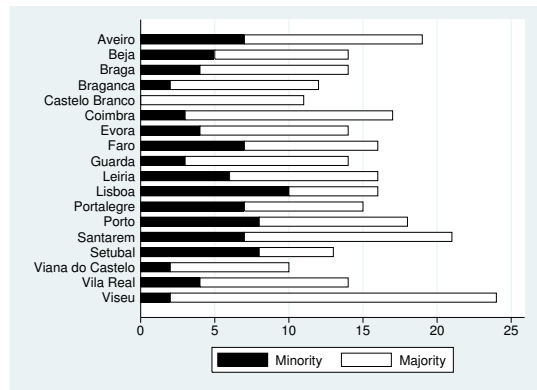
(e) 1997



(f) 2001

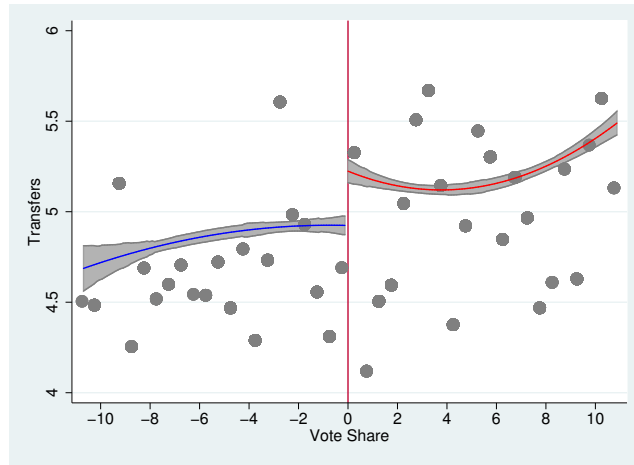


(g) 2005

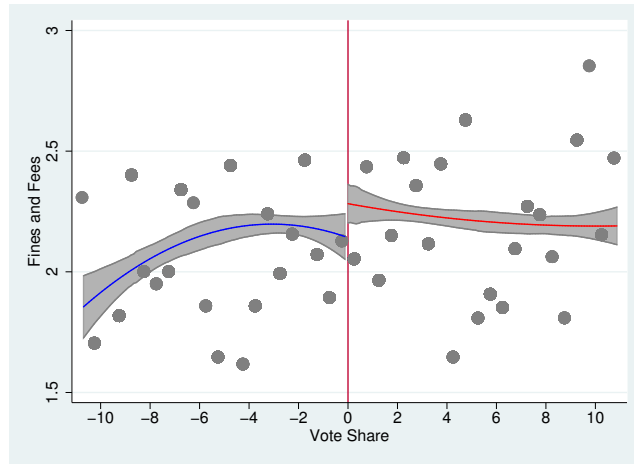


(h) 2009

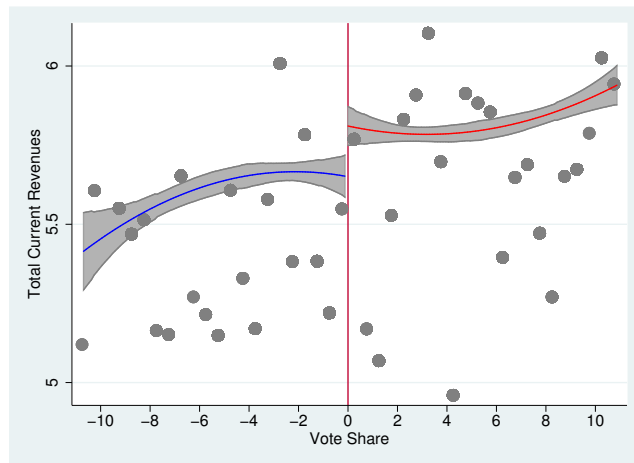
Figure 4: Majorities minorities relation per district per year. This figure shows how minority and majority assemblies are distributed over the years in the different districts.



(a) Current Transfers

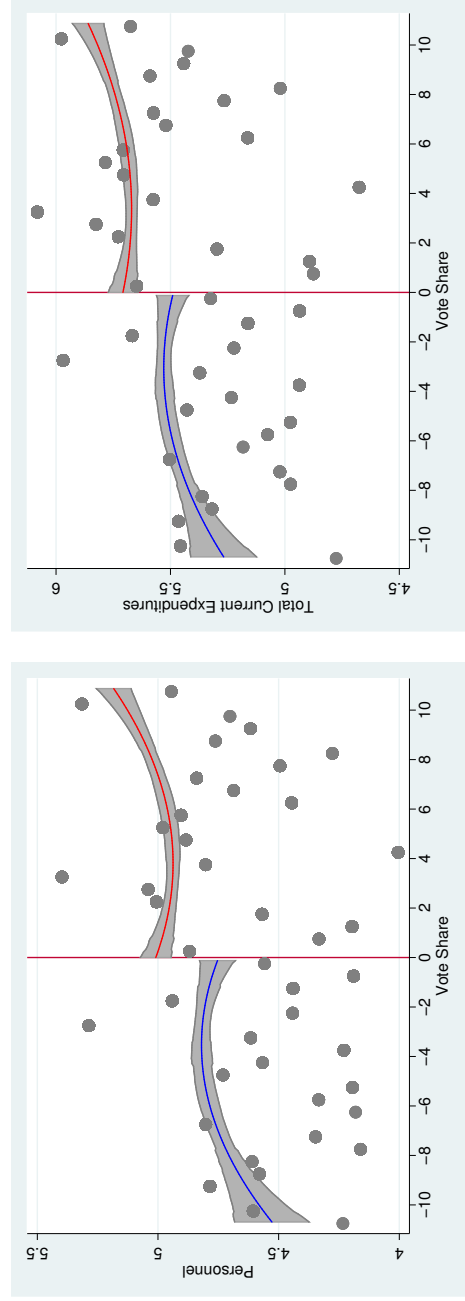


(b) Income from Fines and Fees



(c) Total Current Revenue

Figure 5: Treatment effect on the current revenue items. This figure shows RD graphs for the impact of a majoritarian assembly on different items of current municipal revenues. Observations are averaged within bins of size 0.001. The polynomial plots are constructed using a triangular kernel, a degree of 2 and a bandwidth of 4.



(a) Expenditure with Personnel

(b) Total Current Expenditure

Figure 6: Treatment effect on the current expenditure items. This figure shows RD graphs for the impact of a majoritarian assembly on different items of current municipal expenditures. Observations are averaged within bins of size 0.001. The polynomial plots are constructed using a triangular kernel, a degree of 2 and a bandwidth of 4.

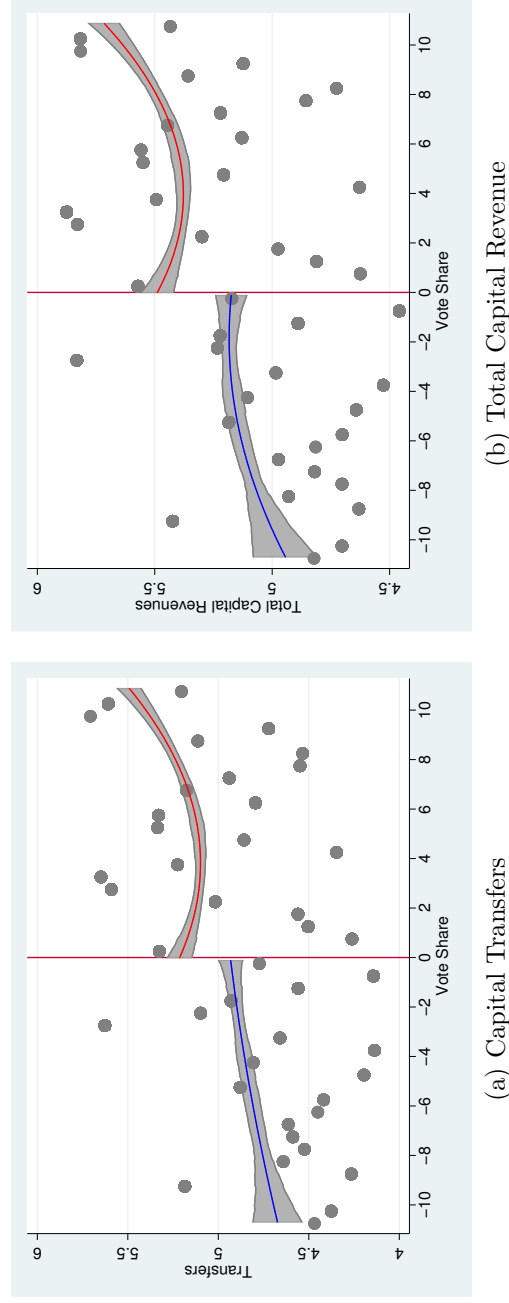
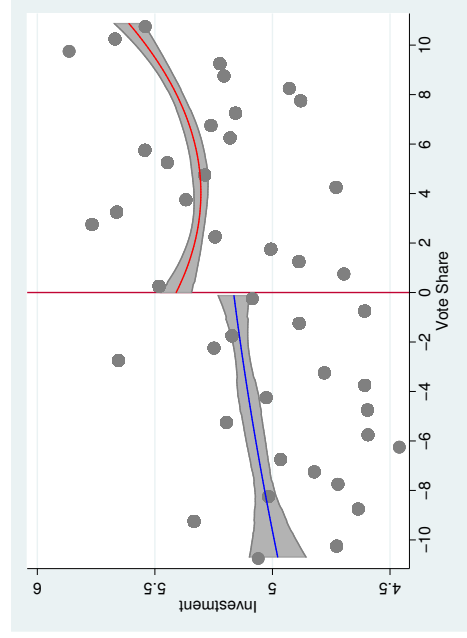
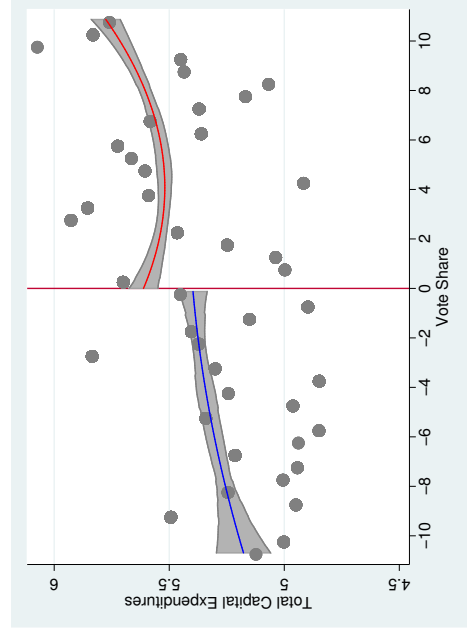


Figure 7: Treatment effect on the capital revenue items. This figure shows RD graphs for the impact of a majoritarian assembly on different items of capital municipal revenues. Observations are averaged within bins of size 0.001. The polynomial plots are constructed using a triangular kernel, a degree of 2 and a bandwidth of 4.



(a) Investment



(b) Total Capital Expenditure

Figure 8: Treatment effect on the capital expenditure items. This figure shows RD graphs for the impact of a majoritarian assembly on different items of capital municipal expenditures. Observations are averaged within bins of size 0.001. The polynomial plots are constructed using a triangular kernel, a degree of 2 and a bandwidth of 4.

Table A.1: SUMMARY STATISTICS

| Variable | | Mean | SD | Min. | Max. | N |
|--|---------|----------|----------|----------|----------|--------|
| Current revenues per capita | | | | | | |
| Transfers | overall | 209.548 | 171.061 | 20.889 | 1422.781 | 8639 |
| | between | | 122.403 | 47.821 | 699.042 | 278 |
| | within | | 119.513 | -338.001 | 1059.379 | 31.076 |
| Fines and Fees | overall | 12.292 | 13.751 | 0 | 589.077 | 8640 |
| | between | | 7.343 | 2.651 | 56.954 | 278 |
| | within | | 11.591 | -36.718 | 551.454 | 31.079 |
| Total | overall | 374.14 | 244.663 | 21.06 | 1863.387 | 8646 |
| | between | | 140.694 | 185.362 | 1012.734 | 278 |
| | within | | 199.865 | -314.466 | 1318.088 | 31.101 |
| Current expenditures per capita | | | | | | |
| Personnel | overall | 171.711 | 134.211 | 2.031 | 1258.817 | 8640 |
| | between | | 87.203 | 54.596 | 640.159 | 278 |
| | within | | 101.882 | -417.185 | 934.573 | 31.079 |
| Total | overall | 344.697 | 250.911 | 2.591 | 2007.682 | 8651 |
| | between | | 147.903 | 135.399 | 1019.904 | 278 |
| | within | | 202.489 | -505.102 | 1529.911 | 31.119 |
| Capital revenues per capita | | | | | | |
| Tranfers | overall | 211.833 | 171.996 | 0 | 1649.137 | 8327 |
| | between | | 127.110 | 37.824 | 844.5539 | 278 |
| | within | | 115.941 | -418.027 | 1268.691 | 29.953 |
| Total | overall | 274.234 | 230.865 | 10.036 | 6509.115 | 8328 |
| | between | | 149.967 | 61.147 | 957.385 | 278 |
| | within | | 175.911 | -468.457 | 6045.559 | 29.957 |
| Capital expenditures per capita | | | | | | |
| Investment | overall | 251.281 | 189.531 | 11.463 | 2739.13 | 8324 |
| | between | | 127.214 | 60.462 | 849.64 | 278 |
| | within | | 140.723 | -271.264 | 2477.32 | 29.942 |
| Total | overall | 301.534 | 221.420 | 15.085 | 5690.936 | 8333 |
| | between | | 140.814 | 92.809 | 952.686 | 278 |
| | within | | 171.133 | -387.022 | 5318.037 | 29.975 |
| Vote share | overall | 3.497 | 9.666 | -21.429 | 50 | 8802 |
| | between | | 6.165 | -12.061 | 30.824 | 278 |
| | within | | 7.468 | -21.473 | 45.534 | 31.662 |
| Population | overall | 34842.33 | 57666.8 | 1634 | 800156 | 8802 |
| | between | | 57645.41 | 1928.969 | 615016.8 | 278 |
| | within | | 9440.82 | -110665 | 219981.5 | 31.662 |