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Are coalition governments truly bad news for corruption?

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Abstract

This paper aims to study whether government type in a PR electoral system (i.e., coalition, minority, or majority) has an effect on corruption. Using data of Spanish local governments for the 1999-2007 period (two consecutive terms-of-office), we compare nearly identical municipalities regarding their political characteristics, with the only difference that one is a coalition and the other a majority government. Our findings reveal that the effect of coalition (and neither minority) governments on corruption is not different than in majority ones.

Keywords: corruption, coalitions, government

1 Introduction

Corruption has devastating economic and political effects. It is negatively correlated with the most important welfare indicators. For example, there is evidence that corruption reduces growth (Mauro, 1995), increases inflation (Al-Marhubi, 2000) and within country inequality (Gupta et al., 2002), and undermines trust in government and the legitimacy of democracy (Solé-Ollé and Sorribas, 2014).

How can citizens be protected of such an evil? We know that corruption tends to decrease with democracy: competitive elections, the presence of a free press and an independent judiciary do seem to mitigate corruption (Lenderman et al, 2005, Boix and Adsera, 2003). There are also some predictions regarding the effects of electoral systems on corruption, although the empirical evidence is not conclusive (Golden and Mahdavi, 2015). Majoritarian systems are associated with lower perceived corruption. They are said to promote bipartisanship so increasing alternation in government and thus, political competition¹. Regarding parliamentary systems, closed-list proportional representation is said to generate greater perceived corruption than PR systems with open lists (Carey and Shugart, 1995; Kunicová and Rose-Ackerman, 2005). District magnitude might also play an important role within proportional systems: countries with small electoral districts tend to have more corruption in closed-list systems (Persson et al, 2003) while political corruption gets more severe as district magnitude increases under open-list².

In this paper we focus on an institutional difference that has been largely overlooked by the literature. Proportional systems generate fragmented legislatures and as a result also very different government typologies: majorities, minorities and coalitions. Which of these government types are more prone to corruption? There is evidence that coalitions behave differently than majority governments in a variety of settings. For example, coalitions present larger budgetary deficits (Volkerink et al, 2001; Edin and Ohlsson, 1991) than majorities,

¹Other important studies analysing how political systems affect corruption show an important role of federalism. It would lower corruption exposing politicians to more direct accountability (theoretically Arikan, 2004, empirically Fisman and Gatti, 2000) but this effect disappears if federalism presents a revenue-expenditure mismatch. This would reduce the link between politicians performance and effort and it could create fiscal illusion Fisman and Gatti, 2002 .

²Larger districts with more candidates increase competitiveness and candidates concern about personal reputation and political differentiation (Chang and Golden, 2006).

and there is also some evidence suggesting that fiscal policy is also different in minority governments (Falcó -Gimeno, 2011). Coalitions are also punished at elections for inflation or unemployment than majorities (Anderson, 2000). Also, coalitions are said to be vulnerable to legislative gridlock and so to have problems in reaching agreements regarding complex policies (Smart et al., 2011).

However, there are virtually no papers studying the link between government type and corruption. On the theory side, there is the paper by Kiss (2000), who shows that coalitions can be equally accountable to citizens than majorities in some situations. On the empirical side, Tavits (2007), using plain OLS on a cross section of countries, finds that majorities are less corrupt than coalitions. To the best of our knowledge, there is no study providing causal evidence on the effect of coalition governments on corruption. The reason might be that most countries with PR systems (and so with coalitions governments) are advanced democracies with low levels of corruption (e.g. the Nordic countries), and thus, they do not provide the setting needed to identify the effect of coalitions on corruption. Our country of study, Spain, presents a good setting to analyze the relationship between coalitions and corruption at the local government level. On the one hand, with a PR system, it has a high level of political fragmentation and a large number of coalition governments. On the other hand, during the past housing boom, there have been a large number of corruption scandals related to land use regulation, in Spain a responsibility of local governments. Moreover, there has been recent debate on the need to reform the local electoral law. In August 2014, the central government presented a proposal to reform the local electoral system. They proposed that the most voted party should be able to govern without the need of forming a coalition. The main argument used to defend this proposal was that coalition governments tend to be more corrupt than majorities. However, the case- based evidence is inconclusive regarding this statement, since it is quite easy to find both coalitions and majorities among the most prominent corruption scandals³.

In our study, we use data of Spanish local governments for the 1999-2007 period (two consecutive terms-of-office). We restrict our analysis to close elections, therefore comparing coalitions where the most voted party got one seat less than the number needed to control

³?Data contradict the arguments used by the PP to defend the local electoral reform?, (El País 30/8/2014)

the council against majority governments where the most voted party got one seat in excess of that number. Thus there is just one seat of difference between governments in our treated (coalitions) and control group (majorities), suggesting that differences between these two groups in variables that might be drivers of corruption should be low. To further ensure that these two groups are fully comparable, we restrict the control group to municipalities that are identical on a set of relevant political characteristics (i.e., number of seats in the council, party of the mayor, main opposition party, number of parties in the council) to our coalition governments. Another important element of our analysis is that we are also able to study whether minority governments behave differently than coalitions. Our results are clear: we do not find that coalition (and neither minority) governments are more corrupt than the majority ones.

The rest of this paper is organized as follows. Section 2 discusses the arguments that justify why coalition governments could be more corrupt (or not) than the majority ones. Section 3 explains the Spanish setting; its political system and the origin and magnitude of political corruption. Section 4 describes the empirical methodology. The results are presented in Section 5. Finally, Section 6 concludes with a summary and the main findings.

2 Are coalitions more corrupt than majorities?

This section compiles the main arguments that can explain why coalition governments could behave differently than the majority ones regarding corruption. There are arguments on both directions. Thus, coalition governments could be more or less corrupt than majority ones. In the last subsection these arguments are used to justify whether we should expect a different behavior from minority governments.

2.1 YES, coalitions are more corrupt

Clarity of responsibility

Citizens ability to assign responsibility to the government depends on the extent to which those who are responsible can be identified (Powell, 2000). In a coalition government, it is

more difficult for the voter to determine exactly who is responsible for government outputs. Using country data and a cross section analysis, Tavits, 2007 finds a negative correlation between majority government and corruption.

Corruption as part of the deal

A proportional system facilitates the presence of a larger number of parties than a presidential one. At the local level, it can mean the creation, and entry in the government, of many parties with different interests. In Spain, a large number of new parties have been created whose main aim is to try to avoid new developments. When any party obtains a majority, to form a coalition government there is a negotiation among parties. These negotiations can be based on programmatic points of their political agenda. Alternatively, coalitions can be formed on the base of political exchanges, such as pork barrel spending, cabinet positions or allowance of corruption. An example of this type of political exchange is the case of Telde after the 2003 local elections. PP⁴ was able to form a coalition government with CIUCA⁵ assigning the land use responsibility to a CIUCA representative.

Low incentives to denounce

The incentives to denounce a corruption scandal are lower in coalition governments than in majority ones. This effect can be generated, on the one hand, by variable coalitions, that is those that can be formed with alternative parties. If a party has expectations of forming a coalition with one of the parties implied in a corruption scandal, he would have lower incentives to denounce it. On the other hand, once a party is a member of a coalition, it is politically costly to break it (Kunicová and Rose-Ackerman, 2005).

⁴Partido Popular, main right wing party in Spain.

⁵Ciudadanos para el Cambio, Telde's local party.

2.2 NO, coalitions are not more corrupt

More people present

In a coalition government there are more (and diverse) eyes watching the decisions of the government than in a majority one. Information has to be shared among the parties that form the coalition. This is not the case in majority governments, where the mayor has an important autonomy and only important decisions have to be voted at the city council. Moreover, coalitions are in principle formed between parties that trust on each other. Inappropriate political decisions could imply the dissolution of a coalition. For example, in Lugo, a Spanish municipality, the BNG abandoned the coalition in 2012 because the mayor, from the PSdeG, was accused in a corruption ion scandal.

Veto players

Bargaining costs are higher in coalition governments than in majority ones. In an extreme, coalitions can generate government inaction (Ashworth et al., 2005) if it is really difficult or impossible to reach an agreement between the members of the coalition. For example, under a coalition it could be very difficult to pass a new development plan if not all the members of the coalition agree on its characteristics. This is not the case in a majority government, where the development plan can be implemented even if they do not have the support of any additional party. Moreover, if corruption is implemented through bribes to politicians, its costs are also higher under a coalition government. In this case, the developer quite likely would have to bribe and convince politicians from different parties. This makes corruption more difficult to arise.

Lost of power

Corruption scandals could imply an electoral punishment. There is evidence for Spain that, on average, mayors involved on corruption scandals reduce their vote share in 4% in

the next elections (Anduiza et al. 2013, Costas-Pérez et al 2012). In the case of majority governments that does not necessarily translate into a loss of office. It could imply a reduction in their electoral margin or the need to form a coalition. However, in the case of coalitions, a reduction in the vote share obtained can imply a loss of office. This argument reduces the incentives of coalition governments to be corrupt, especially when they have a small electoral margin.

2.3 Coalitions versus minorities

These previous arguments, settled when comparing coalition governments versus majority ones, can be used to identify the potential differences between coalition and minority governments.

Clarity of responsibility, corruption as a part of the deal and more people present are arguments that imply different conclusions for the case of minority governments. With only one party in the government, it is very clear who is responsible if there is a corruption scandal and there is no need to negotiate with other parties to form the government. These two arguments would suggest that minorities are not more corrupt than majorities, contrary to the coalition's comparison. In minority governments, as in majorities, there is only one party that has all the information about the decisions taken by the government. Thus, this argument is not valid in the case minorities to justify that they should be less corrupt.

Similar to coalitions, minorities have less incentive to be corrupt due to the fact that the electoral punish can easily imply a loss of office. Veto players can also, in some circumstances, make minorities less corrupt. This is the case when the political decision has to be voted at the city council. Minorities, like coalitions, would have low incentive to denounce only if they consider that it is quite likely that they could form a coalition in the future with the political party involved in a corruption scandal.

Thus, as in the case of coalition governments, there are arguments than justify that a minority government should be more and less corrupt than a majority one.

3 The Spanish case

Spain presents the appropriate setting to study the incidence of government typologies (e.g., majority vs. coalition) on corruption. We justify the focus on Spain by describing the institutional framework and its consequences on political corruption.

3.1 Institutional framework

Spain is organized in three tiers of government: central government, seventeen autonomous communities and over eight thousand municipalities (most of them are quite small). Municipalities have competences on traditional responsibilities assigned to the local public sector such as environmental services, urban planning, public transport, welfare, etc. with the exception of education. This expenditure is approximately financed 2/3 with own revenues and 1/3 by upper-levels transfers. these revenues are not substantial enough to cover local spending demands. Financially constrained municipalities have turned towards less orthodox means of financing, including various types of construction-related taxes, development fees, and sales of public land.

As a result of the proportional electoral system used to elect municipal representatives there is a substantial degree of fragmentation in the city council, which includes a large number of parties with varying interests (e.g., pro or anti development, see Solé -Ollé and Viladecans, 2013). The consequence of this is a non-deniable proportion of coalition and minority governments. The number of seats to be elected in each municipality grows with population size⁶ They are distributed among the parties getting more than 5% of the popular vote using the d'Hondt rule: total votes cast for each party are divided by 1, then by 2, then 3, right up to the total number of seats to be allocated creating a series of 'comparison numbers'. These numbers are then ranked and the total number of seats are allocated following this ranking.

The term last four years. All representatives can be candidates for mayor. The represen-

⁶Up to 100 habitants 3 seats, from 101 to 250: 5; 251 to 1,000: 7; 1,001 to 2,000: 9; 2,001 to 5,000: 11; 5,001 to 10,000: 13; 10,001 to 20,000: 17; 20,001 to 50,000: 21; 50,001 to 100,000: 25 and over 100,001 a Councillor more per 100,000 residents or fraction, adding one more when the result is an even number.

tative receiving the majority of votes in the council is elected mayor. If this majority is not obtained the representative occupying the first place on the winning party's list (in terms of popular vote) is named mayor. Elections are held every four years simultaneously in all municipalities and they cannot be hold at half term. But, there may be a government change if an alternative majority present a vote of no confidence. This procedure leads to different government possibilities; majorities, minorities and coalitions with the winning party (in terms of popular vote) participating in the government or not.

3.2 Political corruption in Spain

Most corruption cases occurring in Spain in the last two decades refer to political corruption (Villoria and Jimenez, 2012). This type of corruption implies bribes received by representatives in exchange for urban-related favors. An special characteristic of this type of corruption is that citizens do not notice it unless there is a scandal.

The vast majority of corruption cases are related to land use regulation. Between 1997 and 2007 Spain experimented a housing boom of an unseen magnitude. Housing prices almost doubled during this period and housing construction grew at rates of 5 per cent yearly leading to an excess of stock at the end of the period. The main instrument of land use regulation, town planning is in the hands of municipalities. The stringency of these regulations, coupled with the huge shift in housing demand, generated enormous rents, providing incentives for corrupt deals between developers and local politicians (Ades and Di Tella, 1999; Solé-Ollé and Viladecans-Marsal, 2012). Larger numbers of corruption scandals in Spain are related with local politicians or public workers changing land uses i.e allowing building in previously forbidden areas, increasing construction densities or designing new areas to be developed (Fundación Alternativas, 2007). Those related to questionable contracts between developers and local authorities (Transparency International, 2007).

This analysis uses an extensive database that reports published political corruption scandals related to municipalities for the period 1995-2011. This database uses information of corruption scandals compiled by the Fundación Alternativas (2007), a Spanish think tank. This organization has close link with the main left-wing party PSOE. In order to avoid possible bias, its reliability was verified. The dataset was compared with another one com-

piled by the right-wing newspaper "El Mundo". The comparison showed that the dataset was not biased in its coverage of the scandals involving different parties. The dataset was completed with internet-guided searches in Factiva, a paid digital information management service covering all national and many of the regional newspapers.

Table 1: Corruption scandals for eectoral period

	Term				Total
	1995-1999	1999-2003	2003-2007	2007-2011	
Cases published same period	11	201	296	8	516
Cases published after the period	24	49	56	71	200
Total cases	35	250	352	79	716

Table 1 shows the number of corruption scandals in every electoral term. The table present those cases published during the same term and those published after the period. Most of the corruption scandals are published in the term in which it took place. As we can see, the larger number of corruption cases corresponds to the period 1999-2007 coinciding with the housing boom in Spain. This fact would empirically support the link explained before between political corruption and housing bubble. This dataset has information for 716 corruption cases with more than 600 corresponding to the period 1999-2007.

4 Empirical Analysis

4.1 Data

We use data of two consecutive terms of office, 1999-2003 and 2003-2007. This period of time coincides with the housing boom and covers the majority of the corruption scandals. The data used in the study can be divided in three types: corruption scandals (described in the previous section), information referring local electoral outcomes and a group of control variables regarding demographic, economic and budget indicators for Spanish municipalities..

Due to data availability, we restrict the analysis to municipalities with more than 2,000 inhabitants.

Electoral information

Information on vote share, seats and party of the mayor for the 1999 and 2003 local elections. With this information we can determine the typology of government ruling in each municipality; majority, minority or coalition.

We identify them in the following way: Those municipalities where the winning party obtained at least the half plus one seats will be, without any doubt, absolute majorities. In all the other cases it can be either coalition or a minority government. In close elections -defined as those municipalities whose winning party (in term of votes) obtained the half of the seats plus or minus one- we have used the following rule to define coalitions and minorities: Those municipalities where the winning party (in terms of votes) sustains the power will be minorities. Those where the winning party (in term of votes) is not sustaining the power will be defined as coalition. In this last situation an alternative majority to the winning party (in term of votes) is ruling the city council: a coalition.

The principal caveat to this procedure is that considers some minority governments that indeed were coalitions. The justification is the following: If a considered minority were a coalition, it would mean that the ideological distribution of seats within the city council avoids the construction of an alternative coalition. That is, there is at least another party belonging to the mayor' ideological block (left or right wing).Therefore, an alternative majority cannot be formed. Thus, we consider that even if this government was a coalition, it was not a necessary one. The winning party could rule in minority without the fear of alternative majorities. Table 4a in section 4.4 present some examples of identified governments.

Demographic, economic and budget control variables

We use demographic, economic and budget control variables that could be related with the possibility of corruption. These variables will be used to check if compared municipalities present the same characteristics. For demography we account for the population, population growth, education level, share of population over the 65 and under the 16 years. Economic variables control for income per capita, the share of secondary residences, vehicle

pc., property tax rate and property tax base pc. Finally budget indicators refer to current expenditure pc., total expenditure pc., current revenues pc. and debt burden. For example, population growth leads to more construction increasing incentives to corruption. Debt burden causes the need to increase revenues and hence, more incentives to construct in order to collect more taxes.

These control variables comes basically from four sources: Local census and The census of population and houses by the National Institute of Statistics (www.ine.es), the Spanish Economic Yearbook 1999 by "La Caixa" and municipalities budget information by the Spanish Ministry of Treasury.

Table 1A presents a summary statistics of the variables used in the analysis reporting also a short explanation and source. First, the political variables used to perform the match (explained in next section: identification strategy). Followed by the set of control variables grouped by its nature; demographic, economic and budget characteristics. These variables will be used to check the balance after the match. If treated and control groups present statistically significant differences.

4.2 Identification Strategy

This study focuses on the period 1999-2007 considering those municipalities with more than two thousand habitants. In order to answer properly the question whether coalition governments are really bad news for corruption we must compare a set of coalition governments with a comparable set of majority ones. We cannot directly compare them in the full sample.

A raw comparison would not give an appropriate explanation to our question. For example, we would be comparing large majorities with extremely politically fragmented municipalities. Compared municipalities would present different characteristics on political, demographic, economic and budget variables. Moreover, the share of majorities with respect to minorities and coalitions is different. Among 4,627 observations (being those municipalities over two thousand habitants for the two terms 1999-2003 and 2003-2007) there are 2,892 majorities representing the 62,50% of the total. Therefore, minorities and coalition together represents only the 37,50% of cases.

The effect of government type on corruption will be computed using the following regression:

$$Corruption_{it} = \alpha + \beta * Treated_{it} + u_{it}$$

Being $Corruption_{it} = 1$ if there was at least one corruption scandal in a municipality i during the term of office t , $= 0$ otherwise and $Treated$ referring to minorities, coalition or both together depending on the regression.

The problem when applying this regression is that the error term will be correlated with the independent variable. Table 3 shows how control and treated group present differences in most of the characteristics. Those characteristics can determine corruption possibilities and government type. The possibilities of corruption can promote the entrance of new parties increasing political fragmentation. Hence, the formation of coalitions. Moreover, we would be comparing important urbanized touristic places with interior areas presenting lower economic activity. To solve this correlation we could control in the regression for all this characteristics but we would still have unbalanced groups and this practice may obtain biased results (Keel et al., 2015).

In order to obtain those comparable sets we use the following strategy: A regression discontinuity approach on close elections - those municipalities where the winning party obtained half of the seats plus/minus determining if it could rule as majority or not - and posteriorly a match based on political characteristics. This procedure will allow us to obtain balanced samples. The comparison allows the study of the govern type effect on corruption. This combination of a regression discontinuity design with a match has been used in previous studies such as Keele et al., 2015.

Table 2: Political characteristics: Minorities + Coalitions (T) vs Majorities (C)

	Unmatched			Matched					
	Full Sample			Close elections			Close elections		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
Total number of seats	14.498	13.204	1.294 [9.71]***	13.288	12.789	0.499 [3.07]***	13.234	13.235	-0.001 [-0.01]
Mayor ideology	0.341	0.500	-0.159 [-9.83]***	0.338	0.477	-0.139 [-6.26]***	0.321	0.321	0.000 [0.00]
Opposition ideology	0.423	0.686	-0.263 [15.91]***	0.434	0.563	-0.129 [5.64]***	0.564	0.564	0.000 [0.00]
N. parties opposition	2.154	1.519	0.632 [22.86]***	1.892	1.582	0.310 [9.08]***	1.746	1.746	0.000 [0.00]
N. Observations	1,735	2,892	4,627	962	1,319	2,281	625	867	1,492

Notes: (1) [t-statistic in brackets] ** p<0.01, *** p<0.001, * p<0.05
(2) Mayor and opposition ideology gives value 0=left and 1=right

Table 3: Control characteristics: Minorities + Coalitions (T) vs Majorities (C)

	Unmatched			Matched					
	Full Sample			Close elections			Close elections		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
<u>Demographic variables</u>									
Population	15.940	12.233	3.707 [3.85]***	10.931	10.819	0.112 [0.10]	10.849	10.812	0.037 [0.03]
Population growth	2.125	0.984	1.141 [3.65]***	1.907	1.017	0.890 [2.23]**	1.607	1.149	0.458 [0.98]
Education level	36.221	34.365	1.856 [7.01]***	35.377	34.225	1.152 [3.18]***	35.353	34.693	0.660 [1.48]
Population under 16years	16.711	16.572	0.139 [1.45]	16.648	16.728	-0.080 [-0.63]	16.796	16.915	-0.119 [-0.74]
Population over 65years	16.910	18.501	-1.591 [-9.58]***	17.666	18.393	-0.727 [-3.23]***	17.958	18.041	-0.083 [-0.29]
<u>Economic variables</u>									
Income pc.	0.973	0.948	0.025 [6.09]***	0.960	0.948	0.012 [2.13]**	0.942	0.943	-0.001 [-0.22]
Second residences	16.671	16.669	0.002 [0.00]	16.732	17.817	-1.085 [-1.61]	16.615	17.108	-0.493 [-0.62]
Vehicles pc.	0.524	0.496	0.028 [5.75]***	0.512	0.498	0.014 [2.19]**	0.492	0.492	0.000 [0.04]
Property Tax rate	0.595	0.556	0.039 [7.59]***	0.580	0.557	0.023 [3.38]***	0.571	0.580	-0.009 [-1.10]
Property tax base pc.	16.126	15.866	0.2591 [5.35]***	17.094	16.687	0.207 [0.57]	15.821	15.232	0.589 [0.86]
<u>Budget variables</u>									
Current expenditure pc.	393.961	364.692	24.269 [4.81]***	380.359	367.171	13.188 [1.89]*	356.620	353.654	2.966 [0.41]
Total expenditure pc.	565.874	571.789	-5915 [-0.75]	566.352	566.163	0.189 [0.02]	540.178	533.443	-6.604 [-0.05]
Current revenues pc.	501.777	474.697	27.080 [3.64]***	485.332	472.119	13.213 [1.28]	447.51	440.775	6.735 [0.66]
Debt burden	0.081	0.072	0.009 [3.99]***	0.076	0.070	0.006 [2.48]**	0.076	0.073	0.003 [0.97]
N. Observations	1,737	2,890	4,627	962	1,319	2,281	625	867	1,492

Note: [t-statistic in brackets] ** p<0.01, *** p<0.001, * p<0.05

4.3 Regression Discontinuity

To compare similar municipalities where the govern type could be considered as a quasi-random event, we first limit the full sample to a close elections sample. That is, a sample containing only those municipalities which one seat determined if the winning party could form a majority government or not. In other words, those municipalities whose winning party obtained the half of the seats plus or minus one.

This procedure is similar to a RDD but not exactly it. To perform an appropriate RDD we should compare municipalities where a few number of votes - instead of seats- determined the final government typology. This methodology has been used in Curto-Grau et al., 2015. If it was a viable option we would directly performed it but in our analysis it is not. This procedure would need hypothesis on which party would receive the votes lost for another one. This hypothesis would determine our comparison group adding a problem in our identification strategy. For this reason we decide to use this similar approach based on seats instead of votes.

In tables 2 and 3 one can observe that this procedure reduces differences between treated and control group although it does not eliminate them. The share left and right wing parties sustaining power substantially change when considering treated (minorities land coalitions) and control group (majorities). Tables 2A and 3A in the appendix show that there are more coalitions and minorities on the left wing rather than right one. For example, the main right party PP is the mayor only in the 19.53 % of coalition municipalities whereas the main left wing one PSOE is the mayor in the 47,81%. Another problem of this procedure is that the number of majorities with respect to minorities and coalitions in the close sample is also different; 1,332 vs 925. Artés and Jurado, 2014 points that this is due to a mechanical effect of the rule d'Hondt used to distribute the seats. It favours the formation of majorities.

Briefly, this RDD procedure reduce differences on political and control variables but does not eliminate them. Therefore, our identification strategy will follow by performing a match on political characteristics using the close election sample.

4.4 Matching

In order to solve previous imbalance we perform an exact matching on political variables⁷. The objective is to provide a balanced sample to compare the treated group (minorities and coalitions) with the control group (majorities).

This exact match looks for similar municipalities within the same term, the same number of seats, the same ruling political party, principal political party in the opposition block and the same number of parties conforming the opposition block. It controls for the electoral term because the sample considers two terms. It could be the case that, for example, corruption possibilities appeared only in the second term favouring at the same time the presence of coalition (more fragmentation) and corruption scandals. That would bias results. For example; for a municipality of the treated group with 13 seats and minority government where the PSOE rules and PP is the principal opposition party, the match will twin it with a municipality with the exactly the same political variables but with a majority government from the control group. Table 4a present some examples of matched municipalities.

Table 4a: Matched examples

	Treated				Control			
<i>Minority - Majority</i>	IU	PSOE	—	PP CC	IU	PSOE	—	PP CC
	1	(4)	—	[5] 1	1	(3)	—	[6] 1
<i>Minority - Majority</i>	PSOE	ERC	—	CIU PP	PSOE	ERC	—	CIU PP
	3	(5)	—	[8] 1	3	(4)	—	[9] 1
<i>Coalition - Majority</i>	IU	PSOE	—	PP	IU	PSOE	—	PP
	2	[5]	—	(6)	1	[7]	—	(5)
<i>Coalition - Majority</i>	PSOE	ERC	—	CIU	PSOE	ERC	—	CIU
	1	[4]	—	(4)	1	[5]	—	(3)

Notes: [#] identifies mayor's party. (#) identifies principal opposition party

Using this match on political characteristics we ensure a perfect balance on political characteristics and moreover, we achieve balance on the control characteristics that could influence either corruption possibilities or government type. Table 2 on political charac-

⁷This analysis uses a Stata implementation of coarsened exact matching (CEM). A new method for improving the estimation of causal effects by reducing imbalance between treated and control groups. Blackwell, 2010

teristics shows the mean for the treated, the control group and their differences. We can observe that after the match those differences disappear being reduced to zero. They are not statistically significant meaning that groups are balanced. Table 3 on control characteristics shows that after the matching on political characteristics we also obtain balanced treated and control group on demographic, economic and budget variables. Remember that these variables could play a role on determining both corruption opportunities and government type. For example, contrary to the unmatched sample, now population growth and debt burden do not present statistically significant differences.

This complete balance is the positive aspect of this match but it brings two majors trades off. First one is the lost of observations. In table 5 we can observe that we lose 1/3 of the observations; from 2,281 to 1,492. But, the most important lost of observations comes from the RDD. When considering only close elections more than 1/2 of the observations are lost. Moreover, matching procedure leads to an inevitable lost observations due to ensure the common support (Keele, 2012). We lose observations because it is difficult to obtain a twin for some regional, local or minority parties that did not obtain representation in relevant number of municipalities. This is a mechanic effect since we cannot find possible comparisons. Table 4b present some examples of unmatched municipalities.

Table 4b: Unmatched examples

	Treated			Control		
<i>Majority</i>				PSOE	UPI-F	UPN
				1	(4)	[6]
<i>Minority</i>	ERC	PAM	CIU	PP		
	2	(3)	[6]	2		
<i>Coalition</i>		PSOE	CC	PP		
		(4)	[3]	2		

Notes: [#] identifies mayor's party. (#) identifies principal opposition party

Second problem of this empirical strategy is the external valid of the results. However, the lost of external validity comes from the RDD. As in any RDD the external validity is limited. When comparing only close elections we compare municipalities with similar political competition. Leaving aside other municipalities with large majorities or extremely fragmented city councils. Other comparisons would not be valid. We will be analysing the

effect of electoral margin and not comparing coalitions versus majorities.

Table 5: Corruption scandals 1999-2007

Corruption scandals	Unmatched		Matched close elections	
	Full Sample	Close elections	Parties ideology	Exact party
1999-2003	250	105	92	69
2003-2007	352	169	139	107
Total	602	274	231	176
Observations	4,627	2,281	2,027	1,492

Thus, after the match we lose 1/3 of total observations. Is this a problem? Table 5 presents the number of corruption cases and observations in each of the steps of our empirical strategy. We argue that the match does not affect the reliability of the corruption sample because both, the lost of observations and corruption cases, represents 1/3 of the observations.

As explained before, this strict match based on exactly the same term, number of seats, mayor party, principal party of the opposition block and number of parties conforming the opposition block generates the reduction of the sample under analysis. In order to prove that this strict match is needed, we present an alternative matching. It relax the condition referring to the same political parties by same ideology. Therefore, this alternative match would twin similar municipalities in the same term with the same number of seats, the same ideology for the mayor and principal opposition party and the same number of parties conforming the opposition block. For example, this match would twin a nine-seats city council of the second term with a right wing party ruling in majority and one from the left wing on the opposition and two parties on the opposition block with a similar municipality presenting the only difference of governing under a minority or coalition government. Tables 4A and 5A display the means and differences on political and control characteristics. We can observe how the main strength is that a larger number of observations are maintained but, it fails to provide balanced treated and control groups.

We have showed how, after the match we obtained balanced treated and control group. Next tables 6, 7 and 8 present the results for the two following subsamples; minorities vs majorities and coalitions vs majorities. When considering these two subsamples the balance between treated and control group remain. Therefore, we obtain the three different samples used in our analysis. First one, considers minorities and coalitions and compares them to majorities. Second, will compare minorities versus majorities and third one coalitions versus majorities. This approach allows us to answer whether coalition governments are truly bad news for corruption. Moreover, we will be able to analyse this possible effect for minorities and for coalitions and minorities together.

Table 6: Political characteristics. Close elections

Minorities (T) vs Majorities (C)	Unmatched			Matched		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
Total number of seats	13.540	12.783	0.757 [4.09]***	13.305	13.307	-0.002 [-0.01]
Mayor ideology	0.380	0.477	-0.097 [-3.97]***	0.372	0.372	0.000 [-0.00]
Oposition ideology	0.787	0.437	0.350 [1.36]	0.482	0.482	-0.000 [-0.00]
Number parties opposition block	2.005	1.598	0.407 [10.40]***	1.845	1.845	-0.000 [-0.00]
N. Observations	628	1,332	1,960	426	867	1,293
Coalitions (T) vs Majorities (C)	Unmatched			Matched		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
Total number of seats	13.120	12.783	0.337 [1.31]	13.124	13.133	-0.009 [-0.04]
Mayor ideology	0.268	0.477	-0.209 [-7.02]***	0.272	0.272	0.000 [0.00]
Oposition ideology	0.733	0.437	0.296 [9.88]***	0.726	0.726	-0.000 [-0.00]
Number parties opposition block	1.629	1.598	0.031 [0.72]	1.583	1.583	0.000 [0.00]
N. Observations	297	1,332	1,629	209	681	890

Notes: (1) [t-statistic in brackets] ** p<0.01, * p<0.05, * p<0.1
(2) Mayor and opposition ideology gives value 0=left and 1=right

Table 7: Control characteristics. Close elections.

Minorities (T) vs Majorities (C)	Unmatched			Matched		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
<u>Demographic variables</u>						
Population	11.187	10.766	0.421 [0.35]	10.555	10.172	0.383 [0.31]
Population growth	2.338	1.038	1.300 [3.17]**	2.026	1.520	0.506 [0.96]
Education level	35.330	34.214	1.116 [2.75]**	35.215	34.624	0.591 [1.18]
Population under 16years	16.739	16.727	0.012 [0.09]	16.789	16.985	-0.196 [-1.07]
Population over 65years	17.342	18.353	-1.011 [-3.99]	17.741	17.852	-0.111 [-0.35]
<u>Economic variables</u>						
Income pc.	0.959	0.949	0.010 [2.38]**	0.948	0.942	0.006 [0.74]
Second residences	16.207	17.725	-1.518 [-2.00]**	16.513	16.143	0.370 [0.42]
Vehicles pc.	0.519	0.500	0.019 [2.37]**	0.499	0.492	0.007 [0.92]
Property Tax rate	0.590	0.558	0.032 [4.11]***	0.581	0.580	0.001 [0.20]
Property tax base pc.	17.708	16.721	0.987 [1.18]	16.160	15.396	0.763 [0.95]
<u>Budget variables</u>						
Current expenditure pc.	385.316	367.447	17.869 [2.23]**	361.537	359.804	1.733 [0.21]
Total expenditure pc.	568.473	566.326	2.147 [0.17]	537.297	547.130	-0.933 [-0.69]
Current revenues pc.	492.920	472.382	20.538 [1.74]*	455.571	452.317	3.254 [0.26]
Debt burden	0.076	0.070	0.006 [2.18]*	0.078	0.077	0.001 [0.35]
N. Observations	628	1,332	1,960	426	867	1,293

Note: [t-statistic in brackets] ** p<0.01, * p<0.05, * p<0.1

Table 8: Control characteristics. Close elections.

Coalitions (T) vs Majorities (C)						
	Unmatched			Matched		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
Demographic variables						
Population	11.692	10.766	0.926 [0.48]	11.436	11.536	-100 [-0.05]
Population growth	0.848	1.038	-0.190 [-0.27]	0.881	0.248	0.633 [0.85]
Education level	35.296	34.214	1.082 [1.95]*	35.496	34.779	0.717 [1.04]
Population under 16years	16.596	16.727	-0.131 [-0.68]	16.596	16.727	-0.131 [-0.68]
Population over 65years	18.147	18.352	-0.205 [-0.61]	18.264	18.580	-0.316 [-0.74]
Economic variables						
Income pc.	0.947	0.949	-0.002 [-0.33]	0.944	0.957	-0.013 [-1.26]
Second residences	17.691	17.728	-0.037 [-0.04]	17.548	16.424	1.124 [0.93]
Vehicles pc.	0.498	0.500	-0.002 [-0.26]	0.489	0.494	-0.005 [-0.52]
Property Tax rate	0.568	0.558	0.010 [0.99]	0.556	0.573	-0.017 [-1.42]
Property tax base pc.	16.271	16.721	-0.449 [-0.51]	16.038	14.840	1.197 [1.27]
Budget variables						
Current expenditure pc.	367.786	367.447	0.339 [0.04]	351.755	349.798	1.957 [0.18]
Total expenditure pc.	487.494	506.326	-18.832 [-1.26]	526.670	526.737	-0.067 [-0.00]
Current revenues pc.	462.963	472.384	-9.421 [-0.69]	441.594	434.391	7.203 [0.49]
Debt burden	0.076	0.070	0.006 [1.21]	0.079	0.071	0.008 [1.55]
N. Observations	297	1,332	1,629	209	681	890

Note: [t-statistic in brackets] ** p<0.01, ** p<0.05, * p<0.1

Finally, we must accept that our results may be mostly valid for major parties. Because municipalities presenting local or regional parties are more likely to be unmatched. However, this does not suppose an important caveat. Those majors parties represent the vast majority of cases. Tables 2A and 3A in the appendix demonstrate that when considering the full sample, those major parties together represent around the 80% of observations.

5 Results

5.1 Main results

Table 9 present the results for the three samples previously described: First, considering as treated group minorities and coalitions together, second minorities and third coalitions. All of them compared to majorities. The table presents the coefficient value and standard error for the treated group in an OLS regression with corruption as the dependent variable. Column (1) corresponds to the regression with only the constant and the dummy for treated group shown in identification strategy section. Column (2) adds a time fix effect; our sample contain observations belonging to two periods 1999-2003 and 2003-2007 so this time fix effect wants to account for possible differences appearing between those two terms. The match performed already considered this element, therefore, results should not change. Columns (3) controls for the political variables used to perform the match. In this situation, similar to the time fixed effects, the match also considered these political characteristics. Thus, results might not change substantially. Finally column (4) presents the same regression of column (3) for those observations for which we have full information on control characteristics. Finally, column (5) controls for demographic, economic and budget characteristics that before de match presented statistically significant differences between the treated and control group. Note that regressions (4) and (5) uses a lower number of observations comparing to (1), (2) and (3). This happens because the dataset does not contain information on control characteristics for all of the observations.

Table 9: Main Results.

Minorities + Coalitions (T) vs Majorities (C)					
	(1)	(2)	(3)	(4)	(5)
<i>Minorities + Coalitions</i>	-0.007 (0.018)	-0.007 (0.017)	-0.007 (0.017)	-0.004 (0.019)	-0.006 (0.020)
Time FE	NO	YES	YES	YES	YES
Political variables	NO	NO	YES	YES	YES
Control Variables	NO	NO	NO	NO	YES
N. Observations	1,492	1,492	1,492	1,046	1,046
Minorities (T) vs Majorities (C)					
<i>Minorities</i>	-0.023 (0.019)	-0.023 (0.019)	-0.024 (0.019)	-0.025 (0.020)	-0.022 (0.021)
Time FE	NO	YES	YES	YES	YES
Political variables	NO	NO	YES	YES	YES
Control Variables	NO	NO	NO	NO	YES
N. Observations	1,293	1,293	1,293	991	991
Coalitions (T) vs Majorities (C)					
<i>Coalitions</i>	0.027 (0.027)	0.027 (0.027)	0.023 (0.025)	0.026 (0.026)	0.028 (0.025)
Time FE	NO	YES	YES	YES	YES
Political variables	NO	NO	YES	YES	YES
Control Variables	NO	NO	NO	NO	YES
N. Observations	889	889	889	883	883

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

The results point that the answer to our question whether coalitions are more corrupt compared to majorities is **no**. And not only this, the three approaches show no statistically significant coefficients associated to treated group. That is, there are not differences on the propensity to corruption between coalitions, minorities and majorities. Observe that these results are maintained when controls are added to the regression and also when the number of observations is reduced on regressions (4) and (5).

5.2 Robustness analysis

Alternative matching

In section 4.4 we have explained a less strict alternative match base on parties' ideologies. Next table 10 present the same regressions displayed in previous table 9 for this alternative match.

Table 10: Results alternative match.

Minorities + Coalitions (T) vs Majorities (C)					
	(1)	(2)	(3)	(4)	(5)
<i>Minorities + Coalitions</i>	0.002 (0.015)	0.002 (0.015)	0.001 (0.016)	0.003 (0.017)	0.006 (0.018)
Time FE	NO	YES	YES	YES	YES
Political variables	NO	NO	YES	YES	YES
Control Variables	NO	NO	NO	NO	YES
N. Observations	2,027	2,027	2,027	1,300	1,300
Minorities (T) vs Majorities (C)					
<i>Minorities</i>	-0.002 (0.017)	-0.002 (0.017)	-0.011 (0.018)	-0.012 (0.019)	-0.006 (0.020)
Time FE	NO	YES	YES	YES	YES
Political variables	NO	NO	YES	YES	YES
Control Variables	NO	NO	NO	NO	YES
N. Observations	1,687	1,687	1,687	1,162	1,162
Coalitions (T) vs Majorities (C)					
<i>Coalitions</i>	0.004 (0.015)	0.004 (0.015)	0.016 (0.018)	0.020 (0.020)	0.023 (0.021)
Time FE	NO	YES	YES	YES	YES
Political variables	NO	NO	YES	YES	YES
Control Variables	NO	NO	NO	NO	YES
N. Observations	1,173	1,173	1,173	1,091	1,091

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Again, results point that there are not differences on the propensity to corruption between coalitions, minorities and majorities. These findings support previous results. These results are maintained even when controls are added to the regression and also when the number of observations is reduced on regressions (4) and (5).

Other corruption measures

What if the publishing probability of a corruption case is higher in coalition governments rather than majority ones? There is an important range of possibilities why some government typologies could be more watched increasing the probability of being caught if corruption happens. For example, one may argue that press coverage could be greater in coalition governments. More parties involved could mean higher interest for newspaper readers. Or maybe, since most of coalition governments belong to the left wing block, right wing oriented press will be more interested in

finding those possible misbehaviours.

Table 11: Extended Results.

	Cases published in the term			Cases published after the term		
	<i>Minorities + Coalitions</i>	<i>Minorities</i>	<i>Coalitions</i>	<i>Minorities + Coalitions</i>	<i>Minorities</i>	<i>Coalitions</i>
<i>Treated</i>	-0.006 (0.020)	-0.002 (0.019)	0.025 (0.025)	-0.014 (0.014)	-0.003 (0.012)	0.017 (0.017)
Time FE	YES	YES	YES	YES	YES	YES
Political variables	YES	YES	YES	YES	YES	YES
Control Variables	YES	YES	YES	YES	YES	YES
Observations	1,009	970	867	922	919	831

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 11 above display the results of the regression (5) for the three samples. In this case the table is divided in two parts: cases published in the same term and those published after the term. The samples are formed dropping in each case the municipalities presenting the opposite situation: For the sample of cases published in the same term we drop those municipalities presenting cases published after the term and vice versa. Even though we do not check the balance between treated and control group after this procedure, we consider that it will remain. Therefore, results on table 11 support previous results finding no statistically significant differences for any of the treated groups considered. Neither using the sample of corruption cases published within the term nor considering the sample of corruption cases published after the term.

The procedure used in table 11 to define the samples is not the optimal one. In order to preserve all previous guarantees we should separate the municipalities before the match and complete the full identification strategy for both samples. Another possibility would be: to drop the municipalities belonging to the other category together with its twins after the match. Checking again the balance on control characteristics.

Finally, we argue that the possible bias on published cases between coalitions and majorities can also be identified if the probability of a corruption case to be published in the same period is different between govern types. Using only municipalities of the matched sample presenting a corruption case we run regressions where the dependent variable is being a municipality where the corruption case is published within the same term. The meaning of *Treated* coefficient is the following: If it is significant it means that the probability of a corruption case to be published in the same term is different (greater or lower depending on the sign) on coalitions and minorities

compared to majorities.

Table 12

Dependent variable: Corruption case published in the same period

	(1)	(2)	(3)	(4)	(5)
<i>Coalitions + Minorities</i>	0.087 (0.061)	0.087 (0.062)	0.080 (0.067)	0.083 (0.072)	0.078 (0.079)
Time FE	NO	YES	YES	YES	YES
Political variables	NO	NO	YES	YES	YES
Control Variables	NO	NO	NO	NO	YES
Observations	176	176	176	161	161
Published same period	134	134	134	124	124
Published after the period	42	42	42	37	37

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 12 shows that this possible endogeneity in published cases does not exist. The coefficient expresses possible differences between treated and control group *Treated* is not statistically significant in any of the regressions. Even when accounting for time effects or controlling for political and control variables. Hence, the probability of a corruption scandal being published in the same period is not different between government types. We can conclude that the identification strategy works in constructing balanced samples obtaining not biased results when answering whether coalition governments mean bad news for corruption.

6 Conclusions

This paper empirically studies whether corruption is caused by the type of government using data of Spanish municipalities for the period 1999-2007 the type of government. The empirical analysis compares municipalities that are nearly identical regarding their political characteristics, with the only difference on government type; coalition or majority. The results show that there is no causal effect of the government type on the existence of corruption scandals. Coalitions are not more (or less) corrupt than majorities. The same result holds for minority governments. However, this conclusion is only valid for those municipalities where elections are close, a condition imposed to select our sample in order to have comparable municipalities. .

We also show that the timing of publication of the scandal is not related to the government type. Coalition (and neither minority) governments do not present higher publishing probabilities when presenting corrupt misbehaviors.

In order to provide external validity to our results, we would need to study the effect of the government type allowing for different electoral margins. If we consider electoral margin we could

find different effect on corruption between coalitions and majorities. But, we could also find differences within majorities. A paradigmatic example of a large majority presenting corruption scandal is the city of Marbella; with the local party GIL obtaining large majorities from 1991 to 2003.

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7 Appendix

Table 1A: Summary statistics

	Description	Mean	sd	Source
Political variables				
Total number of seats	N. of seats to be elected in the city council	13	3.858	Electoral results database; Spanish Interior Ministry
Mayor ideology	It takes value of 0 if mayor party belongs to the left wing and 1 if belong to the right wing one	0.420	0.494	Created from: Electoral results database; Spanish Interior Ministry
Opposition ideology	It takes value of 0 if main opposition party belongs to the left wing and 1 if belong to the right wing one	0.486	0.500	Created from Electoral results database; Spanish Interior Ministry
N. parties opposition block	N. of parties with representation in the council belonging to a mayor' different ideology	1.713	0.788	Created from: Electoral results database; Spanish Interior Ministry
Demographic variables				
Population	Population in thousands for each municipality	10.365	0.969	Local census; Spanish National Statistic Institute (INE)
Population growth	Share of population growth between 1995 and 1999	1.404	8.930	Local census; Spanish National Statistic Institute (INE)
Education level	Share of population with post-compulsory education	34.71	8.661	The census of population and houses; Spanish National Statistic Institute (INE)
Population under 16years	Share of population under 16 years old	16.69	3.043	The census of population and houses; Spanish National Statistic Institute (INE)
Population over 65years	Share of population over 65 years old	18.09	5.392	The census of population and houses; Spanish National Statistic Institute (INE)
Economic variables				
Income pc.	Combines information on occupancy, activity and professional situation.	0.954	0.139	The census of population and houses 2001; Spanish National Statistic Institute (INE)
Second residences	Share of second residences over the total	17.36	16.00	The census of population and houses 2001; Spanish National Statistic Institute (INE)
Vehicles pc.	N. of motorized vehicles per capita	0.505	0.158	Spanish Economic Yearbook 1999; La Caixa
Property tax rate	Municipality tax rate applied to property tax bases	0.567	0.158	Spanish Ministry of Treasury
Property tax base pc.	Value of property tax base per capita, in thousands	16.86	17.03	Spanish Ministry of Treasury
Budget variables				
Current expenditure pc.	Chapters 1 to 5 of the local expenditures budget	372.8	152.0	Spanish Ministry of Treasury
Total expenditure pc.	Chapters 1 to 7 of the local expenditures budget	566.2	247.2	Spanish Ministry of Treasury
Current revenues pc.	Chapters 1 to 5 of the local revenues budget	477.8	229.4	Spanish Ministry of Treasury
Debt burden	Chapters 3 and 9 of local expenditures over chapters 1 to 5 of local revenues budget	0.074	0.070	Spanish Ministry of Treasury

Table 2A: Mayor and opposition parties frequencies. Full Sample

Mayor parties						
Party	Full Sample		Close elections		Match	
	Treatment	Control	Treatment	Control	Treatment	Control
PSOE	44.59	42.83	47.52	44.33	59.25	59.25
PP	19.01	35.96	19.86	35.33	24.83	24.83
CIU	6.12	6.02	5.98	5.92	4.79	4.79
IU	5.67	2.33	5.53	2.43	4.97	4.97
CC	1.03	1.70	1.13	0.97	0.17	0.17
PA	2.26	0.74	2.03	0.89	1.37	1.37
ERC	2.84	0.67	2.48	0.49	1.03	1.03

Opposition parties						
Party	Unmatched		Close elections		Match	
	Treatment	Control	Treatment	Control	Treatment	Control
PSOE	24.47	40.43	24.09	41.59	32.25	32.25
PP	48.64	33.72	53.09	35.03	52.73	52.73
CIU	9.87	3.73	7.69	3.44	3.24	3.24
IU	0.66	4.99	0.38	5.00	5.63	5.63
CC	0.66	1.11	0.63	0.55	0.17	0.17
PA	0.007	1.69	0.86	1.41	1.19	1.19
ERC	1.33	2.30	2.02	2.27	1.54	1.54

Parties frequencies (% over total observations)

Table 3A: Mayor and opposition parties frequencies. Close elections.

Mayor parties								
Party	Minorities vs Majorities				Coalitions vs Majorities			
	Unmatched		Match		Unmatched		Match	
	Minorities	Majorities	Minorities	Majorities	Coalitions	Majorities	Coalitions	Majorities
PSOE	48.73	44.14	54.69	54.69	47.81	44.14	61.72	61.72
PP	21.66	34.61	25.82	25.82	19.53	34.61	33.04	24.40
CIU	8.12	6.76	7.75	7.75	3.03	6.76	2.79	2.87
IU	5.25	2.33	4.93	4.93	7.41	2.33	4.31	4.31
CC	1.11	0.90	0.23	0.90	0.23	1.68	-	-
PA	1.01	0.83	1.17	1.17	2.36	0.83	1.91	1.91
ERC	1.91	0.53	1.17	1.17	5.05	0.53	4.31	4.31

Opposition parties								
Party	Minorities vs Majorities				Coalitions vs Majorities			
	Unmatched		Match		Unmatched		Match	
	Minorities	Majorities	Minorities	Majorities	Coalitions	Majorities	Coalitions	Majorities
PSOE	32.80	40.17	36.85	36.85	22.22	40.17	25.84	25.84
PP	31.21	33.86	41.55	41.25	56.90	33.86	55.77	55.77
CIU	7.01	3.68	3.52	3.52	11.45	3.68	11.00	11.00
IU	6.69	4.80	7.98	7.98	1.01	4.80	0.28	0.28
CC	0.32	0.53	0.12	0.12	1.01	0.53	0.48	0.48
PA	1.75	1.35	1.64	1.64	0.31	1.35	0.13	0.13
ERC	2.87	2.18	2.11	2.11	1.01	2.18	1.44	1.44

Parties frequencies (% over total observations)

Table 4A: Political characteristics: Minorities + Coalitions (T) vs Majorities (C). Match (2) parties ideology

	Unmatched						Matched		
	Full Sample			Close elections			Close elections		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
Total number of seats	14.498	13.204	1.294 [9.71]**	13.288	12.789	0.499 [3.07]**	13.185	13.179	0.006 [0.04]
Mayor ideology	0.341	0.500	-0.159 [-9.83]**	0.338	0.477	-0.139 [-6.26]**	0.332	0.332	0.000 [0.00]
Opposition ideology	0.423	0.686	-0.263 [15.91]**	0.434	0.563	-0.129 [5.64]**	0.564	0.564	0.000 [0.00]
N. parties opposition	2.154	1.519	0.632 [22.86]**	1.892	1.582	0.310 [9.08]**	1.806	1.806	0.000 [0.00]
N. Observations	1,735	2,892	4,627	962	1,319	2,281	1,176	851	2,027

Notes:

(1) [t-statistic in brackets] ** p<0.01, ** p<0.05, * p<0.1

(2) Mayor and opposition ideology gives value 0=left and 1=right

Table 5A: Control characteristics: Minorities + Coalitions (T) vs Majorities (C). Match (2) parties ideology

	Unmatched						Matched		
	Full Sample			Close elections			Close elections		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
Demographic variables									
Population	15.940	12.233	3.707 [3.85]***	10.931	10.819	0.112 [0.10]	10.368	10.034	0.284 [0.29]
Population growth	2.125	0.984	1.141 [3.65]***	1.907	1.017	0.890 [2.23]**	1.748	1.529	0.219 [0.54]
Education level	36.221	34.365	1.856 [7.01]***	35.377	34.225	1.152 [3.18]***	35.249	34.739	0.510 [1.36]
Population under 16years	16.711	16.572	0.139 [1.45]	16.648	16.728	-0.080 [-0.63]	16.663	16.777	-0.114 [-0.84]
Population over 65years	16.910	18.501	-1.591 [-9.58]***	17.666	18.393	-0.727 [-3.23]***	17.809	18.095	-0.286 [1.16]
Economic variables									
Income pc.	0.973	0.948	0.025 [6.09]***	0.960	0.948	0.012 [2.13]**	0.954	0.947	0.007 [1.28]
Second residences	16.671	16.669	0.002 [0.00]	16.732	17.817	-1.085 [-1.61]	16.554	16.948	-0.394 [-0.57]
Vehicles pc.	0.524	0.496	0.028 [5.75]***	0.512	0.498	0.014 [2.19]**	0.506	0.501	0.005 [0.74]
Property Tax rate	0.595	0.556	0.039 [7.59]***	0.580	0.557	0.023 [3.38]***	0.580	0.567	0.013 [1.79]*
Property tax base pc.	16.126	15.866	0.2591 [5.35]***	17.094	16.687	0.207 [0.57]	16.650	15.904	0.746 [1.07]
Budget variables									
Current expenditure pc.	393.961	364.692	24.269 [4.81]***	380.359	367.171	13.188 [1.89]*	374.736	362.188	12.548 [1.80]*
Total expenditure pc.	565.874	571.789	-5915 [-0.75]	566.352	566.163	0.189 [0.02]	558.232	544.858	13.374 [1.18]
Current revenues pc.	501.777	474.697	27.080 [3.64]***	485.332	472.119	13.213 [1.28]	475.238	470.667	4.571 [0.41]
Debt burden	0.081	0.072	0.009 [3.99]***	0.076	0.070	0.006 [2.48]**	0.076	0.071	0.006 [1.84]**
N. Observations	1,737	2,890	4,627	962	1,319	2,281	851	1,176	2,027

Note: [t-statistic in brackets] ** p<0.01, ** p<0.05, * p<0.1

Table 6A: Control characteristics. Close elections. Match (2) parties ideology

Minorities (T) vs Majorities (C)	Unmatched			Matched		
	Mean T	Mean C	diff	Mean T	Mean C	diff
			[ttest]			[ttest]
<u>Demographic variables</u>						
Population	11.187	10.766	0.421 [0.35]	10.182	9.768	0.414 [0.43]
Population growth	2.338	1.038	1.300 [3.17]**	2.171	1.811	0.360 [0.84]
Education level	35.330	34.214	1.116 [2.75]**	35.262	34.928	0.334 [0.78]
Population under 16years	16.739	16.727	0.012 [0.09]	16,753	16.869	-0.116 [-0.74]
Population over 65years	17.342	18.353	-1.011 [-3.99]	17.521	17.883	-0.362 [-1.30]
<u>Economic variables</u>						
Income pc.	0.959	0.949	0.010 [2.38]**	0.460	0.444	0.016 [2.33]**
Second residences	16.207	17.725	-1.518 [-2.00]**	16.374	16.412	-0.038 [-0.05]
Vehicles pc.	0.519	0.500	0.019 [2.37]**	0.509	0.497	0.012 [1.58]
Property Tax rate	0.590	0.558	0.032 [4.11]***	0.591	0.564	0.027 [3.16]**
Property tac base pc.	17.708	16.721	0.987 [1.18]	17.338	15.995	1.343 [1.50]
<u>Budget variables</u>						
Current expenditure pc.	385.316	367.447	17.869 [2.23]**	380.29	360.203	20.006 [2.50]**
Total expenditure pc.	568.473	566.326	2.147 [0.17]	562.473	546.866	15.607 [1.19]
Current revenues pc.	492.920	472.382	20.538 [1.74]*	482.866	462.495	20.371 [1.62]
Debt burden	0.076	0.070	0.006 [2.18]*	0.077	0.074	0.003 [1.01]
N. Observations	628	1,332	1,960	570	1,117	1,697

Note: [t-statistic in brackets] ** p<0.01, * p<0.05, * p<0.1

Table 7A: Control characteristics. Close elections. Match (2) parties ideology

Coalitions (T) vs Majorities (C)						
	Unmatched			Matched		
	Mean T	Mean C	diff [ttest]	Mean T	Mean C	diff [ttest]
<u>Demographic variables</u>						
Population	11.692	10.766	0.926 [0.48]	11.053	10.681	0.372 [0.21]
Population growth	0.848	1.038	-0.190 [-0.27]	1.052	0.648	0.404 [0.59]
Education level	35.296	34.214	1.082 [1.95]*	35.274	34.381	0.893 [1.53]
Population under 16years	16.596	16.727	-0.131 [-0.68]	16.548	16.717	-0.169 [-0.82]
Population over 65years	18.147	18.352	-0.205 [-0.61]	16.225	16.600	-0.375 [-1.00]
<u>Economic variables</u>						
Income pc.	0.947	0.949	-0.002 [-0.33]	0.948	0.945	0.003 [0.43]
Second residences	17.691	17.728	-0.037 [-0.04]	17.866	17.227	0.639 [0.61]
Vehicles pc.	0.498	0.500	-0.002 [-0.26]	0.498	0.495	0.003 [0.36]
Property Tax rate	0.568	0.558	0.010 [0.99]	0.568	0.571	-0.003 [-0.30]
Property tax base pc.	16.271	16.721	-0.449 [-0.51]	16.354	15.406	0.948 [1.09]
<u>Budget variables</u>						
Current expenditure pc.	367.786	367.447	0.339 [0.04]	367.548	359.210	8.338 [0.82]
Total expenditure pc.	487.494	506.326	-18.832 [-1.26]	548.856	534.875	13.981 [0.86]
Current revenues pc.	462.963	472.384	-9.421 [-0.69]	463.667	446.939	16.728 [1.22]
Debt burden	0.076	0.070	0.006 [1.21]	0.076	0.067	0.009 [1.94]*
N. Observations	297	1,332	1,629	286	887	1,173

Note: [t-statistic in brackets] ** p<0.01, * p<0.05, * p<0.1