ESSAYS ON POLITICAL ECONOMY

by

Marco Migueis

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ABSTRACT

Essay 1: The Effect of Political Alignment on Transfers to Portuguese Municipalities.

In this paper, I use financial data of Portuguese municipalities (1992-2005) to investigate if political alignment between the central government and a local government brings financial benefit to local governments. I use a regression discontinuity design, in order to distinguish between generally partisan transfers (larger transfers to municipalities where the party in power has larger vote share), and the effect of political alignment per se, between the national government and the municipal chamber president. The benefit of pure alignment is substantial. Estimates imply that municipalities aligned with the central government receive 19% more targetable transfers than do municipalities where the party in power nearly won the local elections. I test an electoral motivation for this bias in transfers: extra transfers prove to increase the vote share of PSD incumbents, but not the vote share of PS incumbents; however, municipal incumbency does not lead to better results in national elections.

Essay 2: Local Government Fiscal Policies: Left-wing vs. Right-wing Portuguese Municipalities.

In this paper, I use financial data from Portuguese municipalities (from 2003 to 2007) to investigate if the ideology of the local government incumbent influences local fiscal policies. Regression discontinuity design is employed to ensure proper identification of the ideology effect on fiscal policies. Left-wing control of municipal presidency showed a significant effect on the likelihood of adopting a municipal corporate tax. Left-wing municipalities also proved

more likely to invest in social infrastructure. On the other hand, right-wing municipalities were shown to be more likely to grant subsidies to families, as well as to offer more generous compensation to their municipal workers. Finally, left-wing municipalities were less likely to resort to high levels of debt than their right-wing counterparts.

Essay 3: Political Alignment and Federal Transfers to the US States.

In this paper, I use financial data regarding transfers from the US federal government to US States (1982-2001) to investigate if political alignment, defined as a state governor and the US President belonging to the same political party, influences the level of federal transfers received by a state. Regression discontinuity design is used to ensure proper identification of the alignment effect. Total federal transfers to aligned states are significantly larger, with the most trustworthy estimates in the neighborhood of 3%. Most of this advantage comes from significantly larger defense transfers to aligned states (the most credible estimates indicate a 13% advantage). Finally, other types of federal transfers are not significantly affected by political alignment, namely entitlements, salaries and, perhaps surprisingly, project grants.

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Doctoral Dissertation Essay 1

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MIT

ABSTRACT

In this paper, I use financial data of Portuguese municipalities (1992-2005) to investigate if political alignment between the central government and a local government brings financial benefit to local governments. I use a regression discontinuity design, in order to distinguish between generally partisan transfers (larger transfers to municipalities where the party in power has larger vote share), and the effect of political alignment per se, between the national government and the municipal chamber president. The benefit of pure alignment is substantial. Estimates imply that municipalities aligned with the central government receive 19% more targetable transfers than do municipalities where the party in power nearly won the local elections. I test an electoral motivation for this bias in transfers: extra transfers prove to increase the vote share of PSD incumbents, but not the vote share of PS incumbents; however, municipal incumbency does not lead to better results in national elections.

[1] I would like to thank my advisors, James Snyder and Esther Duflo, for their exceptional advice and encouragement through this project. I would also like to thank the participants of the MIT Political Economy breakfast, the MIT/Harvard Positive Political Economy seminar and the Kennedy School of Government Political Economy Lunch for valuable comments and discussion. I am grateful to my girlfriend Deborah Sarkes for her help in editing this paper. Finally, this project would not have been possible without the financial support of *Programa Operacional Potencial Humano* and the *Fundo Social Europeu*.

1 – INTRODUCTION

Two hypotheses have shaped the current thinking on distributive politics, the swing-voter hypothesis (constituencies where more voters are nearly indifferent between parties receive more funding from the central government [see Linbeck and Weibull (1987)]) and the partisan hypothesis (central government transfers more funds to constituencies where the party in power enjoys significant and certain support, especially if politicians are risk-averse [Cox and McCubbins (1986)]). Empirical research in distributive politics has generally interpreted these ideas as concerning the relationship between vote share of governing parties and transfers to local governments. In this paper, I examine another hypothesis: the possibility that political alignment per se (between national and local governments) increases transfers to local governments. The difference between this hypothesis and the standard partisan hypothesis is that central government politicians are not simply trying to reward the constituents of areas where they receive significant support, but instead are focused on funding areas where they have political control, even if their party won the local election by just one vote. There are several reasons to think that politicians in control of central government will act in this way. One possible explanation is that central government leaders want to ensure that local leaders are loyal (loyalty of local party leaders is very important to ensure national party leaders are re-appointed) and motivated in reaching the party's goals (motivated local party leaders may be an important asset in the campaign effort for national elections). Transferring more funds to the aligned local governments may increase the gratitude of local leaders in two ways: having more funds might help local leaders get re-elected, as the extra money allows them to present more accomplishments to their constituents, and having more funds at their disposal can by itself increase the happiness of politicians.[2] A related possibility is that success in local elections can contribute to success in national elections. Even if national party leaders do not care about local party leaders and their support, they might still want to increase their likelihood of reelection, if winning local elections provides momentum for the party in the national elections. I will explore these possible reasons for benefiting aligned local governments in the later sections of this paper.

Portugal is a good setting for this research for several reasons. First, Portugal has a level of local government – the municipality – that simultaneously manages a substantial share of the

[2] See Niskanen (1975) for a theoretical discussion of this idea.

public resources (close to 10% of all public expenditures in Portugal) and is directly elected by local voters. Second, Portuguese elections are highly partisan both at the central and local level, and thus it is easy to ascertain the political alignment between local and central government leaders. Finally, to the best of my knowledge, an econometric study of distributive politics has never been done for the Portuguese case.

Methodologically, this paper is different from the previous empirical literature in distributive politics due to my use of regression discontinuity design. In the absence of an effect of political alignment per se, the relation between transfers and vote differential should be smooth, continuous and increasing, if partisan theories of distributive politics are to be believed, or inverse U-shaped, with a maximum at 0% vote margin, if swing vote theories are correct. But if political alignment between the local governments and the central government plays a crucial role in the transfer decision of central government, there should be a discontinuity in transfers between municipalities where the party in power narrowly loses the municipal election and municipalities where the party in power narrowly wins. Therefore, regression discontinuity design is crucial to distinguish between my hypothesis, that central government seeks to favor local governments with which it is politically aligned, and the hypothesis that central government wants to favor constituencies where it has larger shares of support.

Larcinese et al. (2008) have questioned the use of election results as explanatory variables for transfers received by local governments, which is followed in most of the empirical literature on distributive politics. They argue that local election results are inherently endogenous to the transfers received by local governments, and therefore, their impact cannot be accurately measured directly. The regression discontinuity design helps address this issue of endogeneity. It is plausible to think that municipalities where the party in power just loses the election are otherwise similar to municipalities where the party in power just wins the election, and therefore, if there is a differential in transfers received between the former and the latter, this is evidence of a causal relation between the party in power nationally being aligned with a local government and the extra transfers received by an aligned municipality.

The results found in my analysis are striking. Municipalities politically aligned with the Portuguese government received on average 19% more targetable transfers than unaligned municipalities. As a control, the same methodology was used to infer if formula based transfers were also affected by political alignment, and in that case, no effect was present.

The paper is structured in the following way: section 2 discusses previous empirical literature on distributive politics; section 3 provides a political overview of Portugal, with particular emphasis on the political environment of Portuguese municipalities; section 4 describes the data and the empirical strategy used in detail; section 5 presents the empirical results; in section 6, possible reasons for the central government providing higher transfers to municipalities with which it is aligned are discussed and some of them are tested; finally, in section 7, I present my concluding remarks.

2 – PREVIOUS LITERATURE

Evidence for the impact of political variables on the transfers received by local governments is mixed. Most of the empirical literature on distributive politics has concentrated on testing two hypotheses: the hypothesis that areas where elections are close receive more funding from the central government (following Linbeck and Weibull 1987); and the hypothesis that central governments tend to privilege areas where they receive more support (following Cox and McCubbins 1986).

Berry et al. (2009) found evidence in favor of both hypotheses. Using a panel of all US districts from 1984 to 2004, they find that districts represented by congressmen belonging to the same party as the president receive more federal funds than other districts, but do not find similar evidence of increased funding to districts represented by congressmen of the same party as the majority in congress, to districts represented by congressmen of the same party as committee chairmen, or to districts where the president enjoyed a larger vote margin in the elections. They also find evidence that districts with close races receive more federal transfers. Ansolabehere and Snyder (2006) examine the transfers from US states to counties between 1957 and 1997, finding little evidence that counties where elections are usually close or have high volatility of support for parties receive more state transfers. On the other hand, they find evidence in favor of the partisan hypothesis, as counties where the party in control of state legislature and governor has a larger vote share tend to receive more funds. Dahlberg and Johansson (2002) find exactly the opposite in their study of an ecological grant program from the Swedish central government to municipalities. They find that municipalities with more swing voters are more likely to receive the ecological grant, but do not find strong evidence that the level of local support for the party

in power nationally affects the probability of a municipality receiving a transfer. Milligan and Smart (2005) look at the allocation of regional development grants in Canada, in the period from 1988 to 2001. Some of their regression specifications show evidence that districts represented by congressmen belonging to the party in power nationally receive more development grants, but do not show evidence that districts with closer elections receive more grants, while one of their specifications shows the opposite result. The only constant in all their specifications is that being represented by a cabinet minister has a positive impact in the transfers a district receives.

Larcinese et al. (2008) criticize most of the empirical work done in distributive politics, due to the reliance on election results to explain the transfers received by local governments. Elections results can be a problematic explanatory variable, as they may be endogenously determined with transfers to local governments. They test the swing voter, battleground and partisan hypotheses on the allocation of transfers to US states between 1978 and 2002, using variables constructed from survey data as measures of the percentage of swing voters in each state, the difference between the support enjoyed by democrats and republicans in each state, and finally, the percentage of democrat and republican partisans in each state. They argue that these survey based variables are preferable to variables constructed from election results because they do not suffer from the same type of endogeneity. They find no support for the swing voter and battleground hypotheses, while finding evidence in favor of the partisan supporters' hypothesis, as states with more supporters of the incumbent president tend to receive more federal transfers.

The three following papers test hypotheses very similar to the hypothesis I test in this paper, as they look into how alignment between central and local level governments affects transfers. Larcinese et al. (2006) look at federal transfers to states in the period from 1982-2000. They find that states that favored the incumbent president in past elections received more federal transfers than those that did not. Of particular interest to what I aim to investigate, they also find that states where the governor is aligned with the US president received more federal transfers than other states. Arulampalam et al. (2008), using a panel of the 14 more populous Indian states between 1974 to 1997, find that districts that are aligned (i.e., districts where the majority voted for the party in power nationally) and whose elections were close received bigger central government transfers than districts where neither was true. Perhaps surprisingly, they find that the effect is stronger when voters of a district vote in alignment with the party in power nationally for state congress than when they do it for national congress, highlighting the

importance attributed by parties in power nationally to control of local governments. Finally, Solé-Ollé and Sorribas-Navarro (2006), find that Spanish municipalities aligned with upper-levels of government received more transfers than municipalities which are unaligned. The results of these three papers are very similar to mine, but, unlike the analysis presented in this paper, they control only for alignment or not, not for the vote shares or winning margins of parties, and therefore it is not possible to distinguish if their results are due to the standard partisan hypothesis – more support translates to more transfers – or due to a genuine effect of political alignment.

3 – PORTUGUESE POLITICAL OVERVIEW

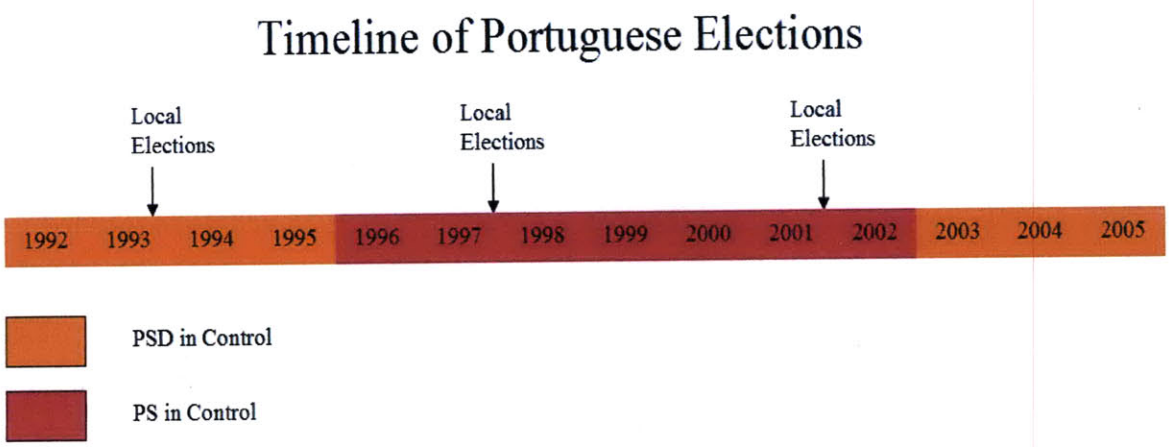
Portugal was governed by an authoritarian regime between 1926 and 1974, headed for most of its duration by António Oliveira Salazar. Discontent, fueled by an ongoing colonial war and lack of democracy, led to a military coup in 1974, the "Carnation Revolution", which restored democracy to Portugal. Regular elections have been held ever since, parliamentary and local elections every four years, presidential elections every five years. Portugal is a parliamentary republic, and therefore the party (or coalition) in control of the parliament holds both legislative and executive power. Since 1974, only two parties have won the parliamentary elections, the *Partido Social Democrata* (PSD), a center right party, and the *Partido Socialista* (PS), a center left party. Two other small parties have consistently been represented in the parliament, and also have won a significant share of municipal elections: the *Partido Comunista Português* (PCP), a communist party, and the *Partido Popular* (PP, formerly CDS – *Centro Democrático e Social*), a conservative right-wing party.[3]

Due to the lack of local financing data with sufficient disaggregation for previous years, the period I analyze ranges from 1992 to 2005. The timeline of parliamentary and local elections relevant for this period was:

- October 1991 – PSD wins the parliamentary elections.
- December 1993 – local elections.
- October 1995 – parliamentary elections take place, resulting in a victory of PS.

[3] Both PS and PSD have formed coalitions with CDS. Nevertheless, every time this happened, the dominant party kept most of the high level executive branch positions.

- December 1997 – local elections.
- October 1999 – parliamentary elections take place, PS wins again.
- December 2001 – local elections. Due to the very poor performance of PS in these local elections, António Guterres, Prime Minister of Portugal and PS leader, resigns from his position, leading to the dissolution of the parliament.
- March 2002 – parliamentary elections take place, won by PSD.



As this timeline shows, there are three distinct periods of control of the Portuguese parliament and government (1992-1995 by PSD, 1996-2002 by PS, 2003-2005 by PSD) in this sample, and four different sets of local governments in place (1992-1993, 1994-1997, 1998-2001 and 2002-2005). Hence, there is substantial variation in the alignment between local governments and national government within this period of time. PS was considered the party in power nationally for the year of 2002, because PS was still in control for a few months after the national budget was approved.

Portuguese Municipalities

Portugal is subdivided for administrative purposes at three levels – districts, municipalities and civil parishes. Districts are subdivided into municipalities, and municipalities are subdivided into civil parishes. Districts are the relevant geographic constituency for the Portuguese parliament elections, and are headed by a district governor, directly appointed by the central government. The scope of action of this level of government is small, with a role mainly

in coordinating the action of local police and civil protection forces. The governments of municipalities and civil parishes enjoy a broad scope of action, as their responsibilities include socio-economic development, spatial planning, and ensuring that local populations have access to education, health care and public services in general. Municipalities and civil parishes' governments are elected every four years in a party-lists proportional representation system (where the D'Hondt method is applied to calculate the number of seats for each party). Although they formally have similar roles, municipalities serve a much bigger role in practice than civil parishes, as they manage much more financial resources and, of particular interest to my analysis, municipalities, as a whole, receive a much larger share of the funds devoted to local authorities by the central government than civil parishes (e.g., in 2005 civil parishes as a whole only received a little over 8% of what municipalities as a whole received in formula-based transfers from the central government). Also, municipalities are historically the most consistent subdivision of the Portuguese territory. For these reasons, I chose the municipality as the relevant unit of study in this article.

Direct transfers from the portuguese central governement and the European Union accounted for approximatelly 44% of the total revenue of municipalities in 2005. These transfers can be divided into three main components:

- Formulaic transfers – The majority of the transfers received by Portuguese municipalities from the central government are given according to formulas, which take into account the population of the municipalities, the area of the municipality, the percentage of children in school age, the percentage of elderly, and the per capita purchasing power in the municipality, among other factors. Between 1992 and 1998, these transfers were grouped in one fund called "*Fundo de Equilíbrio Financeiro*", but in 1999 this fund was extinguished, and two new funds were created to replace it: the "*Fundo Geral Municipal*" and the "*Fundo de Coesão Municipal*". Finally, in 2001, a third fund was created, the "*Fundo Base Municipal*". Formulaic transfers account for approximately 68% of total transfers received by municipalities during the period of my sample.
- Transfers from the EU – European Union funds are designated to promote the socio-economic development of regions bellow the EU average. Municipalities have to apply to these funds on a project basis, and the decision of what projects receive the EU transfers is made by cabinets under the tutelage of the central government (known as "*Comissões*

de Coordenação e Desenvolvimento Regional"). These funds account for 17% of the transfers received by municipalities in the period of analysis.

- "Other transfers" – In Portugal, transfers from the central government to municipalities should, in principle, be limited to the formula-based transfers described above. Nevertheless, when local projects of great importance or emergency situations so require, government ministries may provide direct funding to municipalities. While they are in principle exceptional, these transfers are in fact quantitatively important, as they accounted for approximately 15% of all money transferred to municipalities in the period of my analysis. Most of the empirical analysis and discussion in the pages ahead will center on the effect of political alignment on these "other transfers" (I will call this type of transfers targetable transfers in the remainder of this paper), as the discretionary nature of their allocation by the national government makes them a perfect method for political targeting.

Local elections are held every four years. At the municipal level, voters are called upon to choose their representatives in the municipal chamber and in the municipal assembly. The municipal assembly features all presidents of civil parishes in the municipality, in addition to candidates elected by voters. The total number of elected representatives in a municipal assembly varies from municipality to municipality, but is bound by two constraints: the number of elected representatives in the municipal assembly cannot be more than three times the number of municipal chamber aldermen, but also has to be more than the number of civil parishes in the municipality. The municipal assembly is the legislative body of the municipality, but unlike the national parliament, the municipal assembly only has five regular meetings per year, and its members usually have other occupations.

The municipal chamber is the executive body of Portuguese municipalities. It is composed of 5 to 17 aldermen (depending on the population of the municipality), elected proportionally from the lists competing in the elections. The head of the most voted list is assigned the role of municipal chamber president. These aldermen are paid a salary, and very often this position is their full-time occupation. Presidency of the municipal chamber is generally perceived as the most prestigious and powerful position in a Portuguese municipality, so I will use the control of the presidency of a municipal chamber as the variable measuring control of a municipality in my analysis.

Lists for both the municipal chambers and the municipal assemblies are highly partisan[4], and therefore it is straightforward to establish their alignment with national parties. PSD and PS have also been the winners of most municipal elections, and their dominance has even increased through time; in 1989, the first municipal elections relevant for my sample, they accounted for 234 municipalities out of 305, while in 2001, they dominated even more, accounting for 269 of the municipalities.

4 – DATA AND EMPIRICAL STRATEGY

Portugal is currently divided in 308 municipalities, 278 in continental Portugal and 30 in the insular autonomous regions of Azores and Madeira. Three of the municipalities in continental Portugal have only existed since 1998, and therefore will be excluded from the analysis. Data referring to the Municipal Elections of 1989, 1993, 1997 and 2001 was found on the website of the department of the Portuguese Ministry of Internal Administration responsible for electoral management.[5]

Revenue data of the 305 Portuguese municipalities for the period in analysis was provided by the department of the Portuguese government in charge of publishing financial information of local governments - *Direcção Geral das Autarquias Locais*. The availability of revenue data disaggregated between formulaic transfers, targetable transfers and European transfers to the municipalities was the main driver of the time frame chosen in this article. Revenue information for the years after 2006 is not yet available, and therefore I could not include the more recent years in my analysis. The available revenue data for years prior to 1992 is not disaggregated into the three types of transfers described above, and therefore is not useful for my analysis.

Figures 1-3 and Table 2[6] show the shape and summary statistics of the distribution of the three types of transfers. Clearly, formulaic transfers are the lion share of the resources transferred to municipalities; nevertheless, the weight of both European transfers and targetable transfers is substantial. All distributions are skewed to the left, showing that a few municipalities received considerably more transfers per capita than the average municipality.

[4] Independent lists were not even allowed to run in municipal elections until 1997.
[5] See www.stape.pt.
[6] All figures and tables are presented at the end of the paper.

To highlight the importance attached to the political control of a municipality, I use a regression discontinuity design[7] to estimate the impact of the party in power nationally winning the presidency of the municipal chamber on the funds received by a municipality. The model to be estimated is the following:

$$LT_{i,t} = \theta_i + \tau_t + \beta A_{i,t} + F(M_{i,t}) + \Omega' Z_{i,t} + \varepsilon_{i,t}$$

$$\text{where } F(M_{i,t}) = \begin{cases} \delta_1 M_{i,t} + \delta_2 M_{i,t}^2 + \delta_3 M_{i,t}^3, \text{if the municipality is aligned} \\ \delta_4 M_{i,t} + \delta_5 M_{i,t}^2 + \delta_6 M_{i,t}^3, \text{otherwise} \end{cases}$$

$LT_{i,t}$ = Logarithm of per capita transfers to municipality i in year t[8]

θ_i = Municipality fixed effect

τ_t = Year fixed effect

$A_{i,t}$ = Binary variable, assuming value 1 if the municipality is aligned with the party in power nationally, 0 otherwise

$M_{i,t}$ = Margin of victory/loss of the party in power in the municipal election – this variable will be defined in detail later

$Z_{i,t}$ = Other time changing characteristics of the municipality

$\varepsilon_{i,t}$ = Random error term

To ensure asymptotic consistency of the estimated standard errors, clustering was done at a municipal level, for each period in between elections (municipal or national). Therefore, there was a cluster for each municipality for each of the following periods: 1992-1993, 1994-1995, 1996-1997, 1998-2001, 2002, and 2003-2005.

To take into account the systematic differences between municipalities, municipal fixed effects are included in all specifications. Therefore, coefficients are identified through within variation (i.e., by the change through time of the margin of victory/loss of the party in power and the change of alignment of the municipality) instead of through cross-sectional variation, which

[7] See Lee and Lemieux (2009) for an overview of the regression discontinuity methodology.

[8] Logarithms of transfers were used, as this transformation will reduce the weight of possible outliers in the regression results. A very limited number of municipalities had to be dropped from the targetable transfers and European transfers regressions, due to having received zero transfers in some years.

could lead to inadequate inferences. For example, some municipalities, which tend to vote more for the party in power, might systematically receive more funds, not because of political alignment but rather due to something specific to the municipalities, like exceptional poverty. Still, a simple fixed effects specification would not be sufficient to distinguish between the pure effect of alignment and the effect of a higher vote share, since the two move in-sync, and also remains vulnerable to the endogeneity critique of Larcine et al. (2008). To overcome these challenges, I use a regression discontinuity design.

In my regression discontinuity design, I control for the margin of victory/loss of the party in power in the municipal chamber elections through a smooth function. The function is a third order polynomial, estimated separately on both sides of the discontinuity. When the party in power nationally has won the municipal chamber elections, the variable is simply the difference between the vote share of the party in power nationally and the vote share of the runner-up party; when the party in power nationally did not win the municipal chamber elections, the variable is defined as the difference between the vote share of the party in power nationally and the vote share of the party who won the municipal chamber elections. Sometimes this variable does not reflect the difference between the party who finished first in the elections and the party who finished second, because, sometimes, the party in power nationally finishes bellow second in the municipal chamber elections.

The use of regression discontinuity is motivated by my objective of distinguishing between central government leaders who want to reward their supporters, by transferring more money to constituencies where their party enjoys more support (regardless of politically controlling those areas or not), from central government leaders who want to privilege areas that are controlled by their party. In the first situation, transfers should increase with the vote share of the party in power, but there should not be a jump in transfers if the party in power nationally gained control of a municipality; in the second case, we would expect that winning or losing the election, even if by only 1%, can have a great influence on the transfers received by a municipality. The regression discontinuity design used allows for distinction between these situations. By using a higher-order polynomial and allowing for a non-symmetrical relationship between the vote margin and transfers in regard to political alignment, my specification is flexible enough to warrant the inference that a discontinuity in the relation between margin of victory/loss and transfers, occurring when the party in power switches from losing to winning the

municipal election (margin of victory/loss = 0%), must be the result of the party in power nationally controlling the municipality, and not just the spurious result of choosing a rigid functional form for the impact of the margin of victory/loss on transfers.

As a result of the regression discontinuity design used, it should also be emphasized that the relation between political alignment and transfers to municipalities is not ambiguous due to the type of endogeneity criticized in Larcinese et al. (2008). A possible discontinuity of the function relating transfers to margin victory/loss at 0% must be driven by a causal effect of political alignment between municipalities and central government on transfers received by municipalities, as, for values close to 0%, the outcome of elections should be seen as essentially random, given that the party in power nationally cannot precisely control the outcome of the elections.

In Table 3, the regressions with per capita transfers as dependent variable are presented. In columns 1, 2 and 3, targetable transfers are the dependant variable. The first specification only includes as explanatory variables the political alignment between local and central government and the margin of victory/loss of the party in power, while the second also includes controls for the population of the municipality and the formulaic transfers per capita received by the municipality. Formulaic transfers react automatically to social changes in municipalities (e.g., change in the unemployment rate, the poverty rate, or in the proportion of elderly), and these types of changes are very likely to also influence the targetable transfers received by municipalities. Therefore, it is desirable to include formulaic transfers as a control for targetable transfers, as they are a useful proxy for the need of a municipality and will absorb a substantial part of the otherwise unexplained variation, reducing the standard errors of the estimators. Endogeneity between formulaic transfers and error term of targetable transfers is not problematic when estimating the coefficients associated with political variables because, as will be seen in the next section, formulaic transfers are orthogonal to political variables. The specification of column 3 is a robustness check to the importance of controlling for the winning/losing margin of the party in power in the local elections. The specification is very similar to the specification of column 2, except that, in this case, no control is included for the winning margin. In column 4, a regression of the formulaic transfers in the political variables considered in column 1 is presented as a robustness check for the identification strategy. Finally, in the regressions of columns 5 and

6, the dependant variable is the level of European transfers per capita. The specifications of columns 5 and 6 are identical to the specifications of columns 1 and 2, respectively.

5 – EMPIRICAL RESULTS

Figure 5 and Table 3 present the main results of this paper. As Figure 5 shows clearly, there is a substantial jump in targetable transfers when a municipality switches to the party in power nationally. As can be seen in column 2 of Table 3, targetable transfers per capita to municipalities are approximately 19% higher when the party in control of a municipality coincides with the party in control of the national parliament and government. This is a substantial advantage for these municipalities – municipalities received on average €72 on targetable transfers per capita in 2005, meaning that municipalities controlled by the party in power nationally received approximately €14 per capita more than other municipalities. In order to better illustrate what this imbalance means in practice, consider the following exercise: municipalities had on average 34,000 citizens in 2005; therefore, a medium sized municipality controlled by the party in power received on average €476,000 more in targetable transfers than municipalities who were not aligned. In a country where the annual minimum wage in 2005 was €5,600, this kind of disparity is substantial – this average-sized municipality could, for example, hire 85 extra minimum wage workers full-time. Figure 5[9] also shows that the margin of victory/loss of the party in power does not seem to play a big role in the attribution of targetable transfers to municipalities – the difference in amount of targetable transfers received is clearly motivated by the victory or loss of the party in power nationally within the municipality. Nevertheless, taking into account the winning/losing margin of the party in power is useful, as the regression presented in column 3 shows that, absent a control for the margin, the effect of political alignment would be overestimated.

Looking at the results of column 2, it is clear that formulaic transfers, which provide a good measure of the need for transfers to a municipality, prove to be good predictors of the targetable transfers received by a municipality; an increase of 1% in the formulaic transfers

[9] For the graphical representation of the regression results, the dependent variable was first stripped of its yearly and municipal averages; then, this transformed dependent variable was averaged within 20 intervals, ordered by the explanatory variable – the margin of victory/loss by the party in power. Each of the open dots seen in Figure 4 is the average of one of these intervals. The solid line is the representation of the predicted value of the dependent variable using the regression results of column 1 in Table 2.

received by a municipality is accompanied by a 1.2% increase in the targetable transfers received by the municipality. On the other hand, it appears that population growth does not play a separate role in the attribution of targetable transfers.

Column 4 of Table 3 shows that control of a municipality by the party in power nationally does not significantly affect the formulaic transfers received by a municipality. This result is not surprising, given that the formulas used to allocate these transfers are the same for every municipality, and usually remain unchanged for many years. Even if a party in power desired to target these types of transfers to its own constituencies, it would be difficult, given that both major parties enjoy substantial support across most of the country and different demographics. Figure 4 shows that, not only is there no discontinuity associated with a win in the municipal chamber for the party in power, but also that the winning/losing margin of the party in power does not seem to influence the formulaic transfers received by municipalities, even when allowing for a two-sided cubic effect of the winning margin on these transfers. These results give credibility to the identification strategy I use in this paper, as significant effects of local political variables in these types of transfers would probably imply some sort of misspecification.

Finally, the regressions of columns 4 and 5 show that alignment of a municipality with the party in power, perhaps surprisingly, did not play a big role in the attribution of European transfers, as coefficients associated with the binary variable representing alignment are not significant. On the other hand, per capita European transfers seem to be biased in favor of municipalities with bigger populations and also toward municipalities who receive more formulaic transfers. While there is no significant impact of the victory or loss of a municipality by the party in power on the European transfers received by a municipality, Figure 3 shows that there is a significant tendency for municipalities where the party in power wins by a broad margin to receive more European transfers than municipalities where this winning margin is smaller. The effect of the vote margin, when the party in power loses, is not as clear cut.

Comparison between PSD and PS

Do the two major Portuguese parties act differently in regard to attributing government transfers? Table 4 shows that a clear difference is present in the data. The period where the right-wing party, PSD, was in power nationally (1992-1995 and 2003-2005) is driving the result that

political alignment benefits municipalities financially. While municipalities won by PSD, with PSD in power, received 32% more targetable transfers than other municipalities, municipalities won by PS, with PS in power, only received 2% more targetable transfers than other municipalities. One possible explanation for this significant difference between PSD and PS is that they have to cater in different ways to their constituencies. PS receives more support from unions, as well as low-income and unemployed voters, and therefore might prefer to concentrate available resources on national programs, like the increase of wages for public servants or the increase of unemployment benefits, while PSD, stronger among rural communities and small business owners, might see local programs, fostering commerce and agriculture, as a better tool to improve the lives of their loyal constituents. Another possibility is that internal party rules dictate that PSD local leaders have substantially more influence over PSD leadership than PS local leaders have over PS leadership. Both of these possibilities merit further research.

6 – REPERCUSSION OF TRANSFERS AND LOCAL ELECTIONS

The results in the previous section raise the question: why would the national leadership of majority parties want to financially privilege some municipalities? Possible explanations for this behavior are:

– National leaders of the party in power want to keep their local leaders happy and therefore target more funds to municipalities controlled by them. These extra funds might directly contribute to the happiness of local leaders by giving them control of a larger budget. Moreover, these extra funds allow local leaders to achieve more for their constituents, and that may increase their chances of re-election.

– National party leaders do not want to contribute to the image of local leaders of competing parties, and therefore concentrate funds in municipalities where all the "credit claiming" reverts to the party in power nationally.

– National leaders might not directly care for the satisfaction or support of local leaders, but they still might want to want to help their local leaders win local elections, as the local elections might provide momentum for the ensuing national elections.

– The party in power privileges aligned municipalities because aligned local leaders share the social and economic priorities of the national government, and therefore favor investment

projects and current spending in line with the national party goals. This is a reasonable argument, but I do not believe that this kind of motivation is very likely in this case, because the transfers subject to political manipulation are targetable from the point of view of the national decision-makers, and therefore will necessarily be applied to programs in line with the goals of the party in control nationally.

I explore two of these hypotheses in this section.

To test the hypothesis that extra targetable transfers might increase the voting share of incumbents in municipal elections, the following model is used:[10]

$$M_{i,t}^{PSD} = \theta_i + \tau_t + \beta PSD_{i,t-4} + G\left(M_{i,t-4}^{PSD}, RTT_{i,t}, ..., RTT_{i,t-3}\right) + \varepsilon_{i,t}$$

where $G\left(M_{i,t-4}^{PSD}, RTT_{i,t}, ..., RTT_{i,t-3}\right) =$

$$\begin{cases} \delta_1 M_{i,t}^{PSD} + \delta_2 \left(M_{i,t}^{PSD}\right)^2 + \delta_3 \left(M_{i,t}^{PSD}\right)^3 + \sum_{j=0}^{3} \left(\gamma_j RTT_{i,t-j}\right), \\ \text{if the municipality is controlled by PSD} \\ \\ \delta_4 M_{i,t}^{PSD} + \delta_5 \left(M_{i,t}^{PSD}\right)^2 + \delta_6 \left(M_{i,t}^{PSD}\right)^3 + \sum_{j=0}^{3} \left(\phi_j RTT_{i,t-j}\right), \\ \text{otherwise} \end{cases}$$

$M_{i,t}^{PSD}$ = Margin of victory/loss of PSD in the municipal elections at year t

θ_i = Municipality fixed effect

τ_t = Year fixed effect

$PSD_{i,t}$ = Binary variable, assuming value 1 if PSD is in control of the municipality, 0 otherwise

$LTT_{i,t}$ = Logarithm of targetable transfers per capita at year t

$\varepsilon_{i,t}$ = Random error term

[10] I base the model description on the PSD case, but the same approach was followed for the PS case.

This setup aims at measuring the effect of targetable transfers in the winning/losing margin enjoyed by incumbents and challengers in the municipal chamber elections and, simultaneously, finding the effect of incumbency itself in the winning/losing margin. Lagged targetable transfers are separately considered when PSD is in control of the municipality and when PSD is not, to allow for a differential impact of transfers on the PSD vote share. Regression discontinuity design is used here for the same type of reasons as in the analysis of transfers – it allows the separation of the incumbency effect from the effect of the winning margin in previous elections. Also, year fixed effects are used to absorb the differences in support across the board for the parties in different years, and municipal fixed effects are included to account for differences in support between different municipalities. Table 5[11] presents the results of the specification above described and also the results of a specification that did not include lagged transfers as explanatory variables.

The impact of targetable transfers in local election outcomes was disparate for PSD candidates and PS candidates. In all lags, targetable transfers had a positive effect on the margin of victory of PSD incumbents, and this effect was larger the closer to the election the transfers happened, achieving statistical significance for election-year transfers. In the case of PS, targetable transfers have inconsistent effects on election results, positive in two lags, negative in two lags, never statistically significant. Also, larger transfers to a municipality tended to hurt the prospects of PSD and PS challengers, especially when received in election years, but their effects on election results did not reach statistical significance in any lag.[12] Can this differential responsiveness of election results to transfers justify why PSD targets more funds to aligned municipalities than PS does? This is another possibility deserving further exploration.

When not controlling for targetable transfers, incumbency results in a 12.7% higher voting margin for PSD municipal candidates, while it increases the voting margin by 9.3% for PS municipal candidates. These results are in line with those obtained by Lee (2001) in his analysis of the US congress (Lee used a similar regression discontinuity design in his paper). Controlling for targetable transfers does not significantly change these coefficients. Thus, transfers help the incumbent, but are not a main driver of the incumbency advantage.

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[11] Municipal election results of 1989, 1993, 1997 and 2001 were used in these regressions.

[12] The coefficients associated with transfers to PSD as an incumbent are not symmetrical to the coefficients associated with transfers to PS as a challenger (and vice-versa), as in many cases neither PSD nor PS are the incumbent.

Success in municipal elections can translate into success in the ensuing municipal elections, but do the municipal elections provide momentum for the next parliamentary elections? To test this hypothesis, I used a regression discontinuity design very similar to the one employed in the previous regression. The model tested is the following:

$$VS_{i,t}^{PSD} = \theta_i + \tau_t + \beta PSD_{i,t-4} + G\left(M_{i,t-4}^{PSD}\right) + \varepsilon_{i,t}$$

$$\text{where } G\left(M_{it}^{PSD}\right) = \begin{cases} \delta_1 M_{i,t}^{PSD} + \delta_2 \left(M_{i,t}^{PSD}\right)^2 + \delta_3 \left(M_{i,t}^{PSD}\right)^3, \\ \quad \text{if the municipality is controlled by PSD} \\ \delta_4 M_{i,t}^{PSD} + \delta_5 \left(M_{i,t}^{PSD}\right)^2 + \delta_6 \left(M_{i,t}^{PSD}\right)^3, \text{otherwise} \end{cases}$$

$VS_{i,t}^{PSD}$ = Vote share of PSD in the first parliamentary elections after t

θ_i = Municipality fixed effect

τ_t = Year fixed effect

$M_{i,t}^{PSD}$ = Margin of victory/loss of PSD in the municipal elections at year t

A fixed effects regression is performed here, as it allows interpreting the β coefficient as the effect of having an extraordinary good result in the municipal election on the deviation of the vote share in the national legislative elections from the inter-temporal municipal average. This is more useful than simply looking at the relation between winning margin in the municipal election and the vote share in the national election, with no regard for the municipal average results in both elections, as a correlation of this type can be caused by some municipalities always favoring the same party in both types of elections, even if the municipal elections results do not sway more voters in favor of well performing parties in the next national elections. Results for both the regression with a simple linear effect of the winning margin and the regression discontinuity design are presented in Table 6.[13]

[13] Municipal election results of 1989, 1993, 1997 and 2001, together with parliamentary election results of 1991, 1995, 1999 and 2002, were used in these regressions.

The regression discontinuity design did not prove to fit the data significantly better than a simple linear relation between the margin of victory[14] of a party in municipal elections and the vote share of that party in legislative elections. Surprisingly, municipal incumbency does not play a significant role in increasing the vote share of a party in legislative elections. This suggests that vote buying is not what is motivating national politicians to financially favor aligned municipalities. Instead, this result indirectly suggests that national leaders transfer more to their aligned municipal leaders in order to guarantee their loyalty and motivation, and therefore, these extra funds are pure patronage. Nevertheless, when simply looking at the linear impact of the winning/losing margin of parties in legislative election results, a small, but statistically significant, effect is found. A 20% higher vote margin favoring PSD in municipal elections leads to, approximately, a 1% increase on the vote share of PSD in the ensuing national legislative elections. In the case of PS, a 15% increase in the winning margin in municipal elections is enough to raise the vote share of PS in the next national elections by 1%. This is an interesting result on its own, as it shows that municipal elections do have an impact on national elections, although not the kind of impact that would be expected given the way national leaders target funds.

7 – CONCLUSION

The regression discontinuity design employed in this paper allows the conclusion that political alignment between local governments and the national government financially benefits Portuguese municipalities. Aligned municipalities received approximately 19% more targetable transfers than non-aligned municipalities. An increase of the winning margin for the party in power does not significantly affect transfers beyond the effect of alignment, challenging the common empirical interpretation of the partisan hypothesis of distributive politics, which has been that the larger the vote share of the party in power within a constituency, the larger the transfers received by this constituency. On the other hand, alignment did not influence formulaic transfers, as these transfers are calculated by identical formulas for all municipalities, and therefore cannot be easily targeted to aligned municipalities by the party in power.

[14] Look at Figure 7 for comparison in the PSD case, and Figure 8 for comparison in the PS case.

Two possible reasons for the national party leaders to privilege aligned municipalities were tested in this paper. The hypothesis that transfers help local leaders win future elections proved sensible in the PSD case, but not in the PS case. The hypothesis that municipal incumbency improves performance in national elections is not supported by the data, although the vote share attained in municipal elections itself proves to be important in predicting national election outcomes.

I am interested in applying the same methodology used in this paper to other countries. One possible future project is to use regression discontinuity design to investigate if transfers from the US Federal Government to states are influenced by political alignment between the state governors and the US President or alignment between state governors and the US Congress.

On an ending note, do public officials believe that the government skews transfers in favor of municipalities with which it is aligned? As expected, the answer is partisan. In my private discussions with municipal officials of municipalities not affiliated with any of the two major Portuguese parties, they vouched in favor of my hypothesis, providing many anecdotal examples of the national executive benefiting municipalities politically aligned with the party in control of national government. On the other hand, officials of municipalities controlled by the party of the current government guaranteed me that no such practice happens, some of them even claiming that their municipal chamber had a better relationship with the national executive when the other major party was in power. It would be interesting to ask them again in a few years, when the party in power changes again, to see if they have changed their minds.

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FIGURE 1 - Formulaic Transfers Histogram

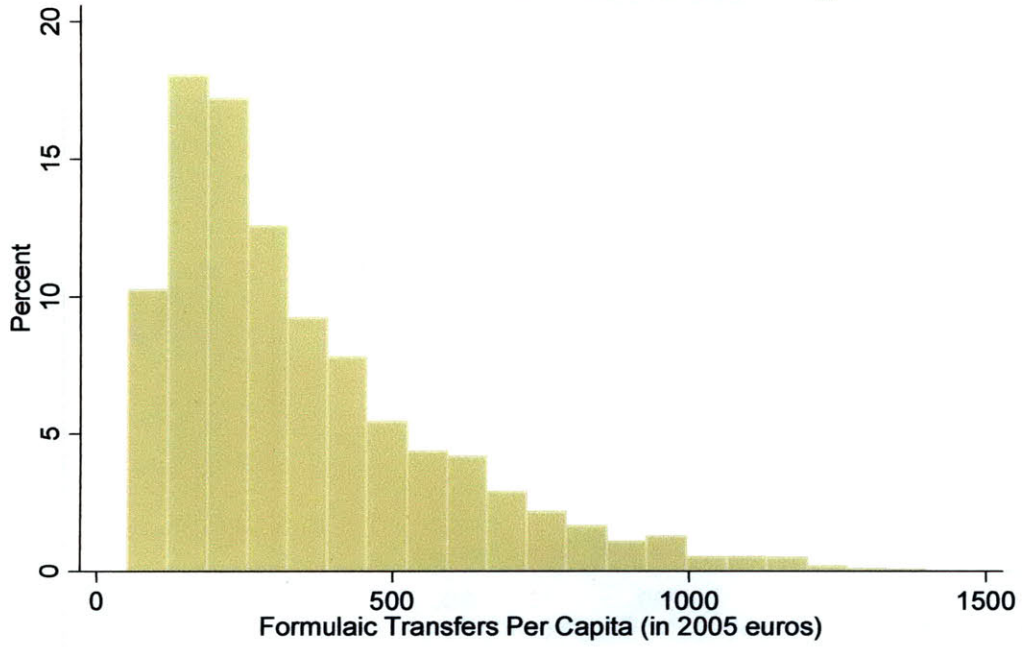

FIGURE 2 - Targetable Transfers Histogram

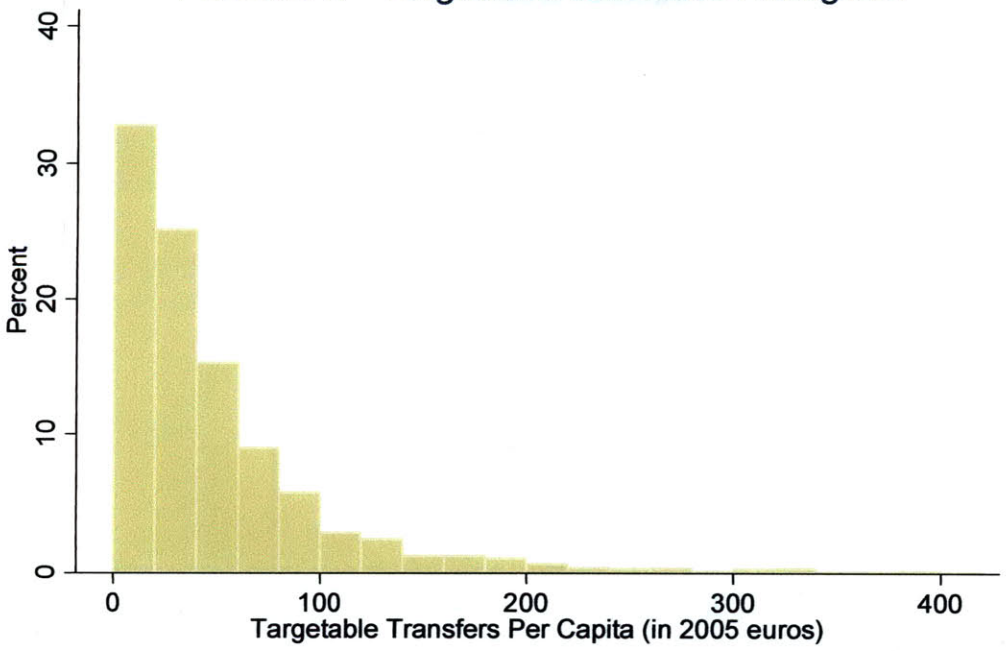

FIGURE 3 - European Transfers Histogram

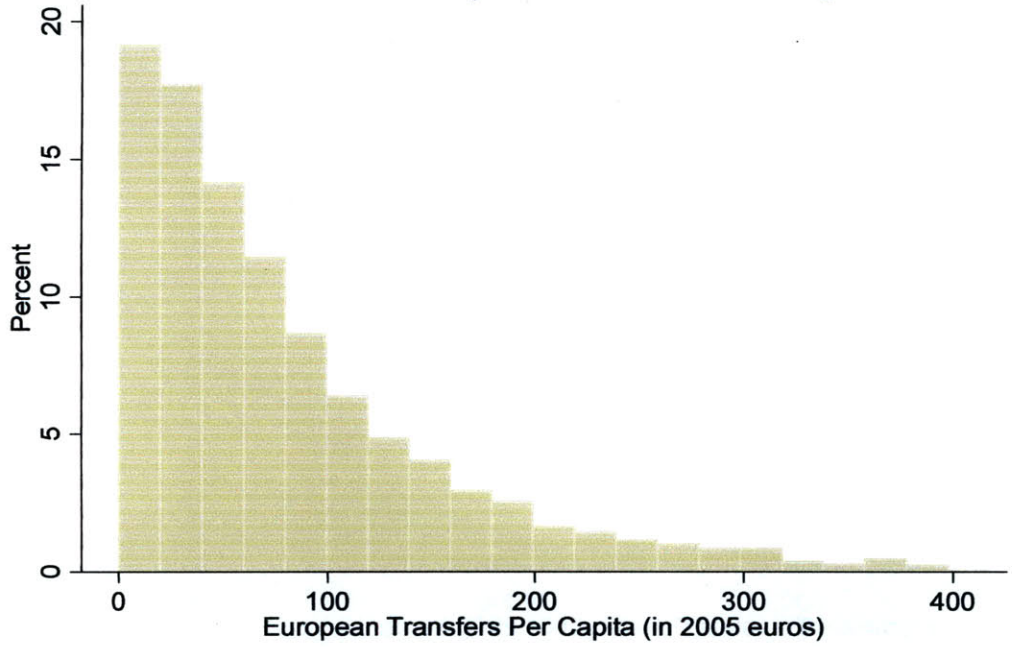

FIGURE 4 - Model 1

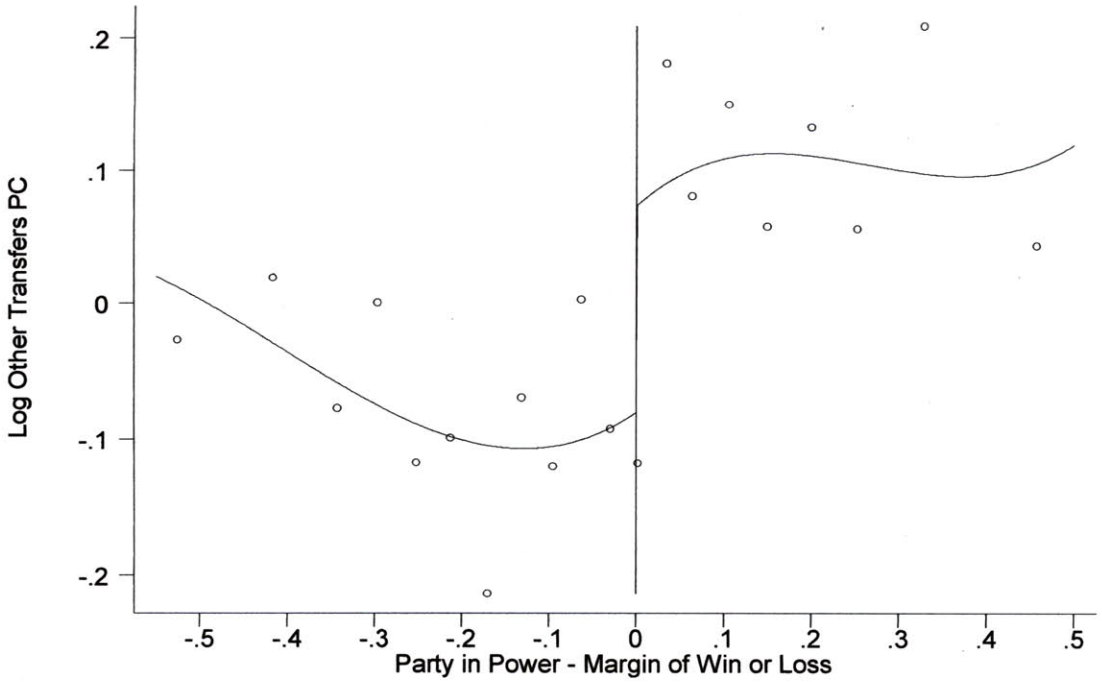

FIGURE 5 - Model 4

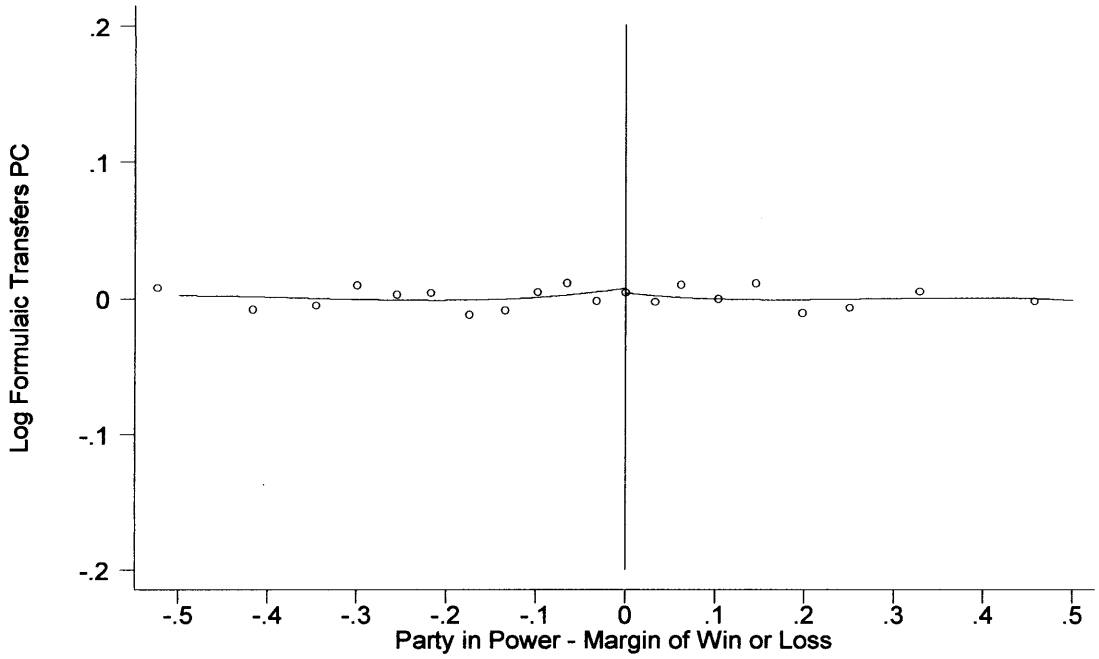

FIGURE 6 - Model 5

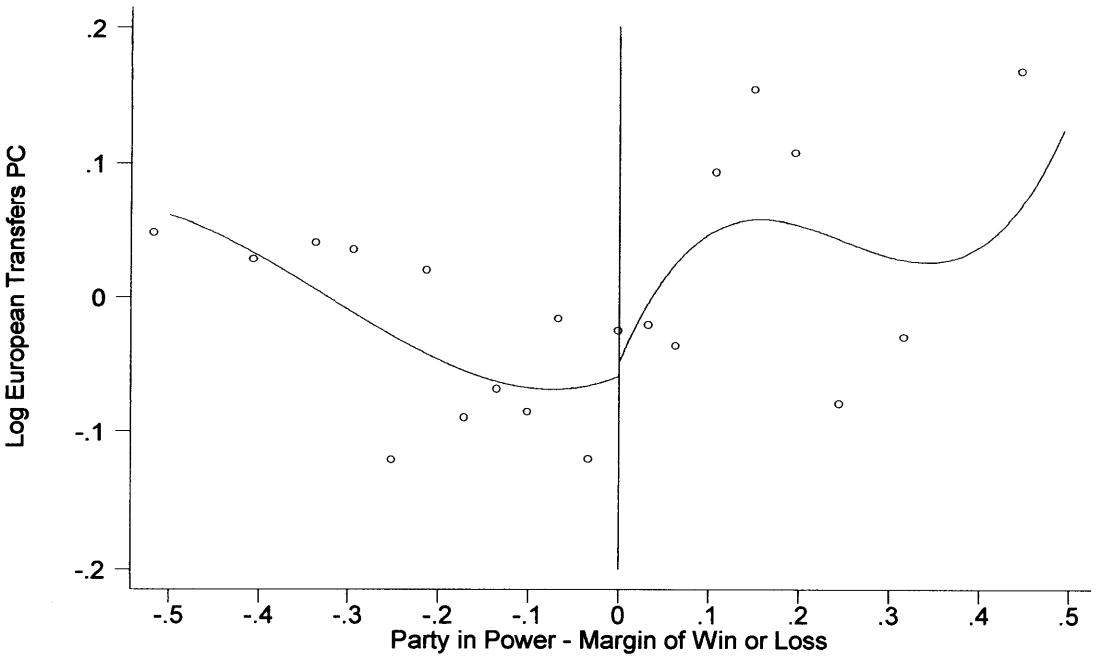

FIGURE 7

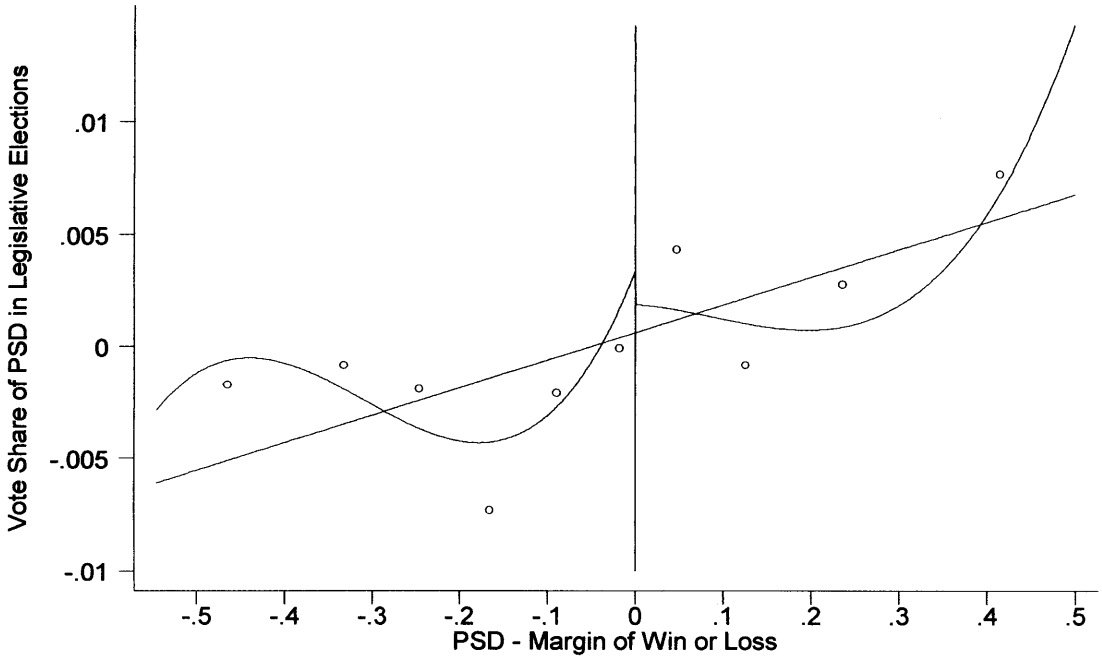

FIGURE 8

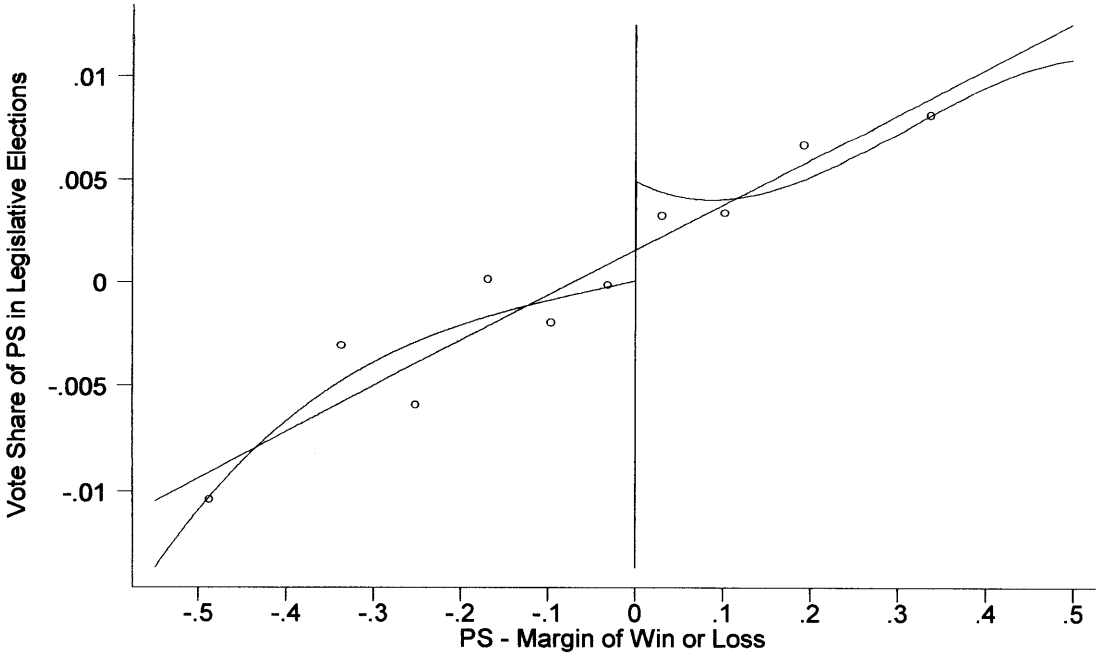

Table 1: PSD and PS success in municipal elections

	PSD		PS	
	Municipalities Won	Average Vote Share	Municipalities Won	Average Vote Share
1989	114	36.6%	120	34.5%
1993	116	37.3%	127	36.4%
1997	127	36.8%	128	39.3%
2001	158	40.2%	111	36.4%

Table 2: Descriptive stats

	Mean	Standard Deviation
Formulaic Transfers (2005 Euros)	5,005,486	4,407,943
European Transfers (2005 Euros)	1,219,155	1,460,033
Targetable Transfers (2005 Euros)	1,065,316	2,354,222
Formulaic Transfers Per Capita (2005 Euros)	359.41	287.85
European Transfers Per Capita (2005 Euros)	91.61	153.27
Targetable Transfers Per Capita (2005 Euros)	54.81	110.49
Municipalities Population	32,974	55,048

Table 3: Effect of political alignment between party in power nationally and municipal government in transfers to municipalities

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Log Targetable Transfers Per Capita, t	Log Targetable Transfers Per Capita, t	Log Targetable Transfers Per Capita, t	Log Formulaic Transfers Per Capita, t	Log European Transfers Per Capita, t	Log European Transfers Per Capita, t
Municipality won by party in power, before t	.184 (.113)	.189* (.112)	.222*** (.037)	-.004 (.012)	.020 (.110)	.020 (.106)
Log Municipality population, t	--	.099 (.589)	.122 (.588)	--	--	1.399* (.726)
Log Formulaic Transfers, t	--	1.203*** (.384)	1.214*** (.384)	--	--	1.677*** (.470)

Note: N = 4144 for columns 1, 2 and 3, N = 4270 for column 4, and N = 3206 for columns 5 and 6. All regressions, except the one presented in column 3, include a cubic transformation of the margin of victory/loss of the party in power nationally (at year t) for the municipal elections prior to year t. All regressions include municipality fixed effects and year dummies. Estimated standard errors (in parenthesis) are consistent, with municipality-municipality government period-national government period clustered sampling. *** = p-value < 0.01; * = p-value < 0.1.

Table 4: Effect of political alignment between party in power nationally and municipal government in transfers to municipalities – separated by party

	(1)	(2)	(3)	(4)
Dependent Variable	Log Targetable Transfers Per Capita, t – Years of PSD control	Log Targetable Transfers Per capita, t – Years of PSD control	Log Targetable Transfers Per Capita, t – Years of PS control	Log Targetable Transfers Per Capita, t – Years of PS control
Municipality won by party in power, before t	.320 (.195)	.320* (.188)	.008 (.135)	.019 (.139)
Log Municipality population, t	--	1.079 (.763)	--	-1.027 (.986)
Log Formulaic Transfers, t	--	1.891*** (.481)	--	.309 (.673)

Note: N = 2094 for columns 1 and 2, and N = 2072 for columns 3 and 4. Regressions include a cubic transformation of the margin of victory/loss of the party in power nationally at t, in the municipal elections prior to t, as well as municipality fixed effects and year dummies. Estimated standard errors (in parenthesis) are consistent, with municipality-municipality government period-national government period clustered sampling. *** = p-value < 0.01; * = p-value < 0.1.

Table 5: Incumbency and targetable transfers effects in municipal elections outcomes

	(1)	(2)	(3)	(4)
Dependent Variable	PSD winning/losing margin in municipality, t + 4	PSD winning/losing margin in municipality, t + 4	PS winning/losing margin in municipality, t + 4	PS winning/losing margin in municipality, t + 4
Municipality won by PSD, t	.127***	.125***	--	--
	(.035)	(.035)		
Municipality won by PS, t	--	--	.093**	.093**
			(.039)	(.039)
Logarithm targetable transfers (if incumbent), t	--	.018*	--	.010
		(.010)		(.010)
Logarithm targetable transfers (if incumbent), t-1	--	.015	--	-.014
		(.011)		(.010)
Logarithm targetable transfers (if incumbent), t-2	--	.011	--	.022
		(.011)		(.014)
Logarithm targetable transfers (if incumbent), t-3	--	.001	--	-.007
		(.012)		(.012)
Logarithm targetable transfers (if not incumbent), t	--	-.010	--	-.014
		(.007)		(.008)
Logarithm targetable transfers (if not incumbent), t-1	--	.007	--	.002
		(.007)		(.009)
Logarithm targetable transfers (if not incumbent), t-2	--	-.016	--	.000
		(.010)		(.010)
Logarithm targetable transfers (if not incumbent), t-3	--	.009	--	-.002
		(.009)		(.010)

Note: N = 888 in all columns. Rows All regressions include a cubic transformation of PSD or PS margin of victory/loss in the municipal elections at t. All regressions include municipality fixed effects and year dummies. Estimated standard errors in parenthesis. *** = p-value < 0.01; ** = p-value < 0.05; * = p-value < 0.1.

Table 6: Effect of municipal elections in ensuing legislative elections

	(1)	(2)	(3)	(4)
Dependent Variable	Vote Share of PSD Parliamentary Election, after t	Vote Share of PSD Parliamentary Election, after t	Vote Share of PS Parliamentary Election, after t	Vote Share of PS Parliamentary Election, after t
Municipality won by PSD, t	-.002 (.006)	--	--	--
PSD winning/losing margin in municipality, t	--	.052*** (.006)	--	--
Municipality won by PS, t	--	--	.006 (.006)	--
PS winning/losing margin in municipality, t	--	--	--	.068*** (.006)

Note: N = 1220 in all columns. Regressions in columns 1 and 3 include a cubic transformation of PSD or PS margin of victory/loss in the municipal elections at t. All regressions include municipality fixed effects and year dummies. Estimated standard errors in parenthesis. *** = p-value < 0.01.

LOCAL GOVERNMENT FISCAL POLICIES: LEFT-WING VS. RIGHT-WING PORTUGUESE MUNICIPALITIES[15]

Doctoral Dissertation Essay 2

Marco Migueis
MIT

ABSTRACT

In this paper, I use financial data from Portuguese municipalities (from 2003 to 2007) to investigate if the ideology of the local government incumbent influences local fiscal policies. Regression discontinuity design is employed to ensure proper identification of the ideology effect on fiscal policies. Left-wing control of municipal presidency showed a significant effect on the likelihood of adopting a municipal corporate tax. Left-wing municipalities also proved more likely to invest in social infrastructure. On the other hand, right-wing municipalities were shown to be more likely to grant subsidies to families, as well as to offer more generous compensation to their municipal workers. Finally, left-wing municipalities were less likely to resort to high levels of debt than their right-wing counterparts.

[15] I would like to thank my advisors, James Snyder and Esther Duflo, for their exceptional advice and encouragement through this project. I would also like to thank the participants of the MIT Political Economy breakfast for valuable comments and discussion. I am grateful to my girlfriend Deborah Sarkes for her help in editing this paper. Finally, this project would not have been possible without the financial support of *Programa Operacional Potencial Humano* and the *Fundo Social Europeu*.

1 – INTRODUCTION

Since the seminal work of Downs (1957), a majority of the theoretical analysis of elections has embedded the "median voter" hypothesis, which predicts that candidates for public office tend to adopt platforms catering to the median of the voting population,[16] in order to increase their likelihood of election. Taken literally, the "median voter" hypothesis implies irrelevance of the ideology of public officials, as they are bound to implement the dominant policy preference. On the other hand, if candidates cannot fully commit to implement the platform they proposed before being elected, divergence from the median-voter result should be expected, as the implemented policies instead mirror closely the preferences of public officials, especially when re-election concerns are not relevant (for analysis of elections with partisan candidates that cannot commit, see Alesina 1988). In the context of local governments, the irrelevance of candidates' ideology, predicted by the "median voter" hypothesis, is thought to be strengthened by "Tiebout-sorting" (see Tiebout 1956): the idea that people move to communities under jurisdiction of local governments whose policies are closer to their own preferences, rendering local populations more uniform in their policy preferences and, therefore, limiting the influence of politicians' ideology on local-level policies. Ultimately, the relevance or irrelevance of politicians' ideologies regarding local policies is an empirical question, which I address in the remainder of this paper.

Empirical evidence for an effect of the ideology of politicians on policy is mixed. Recent studies of US states (see Besley and Case (2003)) and Swedish Municipalities (Pettersson-Lidbom (2008)) have presented evidence of left-wing local governments taxing and spending more than right-wing local governments, while Ferreira and Gyourko (2007), in a study of US municipalities, found that the ideology of the municipal leaders does not significantly influence their fiscal policies. In this paper, I add to this debate by analyzing, separately and systematically, a selection of different revenue and spending policies of Portuguese municipalities.

On the revenue side, I first analyze how the ideology of the parties in control of Portuguese municipalities affects the likelihood of enacting a municipal business tax. The business tax is a perfect candidate to assess if ideological differences translate to de-facto policy

[16] When the voting population can be sorted according to preferences over a unidimensional policy space.

differences, due to the historically distinct stances of left and right-wing parties towards business in Portugal. Also on the revenue side, I look at the impact of ideology on the collection of indirect taxes and fees by municipalities. Additional municipal revenues over which local public officials have no control will not be considered.[17] On the spending side, the analysis will be focused on expenditures that are usually considered more of a left-wing priority, namely, the construction of public housing, public daycare centers, public retirement homes and public schools, as well as subsidies to families. Also on the spending side, I look at how left and right-wing municipalities compare in terms of public officials' compensation. Finally, I analyze which side of the political spectrum is better at keeping the debt-level of Portuguese municipalities low. The effect of governing politicians' ideology on fiscal policies is identified through the use of regression discontinuity design. Regression discontinuity design measures the ideology effect by comparing the fiscal policies in municipalities narrowly won by left-wing mayors with municipalities narrowly won by right-wing mayors. As long as the characteristics of these municipalities with close elections are similar, regression discontinuity guarantees causal identification of the ideology effect, solving the potential endogeneity between fiscal policies and electoral outcomes. I consider a varied set of specifications in order to ensure robustness of the results.

Left-wing control has some predictable effects on policy, as well as some very surprising effects. On one hand, left-wing municipalities are significantly more likely to have a business tax than right-wing municipalities, and left-wing municipalities are also more likely to invest in daycare centers, retirement homes and public housing. On the other hand, perhaps surprisingly, right-wing municipalities are more likely to give subsidies to families and pay more compensation to their municipal workers than left-wing municipalities. Left or right-wing control did not show a significant effect on more aggregate fiscal policy indicators, such as total spending and total investment. This implies that, while neither right nor left can clearly be said to be more profligate, the two sides of the ideological spectrum have different spending priorities.

The paper is structured in following way: in section 2, the politics of Portuguese municipalities are reviewed; in section 3, the data used in this paper is presented and the empirical strategy is discussed; in section 4, the results regarding revenue collection are presented and analyzed; in section 5, expenditures are analyzed; in section 6, I compare the

[17] For example, property taxes are not considered because the rate is defined by the national government.

ability to control debt of right and left-wing municipalities; finally, in section 7, I present my concluding remarks.

2 – PORTUGUESE MUNICIPALITIES AND PARTIES

Portuguese municipalities are ideal for analyzing the impact of party control on the fiscal policies of local governments. On one hand, Portuguese municipalities enjoy autonomy in setting spending priorities, as well as control over some of their tax revenues (namely over the municipal business tax, municipal indirect taxes and fees). On the other hand, municipal elections are utterly partisan[18] and have been dominated by parties that can be neatly arranged in the left-right political spectrum. Moreover, unlike the US, ideological views are fairly uniform across candidates of a party. Thus, the necessary conditions to investigate the impact of the municipal governing party's ideology on local fiscal policies are met.

Portugal is divided into 308 municipalities. Municipal elections take place every four years (the most recent election occurred in 2009), with voters electing representatives for the municipal council (executive) and the municipal assembly (legislative). The first member of the most-voted list in the municipal council elections is elected municipal council president (the equivalent of mayor), even if his party does not obtain a majority within the municipal council. Municipal elections have been dominated by four parties, two right-wing – PSD (*Partido Social Democrata*) and CDS-PP (*Centro Democrático e Social – Partido Popular*), both members of the European People's Party – and two left-wing – PS (*Partido Socialista*), member of the European Socialist Party, and PCP (*Partido Comunista Português*), member of the European United Left. Independent candidates and a couple of smaller parties have won some elections in the period I consider in this paper, but it was straightforward in all cases to identify their position in the political spectrum.[19]

[18] Non-partisan lists were not even allowed to run in municipal elections until 1997.

[19] In the case of small parties, two are right-wing (*Partido Popular Monárquico* and *Partido da Terra*) and one left-wing (*Bloco de Esquerda*). The independent candidates who won elections were in most cases former members of one of the bigger parties and therefore I assumed that they still represent the same side of the political spectrum.

3 – DATA AND EMPIRICAL STRATEGY

In this paper, I use business tax rates for the years 1998-2000, 2002 and 2006-2008.[20] All other municipal accounts discussed in this paper were analyzed for the period 2003-2007, and are available online at the municipal website of the Portuguese government.[21]. Data on the municipal election results of 1997, 2001 and 2005 was found at the elections website of the Portuguese government.[22]

Table 1 shows how the balance of power between left and right has shifted in Portuguese municipalities in the period of my analysis. In 1997, left-wing parties enjoyed a solid majority of municipalities, but this dominance switched to the right-wing parties in 2001 and 2005. Table 2 shows how stable left and right-wing municipal control was through the years. In 2001, 20% of municipalities switched from left to right or vice-versa, and in 2005 that was true for 30% of municipalities.[23] Therefore, there is a good degree of variability in municipal control in my sample, which should facilitate the identification of the ideology effect. Table 3 shows the means and standard deviations of the fiscal policies analyzed in this paper, as well as the comparison between their means while under left-wing rule and their means while under right-wing rule. When simply considering raw averages, left-wing municipalities are more likely to have a business tax, to invest in retirement homes, public housing and public schools, as well as more likely to give away subsidies to families; also, left-wing municipalities spend more per capita in municipal workers' compensation. On the other hand, right-wing municipalities are more likely to invest in daycare centers, generally spend more per capita (and specifically spend more on investment goods), raise more revenue through indirect taxes and fees, and have larger municipal debt per capita. However, these differences in municipal averages may not be a good indicator for a causal effect of political ideology in municipal policy, as right and left-wing municipalities might be very distinct in characteristics relevant for these policies (like the concentration of businesses, the proportion of elderly, the proportion of young children, etc). The next section illustrates the shortcomings of looking only at raw averages, as, using regression discontinuity and municipal fixed effects, many of the relations shown in Table 3 change sign.

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[20] Available online at http://info.portaldasfinancas.gov.pt/pt/dgci.
[21] See https://appls.portalautarquico.pt/portalautarquico.
[22] See http://eleicoes.cne.pt.
[23] Keep in mind that this number is smaller than the changes in party of the mayor, as a change in mayor between two right-wing parties or between two left-wing parties would not be counted for this effect.

Regression discontinuity design is used in all the regressions of this paper, in order to get causal identification of the effect of the incumbent party's ideology in the fiscal policies of the municipality. The level or prevalence of fiscal policies is compared between municipalities where a left-wing party wins the municipal election with a small margin over its closer right-wing competitor, and municipalities where a right-wing party wins the municipal election with a small advantage over its closer left-wing competitor.[24]

Several of the regressions presented in the next sections look upon the effect of a mayor's ideology on the level of fiscal policies in a municipality. When that is that case, the main specification I discuss is of the form:

$$Y_{it} = c + \theta_i + \tau_t + \beta Left_{it} + f^j(Mrg_{it}) + \varepsilon_{it}$$

where Y_{it} is the fiscal policy of interest, θ_i is a municipal fixed effect, τ_t is a year effect, $Left_{it}$ is a binary variable that assumes value 1 if municipality i has a left-wing mayor on year t and 0 otherwise, and finally $f(Mrg_{it})$ is a two-sided j^{th} degree polynomial of the margin between the most-voted left-wing party and the most-voted right-wing party. I give greater relevance in my analysis to specifications with higher degree polynomials (3^{rd} and 4^{th} degree), as they provide functional flexibility, which is necessary to ensure that the effect measured is indeed a result of a discontinuity and not due to the binary variable for treatment (left-wing control) capturing an effect of observations very far from the treatment threshold (in this case 0% vote margin), while still having sufficient statistical power to draw conclusions.

In the subsequent sections, I also study the effect of a mayor's ideology on binary dependent variables, such as the existence of a municipal business tax or of positive municipal investments on daycare centers. To address these questions, I estimate linear probability models, following a Feasible GLS procedure. First, I estimate the models in a similar manner to the case of levels described above:

$$Y_{it} = c + \theta_i + \tau_t + \beta Left_{it} + f(Mrg_{it}) + \varepsilon_{it}$$

where Y_{it} is a binary variable. I then use the fitted values of these regressions to estimate the standard error of each observation (under the linear probability model $V(Y_{it}) = E(Y_{it})(1 - E(Y_{it}))$).

[24] I considered winning the municipal election to mean winning the municipal president position, due to this being the most straightforward application of the regression discontinuity methodology.

Finally, the linear probability models are re-estimated, correcting for the heteroscedasticity of the data:[25]

$$\frac{Y_{it}}{\hat{\sigma}_{it}} = \frac{c + \theta_i + \tau_t + \beta Left_{it} + f(Mrg_{it}) + \varepsilon_{it}}{\hat{\sigma}_{it}}$$

Regression discontinuity design provides causal identification of an effect of ideology on fiscal policies, if the assumption that municipalities where elections are close are distributionally similar in regard to other characteristics relevant to fiscal policy selection holds true. I test this assumption by using a regression discontinuity setup similar to that described above for the case of levels (with a two-sided 4th degree polynomial controlling for the winning margin), and the results are presented in Table 4. None of the socio-economic factors considered (municipal real income, population, proportion of children aged 5-14 or proportion of people aged 65+) were significantly different between municipalities where the left won narrowly and municipalities where the right won narrowly.

4 – TAXATION

The political rhetoric towards business has long been one of the marking differences between the Portuguese Right and the Portuguese Left. One of the prime examples of this difference is the fact that left-wing parties were in general favorable to the extensive nationalization of businesses in the years following the Carnation revolution, while right-wing parties tried to fight against this wave of nationalization, even at the expense of being associated with the former fascist regime by a substantial segment of the population. It is therefore of no surprise that when given the opportunity of setting a municipal tax rate, a larger share of left-wing municipalities chooses to do so. Table 3 illustrates this fact; approximately 61% of all left-wing municipalities in my sample have a business tax, while that is true for only 36% of the right-wing municipalities. Still, this is not necessarily evidence that left-wing politicians cause municipalities to enact the business tax, it might simply be that the constituents of these

[25] In many occasions $\hat{\sigma}_{it}$ was either negative or very small. To solve this issue I assigned $\hat{\sigma}_{it} = .1$ whenever $\hat{\sigma}_{it}$ was smaller than .1 (not only correcting the negative variances, but also limiting the influence that any single observation can have on the estimated coefficients).

municipalities prefer businesses to be taxed, and therefore businesses are more likely to be taxed in these municipalities no matter who is in control. Regression discontinuity design is employed to examine if there really is a positive causal effect of left-wing ideology of a mayor on the likelihood of enacting a business tax. The results, shown in Table 5, confirm what the raw averages suggested. The specifications considered point to a 20 to 30% higher chance of a left-wing municipality enacting a business tax. Figure 1 illustrates the effect of left-wing control on the likelihood of a municipal business tax, with a clear jump between municipalities barely won by a right-wing mayor and the municipalities barely won by a left-wing mayor. This effect is significant under all specifications.

Are left-wing municipalities more likely to raise every type of tax? To answer this question, I turn to the analysis of indirect taxes and fees. These taxes and fees include fees paid to procure local market and public space permits, construction permits, advertising licenses, and dog ownership licenses, among others. As can be seen in Table 3, left and right-wing municipalities are very close in terms of revenues per capita from indirect taxes and fees, with a slight advantage to right-wing municipalities. Regression discontinuity analysis confirms the irrelevance of the ruling ideology to the indirect taxes and fees raised by Portuguese municipalities. Estimates of the effect of left-wing ideology (presented in Table 5), range from 0% to 10%, but never attain statistical significance.

As a whole, the conclusion seems to be that Portuguese left-wing leaders are more likely to raise taxes that affect segments of the population that do not view them favorably anyways, such as business owners, but are not necessarily more likely to raise all types of taxes, particularly the ones which also affect their less wealthy constituents.

5 – EXPENDITURE

Most other studies looking at the impact of political variables on spending patterns of local governments have concentrated on total spending. There does not seem to be an effect of left-wing control on total spending per capita in the case of Portuguese municipalities; as can be seen in Table 3, total spending per capita is very similar for both left-wing and right-wing municipal governments (around €1,000 per year, at 2007 prices), with right-wing municipalities spending slightly more. Regression discontinuity design confirms the lack of an effect of a

mayor's left-wing ideology on municipal log spending per capita, with estimates ranging from -2% to 0%, but always far from statistical significance.

Fortunately, the data available for Portuguese municipalities allows examination of more disaggregated spending policies. In order to explore if there are substantial ideological effects on spending, I focus the analysis on investment in social infrastructure as well as in social transfers, both typically thought to be a higher priority to left-wing politicians. First, however, we can ask how left-wing and right-wing municipalities compare in terms of overall investment. As can be seen in Table 3, right-wing municipalities invest somewhat more per capita (€60 plus per year). This difference does not survive the inclusion of fixed effects and a regression discontinuity design; estimates of the effect of left-wing ideology on log investment per capita vary from -2% to 8%, but are never statistically significant (as can be seen in Table 5).

My analysis shows that social infrastructure is much more of a priority to left-wing mayors than to their right-wing counterparts. The share of left-wing Portuguese municipalities in my sample that invested in daycare centers, over a calendar year, was slightly less than the share of right-wing municipalities (28% vs. 30%), but once regression discontinuity is employed and municipal fixed-effects are taken into account, a clear left-wing effect emerges, with estimates between 15% and 49%, which is statistically significant in all specifications (see Table 5). In the case of investment in public retirement homes, the share of municipalities with positive investments over a calendar year is larger when under left-wing control (11% vs. 5%). Regression discontinuity design confirms a positive effect of left-wing ideology; municipalities switching to left-wing control become 20% to 45% more likely to invest in retirement homes over the course of a fiscal year. Similarly, a larger share of Portuguese left-wing municipalities invested in public housing (71% vs. 68%), and the regression discontinuity designs employed show a positive effect of left-wing control on the likelihood of investing in public housing (estimates range from 4% to 48%, with lack of statistical significance in the lower estimates, but it should be noted that the higher estimates result from the specifications where the control function had greater flexibility, and were therefore closer to the ideal regression discontinuity setup). Finally, a larger share of left-wing municipalities invested in school infrastructure (93% vs. 89%). Only one of the regression discontinuity specifications reveals a statistically significant effect of switching to left-wing control on the likelihood of investing in schools (an effect of 25%), but all other estimates, albeit smaller, are consistently positive. In conclusion, switching

from a right-wing to a left-wing municipal government increases the likelihood of investment in a variety of social infrastructures.

Outside of infrastructure expenses, it is interesting to look at how left and right-wing municipalities differ in terms of granting subsidies to families. Assistance to poor families is one of the hallmarks of the left across the globe, and therefore it is a priory expected that Portuguese municipalities controlled by the left-wing would be more likely to concede subsidies to families than right-wing controlled municipalities. A 76% share of left-wing municipalities conceded subsidies to families during my sample, while the number is only slightly smaller, at 75%, for right-wing municipalities; however, regression discontinuity analysis does not confirm a positive effect of having a left-wing mayor on the likelihood of granting subsidies to families. Estimates are very inconsistent, going from -45% to 14%, but if they give any indication, it is that right-wing municipalities are more likely to concede subsidies, as the more flexible specifications produced a significantly negative estimate of the left-wing effect. This result is quite unintuitive, but it might be explained by Portuguese right-wing mayors being more pro-family, due to their focus on family values; a more cynical explanation would be that right-wing mayors are more prone to pander through subsidies, a policy with immediate visibility, even if they are not more concerned with the social welfare of poor families.

Lastly, I have also analyzed how the overall compensation of municipal workers compares between left-wing and right-wing municipalities. A priori it might seem likely that municipalities under left-wing control would spend more with their workers, maybe because left-wing mayors care more about the income of municipal workers or because they might try to reduce unemployment by increasing the number of public workers. Comparison of the average compensation per capita of left and right-wing Portuguese municipalities seems to confirm this hypothesis, as left-wing municipalities spend almost €40 more per capita than right-wing municipalities in municipal workers' compensation, but regression discontinuity analysis shows the opposite result. Portuguese municipalities under left-wing control spend significantly less in workers compensation, with estimates of this left-wing effect varying between -2% and -6%. A proper explanation for this result will require further research, but it is interesting to note that right-wing municipalities received more transfers from the central government than left-wing municipalities, when the party in control of the municipality is aligned with the party in control of the central government (as it is shown in Migueis 2010). These two results put together hint at

the possibility that the extra funds received by aligned right-wing municipalities are funneled to increase compensation of municipal employees.

Overall, my analysis of spending patterns of Portuguese municipalities shows that left-wing municipalities do not spend significantly more or less than right-wing municipalities, but seem to target spending more to social infrastructure, while right-wing municipalities privilege municipal workers compensation and are more likely to subsidize families.

6 – DEBT

Having looked at how left and right-wing municipalities compare in terms of taxation and spending, the last empirical results to present in this paper concern how they compare in terms of controlling municipal debt. Considering the typical left and right-wing ideologies, a case can be made for either side of the political spectrum being more careless regarding government debt. On one side, left-wing politicians tend to favor expansion of public expenses, especially funding for social programs, which if left unrestrained and unaccompanied by tax increases, can lead to budget shortfalls, requiring debt financing; on the other hand, a majority of right-wing politicians advocate tax cuts, believing that budget balance can still be achieved in the long-run though "starving the beast" (a forced reduction of public spending due to lack of public funds). The data from Portuguese municipalities allowed me to compare how disciplined left and right-wing parties are in terms of controlling municipal debt. In the period of my sample, right-wing municipalities carried on average more debt per capita, to the tune of €779 in 2007 prices, compared to only €703 carried by left-wing municipalities. But is there a causal effect of left-wing rule on debt control? Results from Table 6 seem to point in that direction. Estimates of the effect of left-wing control on municipal debt range from -6% to -12%. The only caveat is that the more flexible specifications did not provide statistically significant coefficients, so the possibility that part of this result is driven by municipalities where elections were not very close cannot be excluded. Nevertheless, the consistently negative results suggest that Portuguese left-wing municipalities are more fiscally responsible than right-wing municipalities.

7 – CONCLUSION

Most of the studies regarding the effect of parties and political ideology on fiscal policies have focused on the most aggregate level of spending or revenue. My analysis has shown that, while there may not be any discernible party or ideological effects on fiscal aggregates, such as total spending, ideology plays a significant role in setting spending priorities and in choosing revenue sources. In terms of revenue, left-wing Portuguese municipalities were much more likely than right-wing municipalities to tax businesses, but were not more likely to raise other types of taxes. On the spending side, the priority for left-wing municipalities is investment in social infrastructure, while, perhaps surprisingly, right-wing municipalities favored direct subsidies to families. Also, moving from left-wing control to right-wing control led, on average, to larger compensation of municipal workers. Finally, right-wing municipalities accumulated more debt than their left-wing counterparts. Overall, my empirical findings support theories that put emphasis on a politician's ideology playing a role in governmental policy, as the contrast between the policies followed by Portuguese left-wing and right-wing municipalities was, quite often, stark. It would be interesting to, in a future work, analyze, using a similar regression discontinuity setup, how spending and revenue priorities differ between Democrats and Republicans in control of US states or municipalities.

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FIGURE 1

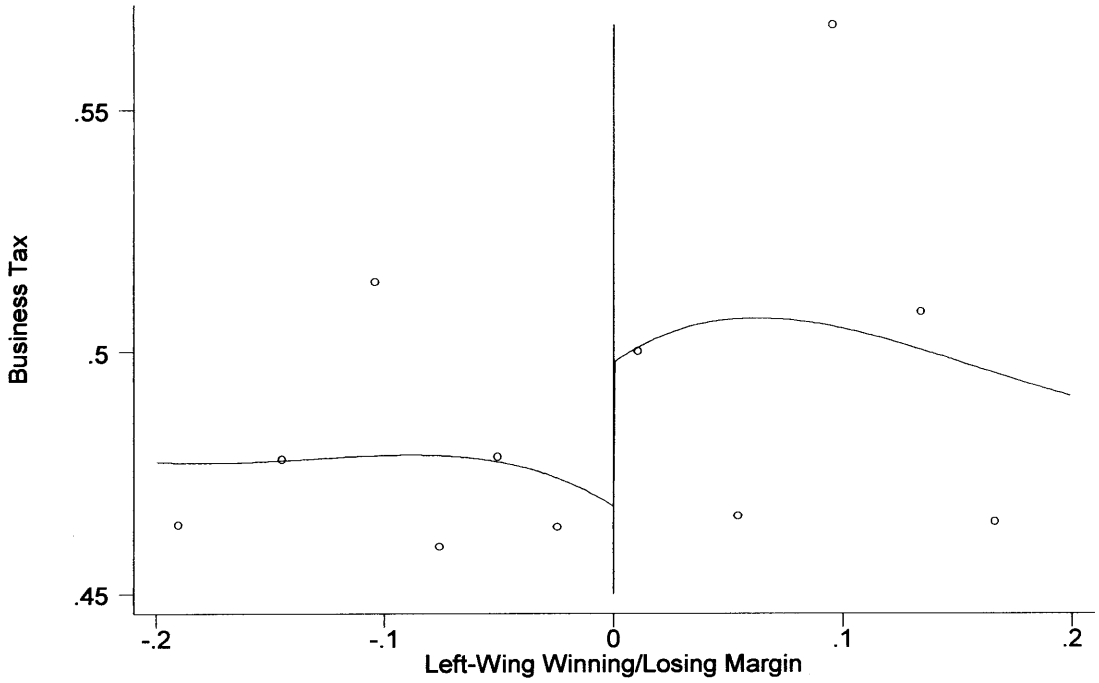

Table 1 – Party control in Portuguese Municipalities

	Left-wing municipalities	Right-wing municipalities
1997-2000	169	136
2001-2004	143	165
2005-2008	147	161
Total	459	462

Table 2 – Correlation Matrix – Left-wing Mayor

	1997-2000	2001-2004	2005-2008
1997-2000	1		
2001-2004	.700	1	
2005-2008	.550	.803	1

Table 3 – Summary Statistics

Variables	Mean	St. Dev.	Left-wing Mayor Mean	Right-wing Mayor Mean
Business Tax > 0 {1,0}	.489	.500	.613	.362
Indirect taxes + fees p.c.	28.87	29.67	28.45	29.25
Spending p.c.	999.14	503.67	979.77	1016.26
Investment p.c.	368.43	256.92	336.91	396.27
Daycare Investment > 0 {1,0}	.289	.454	.279	.299
Retirement Homes Investment > 0 {1,0}	.081	.273	.112	.053
Public Housing Investment > 0 {1,0}	.698	.459	.714	.684
Public Schools Investment > 0 {1,0}	.907	.290	.933	.885
Families Subsidies > 0 {1,0}	.751	.433	.756	.746
Compensation p.c.	271.81	164.12	291.94	254.03
Debt p.c.	743.82	578.69	703.33	778.99

Note: Per capita values are at the 2007 price level.

Table 4 – Effect of Left-Wing Control on Municipality Characteristics

Log Municipal Population	.003
	(.010)
Log Municipal Real Income Per Capita	-.007
(2007 Prices)	(.027)
Municipal 5-14 population %	.000
	(.002)
Municipal 65+ population %	.002
	(.001)

Note: N = 1232 in Real Income regression and N = 1540 in all other regressions. All regressions included municipal, year fixed effects and fourth-degree polynomial of the aligned governor winning/losing margin. Standard errors (in parenthesis) are estimated using clustering. *** = p-value < 0.01.

Table 5 – Effect of Mayor's Left-Wing Ideology

	(1)	(2)	(3)	(4)	(5)
Business Tax > 0 {1,0}	.185***	.225***	.300***	.215***	.289***
	(.033)	(.044)	(.061)	(.078)	(.095)
Log Indirect taxes + fees p.c.	.013	.052	-.009	.037	.105
	(.066)	(.077)	(.078)	(.085)	(.096)
Log Spending p.c.	.002	-.001	-.005	-.024	-.021
	(.025)	(.027)	(.032)	(.037)	(.043)
Log Investment p.c.	.087	.070	.059	-.021	-.017
	(.064)	(.071)	(.088)	(.098)	(.111)
Daycare Investment > 0 {1,0}	.146*	.199**	.274***	.333***	.490***
	(.076)	(.081)	(.091)	(.108)	(.141)
Retirement Homes Investment > 0 {1,0}	.280***	.202***	.447***	.451***	.268**
	(.059)	(.070)	(.091)	(.103)	(.117)
Public Housing Investment > 0 {1,0}	.040	.041	.267**	.478***	.368**
	(.084)	(.095)	(.110)	(.134)	(.167)
Public Schools Investment > 0 {1,0}	.080	.128	.018	.065	.250**
	(.075)	(.081)	(.096)	(.104)	(.121)
Families Subsidies > 0 {1,0}	.094	.144**	-.205**	-.412***	-.451***
	(.065)	(.072)	(.085)	(.099)	(.116)
Log Compensation p.c.	-.018	-.022	-.046**	-.044*	-.060**
	.015	(.018)	(.021)	(.025)	(.030)
Log Debt p.c.	-.088**	-.121**	-.074	-.056	-.090
	(.044)	(.057)	(.065)	(.077)	(.098)
Left Winning Margin Polynomial	None	First	Second	Third	Fourth

Note: N = 2135 in Business Tax regressions and N = 1520 in all other regressions. All regressions included municipal and year fixed effects. Standard errors (in parenthesis) are estimated using clustering in all the regressions with a logarithmic dependent variable. *** = p-value < 0.01; * = p-value < 0.1.

POLITICAL ALIGNMENT AND FEDERAL TRANSFERS TO THE US STATES[26]

Doctoral Dissertation Essay 3

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ABSTRACT

In this paper, I use financial data regarding transfers from the US federal government to US States (1982-2001) to investigate if political alignment, defined as a state governor and the US President belonging to the same political party, influences the level of federal transfers received by a state. Regression discontinuity design is used to ensure proper identification of the alignment effect. Total federal transfers to aligned states are significantly larger, with the most trustworthy estimates in the neighborhood of 3%. Most of this advantage comes from significantly larger defense transfers to aligned states (the most credible estimates indicate a 13% advantage). Finally, other types of federal transfers are not significantly affected by political alignment, namely entitlements, salaries and, perhaps surprisingly, project grants.

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1 – INTRODUCTION

A large body of research on Political Economy has been devoted to understanding the distribution of public resources. Theories regarding how electoral and partisan considerations may influence the allocation of public monies abound. Cox and McCubbins (1986) show that risk-averse politicians should prefer to favor constituencies where they benefit from significant support, as these should provide a more certain return for the allocated funds; on the other hand, Lindbeck and Weibull (1987) predict that, in winner-takes-all races, candidates will promise to favor constituencies where elections are close, as a marginal dollar transferred to these constituencies should have a larger effect in the probability of election; finally, others, such as McCarthy (2000), stress that party leaders in positions of national power (such as the US President) may feel compelled to favor local governments controlled by members of the party, in order to improve the party's image. In the US federal system, questions of distribution assume particular relevance to states, as federal transfers comprise a significant share of their budgets. In this paper, I test for a pure effect of political alignment between the US President and state governors on the allocation of federal transfers to states, with a methodology which allows me to separate the alignment effect from a potential bias on transfers to states where the President has substantial support.

Previous empirical research has shown a significant effect of alignment with the US President on federal transfers. Berry et al. (2009) found that alignment of a congressman with the US President increases transfers to his district, even more so than alignment of the congressman with the party in control of Congress; Larcinese et al. (2006) found that states led by a governor of the same party as the President received significantly more total federal transfers per capita. Nevertheless, as they calculate standard fixed-effects regressions, with no control for the winning/losing margin of the local candidates (congressmen or governors), the effect they find of alignment with the President can be due to either a pure alignment effect or to the states/districts aligned with the US President receiving extra transfers due to providing substantial support in terms of votes to the President (an effect in the spirit of Cox and McCubbins 1986). Regression discontinuity design, a more robust estimation method, is necessary to causally identify the effect of alignment on federal transfers to states and to separate it from a probable bias in transfers to aligned states due to the large number of supporters of the President in these states. Regression

discontinuity design measures the alignment effect by comparing the transfers to states where aligned governors won the gubernatorial election narrowly with the transfers to states where aligned gubernatorial candidates lost narrowly. This methodology identifies causally the alignment effect, as long as the assumption that close elections are essentially random holds (I will provide some tests for this assumption in Section 3).

In this paper, I start by presenting the results for total transfers to the US States, but I also look at how alignment influences transfers when divided between smaller aggregates. This disaggregated analysis will allow me to draw some conclusions on the potential motivations for the targeting of federal funds to aligned states. First, I look at how political alignment influences defense vs. non-defense transfers, and later, I analyze a different partition of total transfers, namely, how alignment separately influences entitlements, procurements, project grants and salaries. Finally, I compare how political alignment influenced transfers in periods of Democratic control versus periods of Republican control.

My findings are in-line with most of the previous literature, as estimates of the effect of alignment on total federal transfers are positive and significant in all specifications, ranging from 1.3% to 3.5%. Defense transfers are affected even more so by political alignment, with estimates of this effect ranging from 2.3% to 14%, while project grants are not significantly affected by alignment and, if anything, show a negative effect of alignment. As the allocation of defense money is completely out of the control of state governors, whereas project grants can, very often, be re-allocated at a state-level, these asymmetrical effects hint to "credit-claiming" as the main driver of the political targeting of federal funds by the President to aligned states, rather than the potential sharing of political goals by the President and aligned state governors. Other components of the federal transfer mix – entitlements and salaries paid by the federal government – are positively, but not significantly, affected by political alignment, which is surprising in the case of entitlements. Section 2 of this paper discusses the influence of the US President in the budgetary process; section 3 of the paper presents the data used and the empirical methodology; section 4 presents the results; and finally, in section 5, I make concluding remarks.

2 – THE US PRESIDENT AND THE FEDERAL BUDGET

In the United States, since the Budget and Accounting act of 1921, the President has enjoyed significant control over the budget, and therefore over the allocation of resources. The US President starts the budgetary process by making a proposal to Congress, and after Congress finishes the amendment process, and approves a final bill, the President still has the power to veto, a veto that can only be overturned by a two-third majority in Congress. The proposed budget is drafted with strong consideration of the spending priorities of the President; federal agencies have to submit their spending needs to the Office of Management and Budget, which works closely with the President, rather than directly to Congress. Post-approval of the budget, the President still has substantial room to target federal funds, as most of the funds allocated to federal agencies do not have strictly pre-determined use, and therefore, the executive appointees in charge of these agencies can significantly influence the destination of federal dollars. In 1974, the Budget Impoundment and Control Act was approved with the objective of shifting power back to Congress, but even after this act, most experts (see Copeland 1983 or McCarthy 2000) still agree that the President has a significant influence over the US budget.

Numerous theories have been developed to explain how electoral and partisan considerations influence the allocation of governmental resources. Cox and McCubbins (1986) developed a model showing that politicians in control of a central government, when risk averse, should favor constituencies where they have substantial support, as those constituencies will bring a more certain return for the funds invested. Linbeck and Weibull (1987) showed that politicians should target constituencies where elections are close, as these constituencies are more likely to shift in their favor with the help of extra funding. McCarthy (2000) argues that party leaders are compelled to favor constituencies controlled by the members of the party. Also, if a local level of government has control over policy, the more central level of government should prefer to provide more resources to those more likely to implement policies in accordance with the central-level goals. Ultimately, empirical research is needed to verify which theoretical predictions most resemble real world outcomes.

Many empirical papers have tackled the question of whether political considerations influence the level of intergovernmental transfers in the US. Ansolabehere and Snyder (2006), while analyzing transfers from US States to counties, found that counties where elections are

close did not receive significantly more funds than other counties, while counties where the vote shares of the party in control of the state legislature or with the incumbent governor tended to receive larger transfers. Similarly, Levitt and Snyder (1995) found that federal transfers to districts were larger when given to districts under Democratic control, during a period where the US Congress was dominated by the Democratic Party. Larcinese et al. (2008), look at the allocation of federal funds to states, and using survey variables instead of voting data, also conclude that the swing-voter hypothesis does not explain the distribution of federal monies as well as the partisan hypothesis (national political leaders favor constituencies where they have substantial support). They also argue that using political outcomes as explanatory variables for budgetary outcomes is problematic, due to potential endogeneity between electoral results and the allocation of public financial resources. Barry et al. (2009), in their analysis of federal transfers to US districts, found that the Washington decision-maker who appears to have the most sway over the distribution of federal funds is the President, rather than the party in control of congress or the Congressmen in control of the various committees. Their results support my choice to focus on the alignment with the US President as the crucial political variable to influence federal transfers to states. Finally, the most closely related paper to this work is Larcinese et al. (2006), which found that US states with a governor politically aligned with the US President received on average more transfers than other states did. However, in their regressions, they do not control simultaneously for the vote shares in gubernatorial elections. Therefore, their estimates may pick up either the direct effect of alignment or the desire to provide more funds to states generally supportive of the President. Moreover, their research design does not ensure causal identification of an alignment effect, as political alignment may be endogenously determined together with federal transfers. To ensure causal identification and to distinguish between the pure alignment effect and the effect of the President having substantial support in a state, I go beyond the simple correlation calculated by Larcinese et al. (2006), by using the robust method of regression discontinuity design to measure the effect of political alignment on federal transfers.

3 – DATA AND EMPIRICAL METHODOLOGY

I analyze the impact of alignment on federal transfers using a panel of 47 US States for the period 1982-2001.[27] Data for federal outlays and the demographic and economic controls used[28] can be found in the Statistical Abstract of the United States. Data from the gubernatorial races was compiled by James Snyder and Stephen Ansolabehere from various sources. Population data was taken from the US Bureau of Economic Analysis (BEA).

My analysis of the effect of political alignment on federal transfers will first address total transfers per capita to the states, in order to verify the findings of previous research utilizing a regression discontinuity design. Subsequently, I investigate how the alignment effect is split between the different components of federal outlays; first, I look at how alignment affects defense transfers vs. non-defense transfers; then, I examine separately how political alignment influences federal outlays to states to finance project grants, procurements, salaries and entitlements. Table 1 shows the summary statistics for the different partitions of federal outlays per capita. It is surprising that, if considering only raw averages, states not aligned with the US President receive larger amounts for all types of federal transfers, especially because this result cannot simply be explained by the same states always being aligned, as the period of analysis is split between years of Democratic and Republican control of the White House (first the Reagan/Bush years, then the Clinton years). Nevertheless, results in the next section will demonstrate that this advantage of unaligned states is, in many cases, reversed once regression discontinuity design and state-fixed effects are employed.

Federal transfers and state election results may be endogenously determined together, as they might reinforce each other, or both be influenced by other factors. Therefore, a methodology robust to this potential endogeneity is needed to ensure causal identification of the effect of alignment on federal transfers to states. Regression discontinuity design, which measures the effect of alignment between a state and the US President, by comparing the transfers received by states where an aligned gubernatorial candidate won narrowly with the

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[27] To ensure comparability with previous studies and due to their specificities, which ensure they always receive more federal transfers per capita than other states, Alaska, Hawaii and the District of Columbia are excluded from my analysis. Louisiana is excluded because their gubernatorial elections are open to many candidates of the same party.

[28] Other controls used are state income per capita, percentage of children aged 5-17, percentage of elderly aged 65+ and unemployment rate.

transfers received by states where an aligned gubernatorial candidate lost narrowly, overcomes the endogeneity problem, as long as the election outcome is random for very close races. One possible test of the randomness of close elections is to compare the distributions of other characteristics of states where the elections where close. I use a regression discontinuity design, similar to the one used to measure the effect of alignment on transfers, to check if states politically aligned differ significantly in terms of some socio-economic characteristics (state population, real income per capita, percentage of unemployed, percentage of children 5-17 and percentage of elderly aged 65+) from unaligned states. Results are presented in Table 2: population, percentage of children, percentage of elderly and percentage of unemployed showed no relation to political alignment; on the other hand, state income per capita was significantly smaller in states were aligned governors won narrowly. This result suggests that the outcome of close elections may not be completely random, and questions the causality of the effect of alignment on transfers, as this effect might actually be caused by the state income level. In order to minimize the potential omitted variable problem, state income per capita is included in most specifications.

Regression discontinuity is implemented in this paper by using high-order polynomial functions to control for the margin of victory/loss of the aligned gubernatorial candidate (the "forcing variable" in regression discontinuity terminology). This is done to increase the statistical power of the results, as this method allows for the use of the full sample. The use of the full sample also allows me to include state fixed effects, which certainly explain a significant part of the federal outlays variation, and make up for the lack of more control variables. The main specifications used on this paper are of the form:

$$LT_{it} = c + \theta_i + \tau_t + \beta Aligned_{it} + f^j(Mrg_{it}) + \Phi X_{it} + \varepsilon_{it}$$

where LT_{it} is the logarithm of real per capita federal outlays, θ_i is a state fixed effect, τ_t is a year effect, $Aligned_{it}$ [29] is a binary variable that assumes value 1 if the state governor is aligned with the US President and 0 otherwise, $f^j(Mrg_{it})$ is a two-sided jth degree polynomial of the margin between the aligned gubernatorial candidate and the most-voted non-aligned gubernatorial candidate, and finally, X_{it} is a vector of demographic and economic controls. I

[29] $Aligned_{it}$ and Mrg_{it} are measured the year before the transfers take place, to take into account the lagged nature of the US federal budget allocation.

present the results for polynomials ranging from the 1st degree to the 4th degree (as well as a specification without the polynomial controlling for the winning/losing margin), but I concentrate the discussion on the results obtained with the higher-order polynomials, as only those have the necessary flexibility to ensure that the binary variable "Aligned" is not capturing differences in transfers coming from states where elections were lopsided. Therefore, this type of setup will allow me to distinguish between transfers purely motivated by political alignment and transfers due to the party of the president enjoying significant support in a state.

State fixed effects are used in all regressions in order to parse out systematic differences in transfers and in electoral outcomes between states from the estimated alignment effect, and consequently absorb a substantial share of the unexplained transfer variability. The inclusion of fixed effects guarantees that the estimate alignment coefficients are identified using only within variation, but by itself does not guarantee causal identification, or separate the pure effect of alignment from the effect of substantial support for the presidential party, as the two move together within states. Due to the correlated nature of regression residuals, when the explanatory variables do not change over a period of time (in this case, over the tenure of a state governor, if there is no change of US President), I estimate the standard errors using clustering, at the state level, with a cluster for each period between gubernatorial elections.

4 – RESULTS

Table 3 shows the results of all regressions. All specifications show a significant positive effect of political alignment between a state governor and the US president on total federal transfers per capita. The specifications with a higher-degree polynomial controlling for the voting margin (therefore more flexible) point to a 3% effect of alignment on transfers, which, considering that, on average, states received $5,112 of federal outlays per capita in 2000 dollars, implies that political alignment is worth about $150 per capita to a state. These results confirm the sign, statistical significance, and magnitude of the alignment effect found in Larcinese et al. (2006). The estimated alignment effect is fairly similar with or without inclusion of controls for other socio-economic characteristics of states, although its statistical significance diminishes

slightly when those are omitted. Figure 1[30] illustrates the described discontinuity, giving credit to the prediction that alignment positively influences federal transfers.

Next, I analyze the impact of alignment in defense and non-defense transfers separately, and found that the results are remarkably asymmetrical. Estimates of the effect of alignment on defense-related transfers are consistently positive, but relatively low in the specifications with a lower-degree polynomial controlling for the winning margin of the aligned governor (less flexible specifications), while the estimate attains 13% in the most flexible specification, or even 14% when not including other socio-economic controls; 13% more is a substantial advantage in terms of defense spending, as it represents approximately $123 more per capita at 2000 prices, or most of the total alignment effect on total transfers. Conversely, non-defense transfers are only slightly larger when alignment is present, but the coefficient associated with alignment does not even reach statistical significance on the specifications with a higher-degree polynomial. Figure 2 illustrates the relation between defense transfers and the winning/losing margin of the aligned gubernatorial candidate in the case of very close gubernatorial elections (decided by less than 5% of the vote). This figure shows that, even within this narrow range, there is still substantial variability in the level of defense transfers received by states; nevertheless, the estimated jump is of great magnitude and is statistically significant at 99% confidence.

Finally, I look at a different partition of transfers, namely between entitlements, procurements, federally paid salaries and wages, and project grants. Entitlement transfers fund social safety-net programs like Social Security, Medicare or Medicaid, and therefore are governed by laws that apply uniformly to all states. Consequently, it is surprising that entitlement-related transfers show a positive relation with political alignment in most specifications. Still, estimates of the political alignment's effect on entitlements are a modest 1%, significant when the polynomial considered is of a lower-degree, but non-significant when a forth-degree polynomial is used to control for the effect of the winning margin of the aligned gubernatorial candidate on transfers. Procurements are purchases of goods and services by the federal government from private entities. Most procurements coincide with defense contracts,

[30] In all figures, the dependent variables were first stripped of their yearly and state averages, then, these transformed dependent variables were averaged within 40 intervals and ordered by the margin of victory/loss of the aligned gubernatorial candidate. Each of the open dots seen in the figures is the average of one of these intervals, thus representing 2.5% of the sample. The solid lines represent the predicted values of the dependent variable using regression results of a specification with a fourth-degree polynomial controlling for the winning/losing margin of the aligned gubernatorial candidate and with no other socio-economic controls.

and therefore, it comes as no surprise that the sign and magnitude of political alignment's effect on procurements is similar to its effect on defense transfers. Estimates of the effect of alignment on procurements reach 15% (slightly above the estimates for defense transfers), and, therefore, procurements are the component of federal transfers to states most affected by alignment between governors and the US president. A priori, it is difficult to predict if political alignment will significantly affect the next component of federal outlays to states, salaries and wages, or not. On one hand, the extensive unionization of the public sector can contribute to some degree of uniformity and stability on public sector salaries across states; on the other hand, the President has substantial influence on the allocation of federal workers, especially in the case of defense sector workers, and thus, we can think that, through re-location of the federal workforce, the President can favor aligned states. Results seem to point to a positive effect of political alignment, although this effect is quite weak and non-significant in all specifications (estimates range between 0% and a statistically non-significant 3%). The final components of the federal transfer mix to be analyzed are project grants to states and other local governments. Grants are allocated by the federal government to fund specific projects that are seen as desirable for the welfare of the population. Given the ultimately discretionary nature of many of these grants, they are generally perceived as a mechanism primed for abuse by the executive and legislative branches of the government. Therefore, it is rather surprising that estimates of the effect of alignment on project grants are unanimously negative, ranging from 0% to -2.8%, although only in one specification does the estimate attain statistical significance.

Finally, I have also applied the regression discontinuity methodology separately to years of Republican control and to years of Democratic control. The coefficients estimated for alignment were positive for most specifications, for both parties, but in most cases were not significant. Overall, the results were inconclusive, so it would be interesting to replicate this analysis using a larger sample, considering more Republican and Democrat presidencies.

5 – CONCLUSION

The results in this paper complement the findings of Berry et al. (2009) and Larcinese et al. (2006), as political alignment with the US President proves to significantly affect the federal outlays to a state. These results are also in accordance with the findings in my analysis of

transfers from the Portuguese central government to Portuguese municipalities, using a similar regression discontinuity methodology (see Migueis 2010). Perhaps more telling is the fact that this funding advantage is mostly due to increased transfers for defense, rather than through other, non-defense, grants. One possible explanation for this disparity is that the President is interested in targeting funds to aligned states, in order to maximize "credit-claiming" by their party, but does not want to do so in a way that also increases the influence of state governors in the allocation of funds, even when these governors are of his party, and therefore likely to be sympathetic to his political goals. Defense spending is ideal to achieve both objectives at the same time, as this type of spending is completely out of the control of the state politicians, while federal grants to states are less attractive, as state governors have considerable leeway to target federal monies, received through grants, to their own priorities. It is also possible that non-defense types of "pork", such as project grants, are more influenced by Congress, and therefore, it would be interesting to investigate in the future, using the regression discontinuity design, how alignment between states and the federal legislative branch influences the different components of federal outlays. Federal salaries and entitlements are positively, albeit weakly, affected by political alignment, which is a surprising development in the case of entitlements, as these outlays are governed by rules uniform across the nation. In conclusion, my analysis adds to the substantial empirical evidence that party alignment plays a crucial role in the distribution of funds through local levels of government, and simultaneously illustrates how regression discontinuity design can be used to identify effects of political control on policy variables.

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FIGURE 1

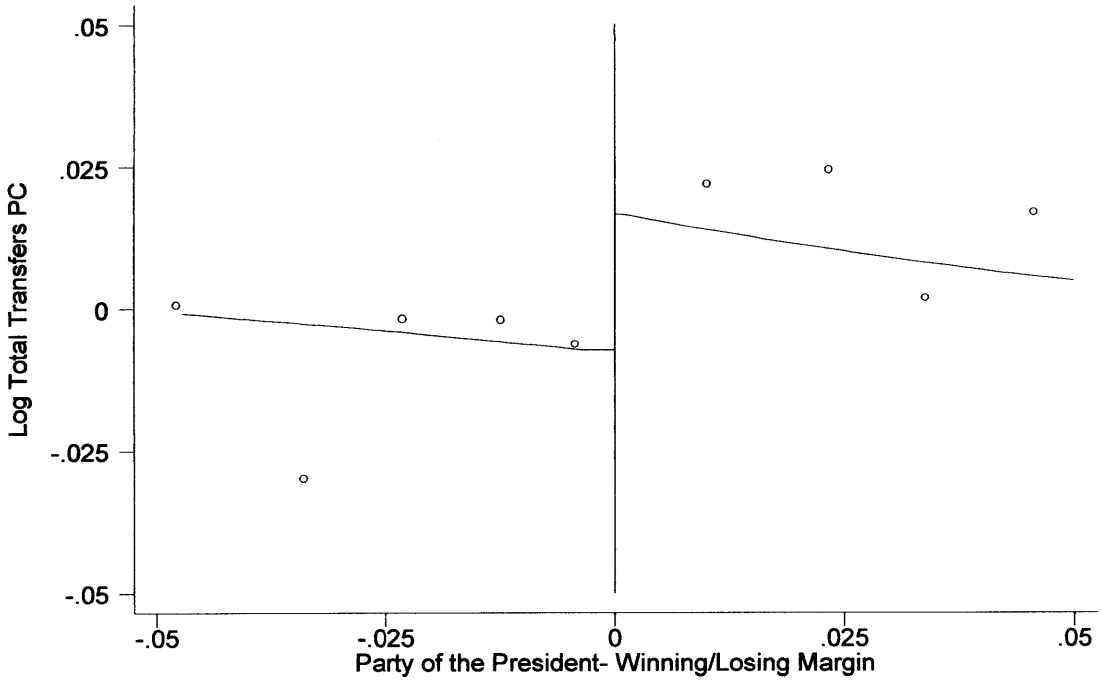

FIGURE 2

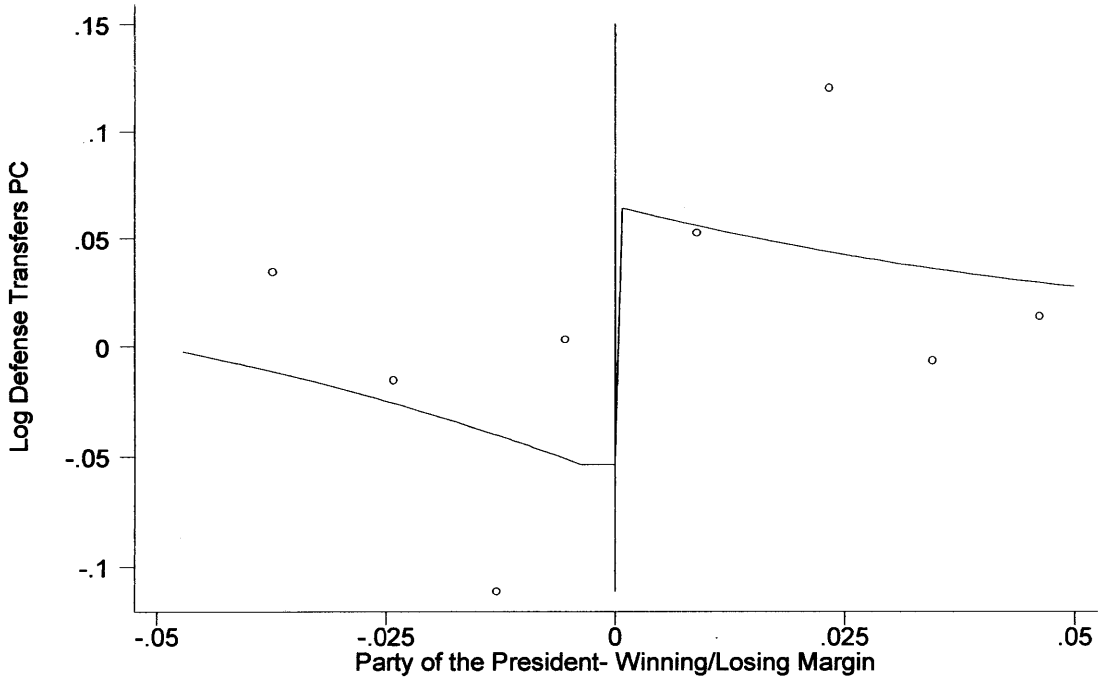

Table 1 – Summary Statistics

Variables	Mean	St. Dev.	Mean when Aligned with President	Mean when not Aligned with President
Total Federal Funds p.c.	$5,112	$1,017	$4,950	$5,223
Defense p.c.	$945	$631	$883	$988
Non-Defense p.c.	$4,171	$918	$4,053	$4,249
Entitlements p.c.	$2,646	$565	$2,618	$2,665
Procurements p.c.	$794	$597	$724	$842
State Grants p.c.	$826	$284	$775	$861
Salaries p.c.	$679	$389	$646	$702

Note: Per capita values at 2000 prices.

Table 2 – Effect of Political Alignment on Control Variables

Log State Population	.012
	(.014)
Log State Real Income Per Capita	-.030***
(2000 Prices)	(.010)
State Unemployed %	.003
	(.003)
State 5-17 population %	-.001
	(.003)
State 65+ population %	-.001
	(.002)

Note: N = 938. All regressions included state, year fixed effects and fourth-degree polynomial of the aligned governor winning/losing margin. Standard errors (in parenthesis) are estimated using clustering. *** = p-value < 0.01.

Table 3 – Effect of Political Alignment

	(1)	(2)	(3)	(4)	(5)	(6)
Log Total Federal Funds p.c.	.014***	.013*	.028***	.035***	.027**	.029*
	(.005)	(.007)	(.009)	(.011)	(.013)	(.017)
Log Defense p.c.	.060***	.023	.078***	.105***	.130***	.140***
	(.016)	(.023)	(.030)	(.038)	(.042)	(.041)
Log Non-Defense p.c.	.016***	.016***	.013	.010	.009	.012
	(.004)	(.006)	(.008)	(.010)	(.012)	(.016)
Log Entitlements p.c.	.006	.014**	.012*	.017*	.009	.012
	(.004)	(.006)	(.007)	(.009)	(.011)	(.015)
Log Procurements p.c.	.070***	.054*	.112***	.149***	.151***	.145**
	(.023)	(.032)	(.040)	(.051)	(.057)	(.059)
Log State Grants p.c.	-.000	-.010	-.019	-.028*	-.027	-.027
	(.008)	(.009)	(.012)	(.016)	(.021)	(.020)
Log Salaries p.c.	-.001	-.001	.023	.019	.033	.013
	(.016)	(.019)	(.022)	(.028)	(.025)	(.027)
Other controls	Yes	Yes	Yes	Yes	Yes	No
Polynomial of Winning Margin of aligned State Governor	None	First Degree	Second Degree	Third Degree	Fourth Degree	Fourth Degree

Note: N = 938. All regressions included state and year fixed effects. Standard errors (in parenthesis) are estimated using clustering. *** = p-value < 0.01; ** = p-value < 0.05; * = p-value < 0.1.