HOW WORRIED SHOULD NATIONAL PARTIES BE ABOUT LOCAL CORRUPTION?

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Abstract

An important process of decentralization has been taking place in Spain in the last few decades. This has created at least three levels of government: central, regional and local. Recent data on elections show that national parties have lost the voting race at local elections. On the other hand, at the same time as the economic boom in this country in the 2000s, there was also a boom in political corruption at the local level. Using an own-elaborated database, including municipal data from 2003-2011 in Spain, we try to evaluate whether national parties lose votes at national elections due to the wrongdoing of their local candidates. Moreover, we focus on partisan effects, split analysis in two main political parties in Spain. Our analyses yield two main conclusions: the impact is somewhat reduced, but the sign of results also depends on whether the corruption is on the right wing or the left wing.

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1. Introduction

One of the main functions of elections is to punish corrupt politicians, i.e. those who misuse the entrusted power for private benefit.[5] Thus, voting calls are unique opportunities to show general discontent and, consequently, to reduce the share of those who are corrupt in the government.

However the negative effect on voting shows some sensitivity as there are at least two trade-offs at the polling moment: firstly, as stated by Barberá (2010), when citizens decide whom to vote for, they weigh up not only the candidates´ individual skills but also the party in which they are running for election. Secondly, citizens can be inconsistent in their voting patterns in different elections, i.e. they can split their votes among different parties at different levels of election (local, regional, national, etc.).

Since 1978, Spain has progressively become a quasi-federal state (not at the level of Germany), starting an important process of decentralization. This process has not only affected regional competences in different public services (education,

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[5] See Pellegrini (2011) for an extensive discussion of what corruption means.

public health, etc.), but has also introduced a new increasing share (and role) for local and regional governments in budgetary concerns.[6]

In the last few years, and simultaneously with this decentralization process, a boom in corruption has matched the economic boom in Spain, most extensively at the local level. Papers by Fernández-Vázquez and Rivero (2010), Costas-Pérez et al (2012) and Jiménez and García (2012) have recently analysed this, focusing, broadly, on the effects of local corruption on the local vote share of a party with corrupt elements in the municipality.

Although Barberá (2010) considers that ideological closeness is lower at local level, does local corruption reduce the importance of national parties in the local arena? Considering previous facts mentioned, how relevant is the trade-off between ideological proximity (and political loyalty) and illegal activities by local candidates in explaining national voting decisions, considering whether local corruption is on the right wing or the left wing?

To address this question, we use a Spanish municipality database that includes local indicators, polling results on local and national elections and data on local corruption cases, to test whether such local cases affected voting for national parties in the period 1999-2011. After this introduction, section 2 briefly discusses the related literature on this topic. The details of the database and characteristics of Spanish local corruption are discussed in section 3. Section 4 includes the results and discussion of the findings. Finally, we draw conclusions in section 5.

2. Literature review

The seminal paper by Downs (1957) shows that voters are assumed to cast their support for the party they feel closest to them, i.e. they select the party that best represents them. However, as we have mentioned, citizens are not always consistent in their voting decisions, splitting votes among different parties in

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[6] Nowadays it exists four levels of Government: Central, Regional, Provincial and Local one. Each level has some competences on public expenditures and revenues. For example, while central tax revenue reached 94.7% of total public revenue in 1978 (local tax revenue was 5.3%), the percentage of distribution in 2010 was 72.6%, 18.2% and 9.1% for central, regional and local levels respectively. Source: OECD Fiscal decentralization database.

different levels of poll[7]; moreover, they usually differentiate between parties and candidates.

However there is a scarcity of literature (as far as we know) on the "vertical relationship" among voters, parties and different levels of poll. Enos and Lauderdale (2011) investigated how local elections influence the primary campaign that takes place within each party. They focus on Obama *vs*. Rush primary campaign, taking into account variables such as race and rate of voting by race. The results show that people of a particular race do not vote along racial lines the same regardless of where they live; rather, there are local variations so that American voters vote according to the place in which they choose to live.

Capó's (2011) dissertation on the Spanish case is also worth noting. This study shows that independent parties have a greater share of votes in less inhabited municipalities. This support for independent parties becomes weaker in municipalities with higher population levels. Thereby, it is possible to conclude that there is an important relation between the results of national elections and those obtained in the most populated municipalities.

Barberá (2010) used post-electoral survey data in Spain to test whether citizens in simultaneous voting show a trade-off between personal representation and the role of the parties. He concludes that candidate evaluations are a better predictor in local elections than in regional elections, especially in smaller municipalities. Ideological closeness, on the other hand, explains variations in voter choice more significantly at the regional level than at the local level. Moreover, Dimock and Jacobson (1995) or Anduiza et al (forthcoming) for the Spanish case, show that partisans are more likely to be tolerant with the corruption cases that affect their own party.

Another field of research is that relating corruption and electoral outcomes. Kunicová and Rose-Ackerman (2005) examined, using a cross-sectional database, whether electoral rules and constitutional structures could influence the level of political corruption. Their findings support the idea that proportional

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[7] See Sanz (2008) for an exposition on the three families of relevant explanations for split-ticket voting.

representation systems are more susceptible to corrupt political rent-seeking than plurality systems.

Reed (1999), using data from Japan, reached the conclusion that the loss of votes affects not only the corrupt candidate but also the entire party to which he belongs. Besides, the severity of the punishment attenuates over time (the loss of votes is greater in earlier elections). Nevertheless, he concludes that this effect should not be attached to the change in the mind-sets of the voters but to the greater set of choices available.

Due to the boom in local corruption in Spain in the 2000s, a new empirical research field has opened up. In fact there are at least three main papers in relation to this. The first is that of Fernández-Vázquez and Rivero (2010). They evaluated the effect of corruption cases on local election results in Andalucía (the most populous Autonomous Community in Spain) in the period 2003-2007. Their results support the idea that a party accused of corruption may, in fact, fare better than an honest one, provided that the incumbent mayor is removed from office and a new candidate is chosen.

Costas-Pérez et al (2012) used data on local corruption in Spain to evaluate the effect on electoral outcomes. These authors used data provided by a Spanish think-tank and they focused on the number of news items reporting on political scandals in which the perpetrators had not necessarily been formally accused. They employed a voters' equation using data from two local elections in the period 1999-2007. Their analyses showed that the average vote loss after a corruption scandal was approximately 4%, although the punishment is greater in cases receiving widespread attention by newspapers (up to 9%). The combination of the two - scandals with charges and wide press coverage - causes the highest vote loss (14%).

Finally, Jiménez and García (2012) expand the analysis of local corruption cases to the period 2000-2011, including not only local cases but also regional ones; however, they only consider accused candidates, not scandals as in Costas-Pérez et al (2012). In their paper, the authors explore the effects of local corruption in two related ways. The first is whether corruption cases undermine the voters´

confidence in political representation. Their estimations show that following imputation in a local corruption case, voting abstention increases by an average of 1.8 percentage points. The second is how the local corruption case affected the voting results of those accused. Their analyses confirm that the voters' attitude towards corruption is significantly different with respect to parties on the right or the left. The latter's vote share decreased by approximately 2 percentage points, while the former's share increased by approximately 3 points. Barberá et al (2012) try to explain why voters do not punish local corruption: they may be getting direct benefits of such illegal activities.

Nevertheless, the academic literature has not addressed the relationship between illegal activities in politics at the local level and results of the same party at the national level. This is what we focus on in the following sections.

3. Database

In our database, we collected data from the elections that have taken place in Spain over the last fifteen years. We have the results of general elections, which are generally held every four years, although the last ones were put forward to 2011. The previous elections, took place in 1996, 2000, 2004 and 2008, following the four-year pattern. The local elections are held on the same day in every Spanish municipality, a year before the general elections. So, in Spain, the local elections we have registered in our database were held in 1999, 2003, 2007 and 2011.

A quick look at the results for right-wing and left-wing parties, not only in local elections but also general elections, reveals some similarities. In the former, the two-party system increased its share from 1987 to 2007, when PSOE (the main left-wing party) and PP (the main right-wing party) together attained 70.5% of the votes. In the general elections, after a drop from 1982 to 1989, the sum of the results of both parties also increased from 1989 to 2008, achieving 81.9% of the votes. However, in 2011 the two-party system lost some power in both general and local elections, the percentages being 73.2% and 63.1% respectively.

This shows a clear decrease with respect to the previous elections. Although the power of the two-party system only increased by 1% from 2000 to 2004, the

variation in the percentage of votes obtained by each party is remarkable. PP lost 5.5 percentage points; meanwhile PSOE gained 6.7 percentage points. Similarly, but in the opposite direction, PP increased its vote share by 5.3 percentage points and PSOE lost 14 percentage points.

Looking at the data from another point of view, if we compare the results in national polls with those immediately preceding them regionally, the two main national parties did not win the race at the regional level, i.e. they were vote losers in the regional calls (despite previous results). This descriptive outcome supports the idea of split-ticket voting patterns between certain electoral options as described by Sanz (2008).[8]

Table 1 illustrates the average vote share in both national and regional elections. Although the average vote shares vary from one party and electoral year to another, the lowest average share in national elections is always higher than the highest share in regional elections. From 2000 to 2011, the main right-wing party (PP) had a 39.9 average share in the national polls, while it was 30.9 in the regional arena. In the case of the main left-wing party (PSOE), those averages were 38.0 and 33.4 respectively. These indicate the importance of local elections for national parties: it is a territory to conquer.

Table 1 Average vote share by election (national and regional)

	PP	PSOE
2000 (national poll)	42.1 (15.9)	35.5 (13.3)
2003 (regional poll)	30.0 (19.3)	34.7 (17.8)
2004 (national poll)	36.6 (16.4)	42.2 (13.5)
2007 (regional poll)	30.1 (19.4)	34.9 (16.8)
2008 (national poll)	37.7 (15.9)	44.2 (11.4)
2011 (regional poll)	32.6 (19.7)	30.5 (15.9)
2011 (national poll)	43.0 (16.7)	30.2 (11.3)

Source: Own elaboration. Standard deviation is given in parentheses.

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[8] However, we have to take into account, as already, that this author analyses only simultaneous voting, which does not occur in the voting we have considered in this study.

At the beginning of the 21st century, Spain experienced the onset of an important increase in all macroeconomic indicators, which can be summarized in the change in the gross domestic product per capita: this increased by 18.1% in 8 years.[9] At the same time, political corruption also exploded, mainly at the local level.

In fact, while there was no case of anyone being accused of local corruption in 2000 in Spain (at least we have not found it), after that the number increased exponentially to more than 200 cases in 2011. In the nationalization process described above, two main parties in Spain also have the main share in the number of local corruption cases: more than 80% in all periods. Table 2 summarizes the distribution by political party and electoral period considered.

It should be noted that we only take into account corruption cases under judicial investigation and these cases not only refer to the mayor but to any other person directly related to the party considered. The database has been own-elaborated[10]

Table 2 Number of local corruption cases by political party and electoral period

	PP	PSOE	Other parties	Total cases in the electoral period
1999-2004	4 (40)	3 (30)	3 (30)	10
2005-2008	27 (46.6)	17 (29.3)	14 (24.1)	58
2009-2011	63 (43.4)	58 (40)	24 (16.6)	145
Total	**94 (44.1)**	**78 (36.6)**	**41 (19.3)**	**213**

Source: Own elaboration.
Note: The corruption share in the period is given in parentheses.

Thus, while national parties treat to consolidate local results as a means of increasing their vertical integration in Spain (i.e. being present at all levels of the quasi-federal country), their local candidates impede this process. But is this

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[9] This was USD 13,836,70 in 1999 and reached USD 16,351,11 in 2007 (in constant dollars of 2000). Source: World Bank Database.

[10] We use database constructed and explained in Jiménez and García (2012).

impediment so important? How much do national parties lose through the corruption of their local candidates?

Table 3 shows the average change in national vote share in those municipalities where a local corruption case has been occurred. The change has been obtained as the rate between votes shares in national elections previous to be imputed and the next one. We have divided into PP or PSOE. The rest of cases have not been considered due to they belongs to different parties and the most do not participate at national elections.

Average results yield to a paradigmatic conclusion: PSOE is the unique political party that reduces votes share, while PP increases its average share. Moreover, the limits of confidence interval for PP are positive.

Table 3. Average change in nacional votes share by political party

	Cases considered	Average change	Standard deviation	Confidence interval (95%)
PP	92	8.6	1.3	[6, 11.3]
PSOE	78	-23.8	1.9	[-27.6, -20.1]

Source: Own elaboration.

This evidence has an intuitive interpretation that Figure 1 support: voters do not punish all cases equally (as Jiménez and García, 2012, state). The histogram for both parties is unbalanced: PP´s histogram shows a more positive change, while PSOE´s is a more negative effect on votes.

Figure 1. Histogram of change in nacional vote share after corruption case
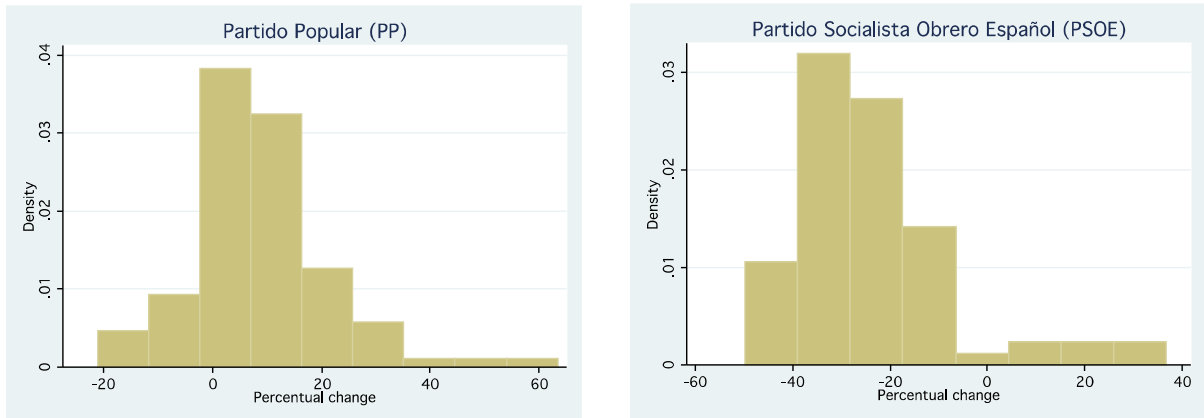
Source: Own elaboration.

However, the correlations showed in the Table 3 and graphical analysis could have other explanations than the local corruption case. For example the possible existence of fixed effects, population, among others variables, could affect the outcome. Therefore, to find a more robust relationship an econometric approach is needed.

To answer these questions we created a database that includes the following variables, all of which are used in the estimations described in the next section:

(i) *Share-PP$_{it}$*: this endogenous variable represents the share of votes of the main right-wing party (PP) in the municipality *i* at electoral year *t*. We also use the share data for previous local elections (four years before) as a lagged variable for its explanatory power. This lagged variable allows us to control for historical voting behaviour in each municipality. Jiménez and García (2012) or Costas-Pérez et al (2012) also use this lagged covariate.

ii) *Change Share-PP$_{it}$*: change between two local elections in the share of votes of the main right-wing party (PP) in the municipality *i* at electoral year *t,* respect to previous local elections. This variable will be an endogenous one in the *Difference-in-differences* estimator we explain in the following section, as Costas-Pérez et al (2012) do.

(iii) *Share-PSOE$_{it}$*: this endogenous variable represents the share of votes of the main left-wing party (PSOE) in the municipality *i* at electoral year *t*. We also use

the share data for previous local elections (four years before) as a lagged variable for its explanatory power. We include it for the reasons mentioned above.

iv) *Change Share-PSOE$_{it}$*: change between two local elections in the share of votes of the main left-wing party (PSOE) in the municipality i at electoral year t, respect to previous local elections.

(v) *Standing Again$_{it}$*: this is a binary variable that takes the value 1 if the accused candidate stood for local elections again in the municipality i at year t after being imputed. This variable is included to control for whether there is a "candidate effect" on voting, i.e. if voters punish not only the party but also the re-election of the accused candidate. Costas-Pérez et al (2012), include a similar variable, but they take into account whether the party of the mayor is the same in t than in t-1.

(vi) *Corruptionbefore2004$_{it}$*: this is a binary variable that takes the value 1 if the case of local corruption in the municipality i was brought before 2004 and 0 in all other cases. As our main aim is to detect partisan behaviour, we consider separately local corruption by PP or PSOE, i.e., it is 1 if a case of local corruption of PP has been occurred in the municipality i in this period. This explanation affects two following covariates.

(vii) *Corruptionperiod2004 08$_{it}$*: this is a binary variable that takes the value 1 if the case of local corruption in the municipality i was brought between 2004 and 2008 and 0 if brought in the years t prior to 2004.

(viii) *Corruptionperiod2008 11$_{it}$*: this binary variable takes the value 1 if the case of local corruption in the municipality i was brought between 2008 and 2011 and 0 in the years t prior to 2008.

(ix) *Density of population(lagged)$_{it-1}$*: this is the density of population of the municipality i at year t but lagged one year to show the year before elections. Source: *La Caixa* municipal database.

(x) *Local property tax (IBI)$_{it}$*: this variable refers to the taxable income of the local property tax in each municipality for every year of the database. We include it to capture the degree of urban development and its value, as state Fernández-

Vázquez and Rivero (2010). Source: *Ministerio de Hacienda y Administraciones Públicas*.

(xi) *% of people above 65 years old$_{it}$*: this covariate is the percentage of the total population in the municipality *i* at year *t* who are elderly. We include it to control for potential different vote or partisan behaviour among municipalities.

(xii) *Bi-annual rate of population$_{it}$*: this variable is the average of two different growth rates, i) the annual variation of population from year *t-1* to year *t,* and ii) the annual variation of population from year *t-2* to *t-1*, for every municipality *i*. Costas-Pérez et al (2012) also use it, but they use four-years lagged growth rate.

(xiii) *Gross domestic product per capita$_{it}$*: this comprises GDP per capita at current prices for every autonomous community in the corresponding year. It has been included to control for potential income effects on vote. Source: Spanish Statistical Institute (Instituto Nacional de Estadística).

(xiv) *Year$_i$*: this is a variable indicating the year; we include it to control for time effects in the data pool.

(xv) *Province$_i$*: this is a dummy variable for municipality *i* in each Province in Spain which controls for potential fixed effects. This is an important variable in Spain due to the fact that, in some Autonomous Communities, national subjective identity has been a key element in the configuration of a particular electoral arena in which parties have to structure the demands and aspirations of regional autonomy (Rivero, 2011).

Table 4 shows the descriptive statistics by municipality. We consider two types of municipality: corrupt (C), which are those in which there has been at least one allegation of local corruption, and non-corrupt (NC).

As we can see, the average population in corrupt municipalities is 56,026 habitants, whereas the average population in non-corrupt areas is 10,187. In relation to population density, we observe that this is two times higher (on average) in corrupt areas that in non-corrupt ones. As well as having the highest density of population, corrupt municipalities present a higher average in relation to local property tax.

Concerning the age of the population, we note that the percentage of people older than 65 is 4.4% greater in non-corrupt areas and the demographic growth is 0.8% greater in corrupt places. Despite these differences, we can find no such contrast in GDP per capita between the two areas.

Finally, the shares of votes for the two main parties in each type of municipality are remarkable. In corrupt areas the average share of votes for PP is higher than the average of votes for PSOE (37% and 28% respectively), while in non-corrupt places there is not such a large difference, 33% in the case of PP and 31% for PSOE.

Table 4 Descriptive statistics by municipality (2004, 2008, 2011)

Variable	Mean		Std. Dev.		Minimum		Maximum	
	C	Non-C	C	Non-C	C	Non-C	C	Non-C
Population	56026	10187	206345	40397	1014	235	3273049	1619337
Density of population	752	359	1604	1271	6	1.6	17151	22193
Local property tax (IBI)	2218801	352740.4	9880644	1693803	6963	1472	1.6e+08	7.5e+07
% population > 65	15.7	20.1	5.9	7.2	3.5	3.0	38.7	55.8
Bi-annual rate of population	2.3	1.5	3.1	3.5	-4.9	-22.5	20.8	55.8
Regional GDP per capita	20416.88	21185.93	4601.63	4670.44	13085	13085	31791	31791
PP share of votes	0.37	0.33	0.15	0.19	0	0	0.73	0.85
PSOE share of votes	0.28	0.31	0.13	0.16	0	0	0.76	0.83

Source: Own elaboration.
Note: C: Corrupt municipality; Non-C: Non-corrupt municipality.

In the following section, we analyse the influence of corruption on the vote share by party.

4. Estimations and results

Based on the *nationalization* effect explained in the previous section, we focus solely on the two main political parties in Spain: the main right-wing party (PP), and the main left-wing party (PSOE). So the main goal of this paper is to determine whether voters punish national parties when local candidates are involved judicially in a corruption case, considering separately both main political parties.[11]

As in Jiménez and García (2012), we estimate separately a voters' equation for each party. In this way, our empirical approach is to consider local corruption cases concerning both parties while disregarding "clean" municipalities (i.e. cities where no corruption case exists) at all levels to minimize crossed or punishing votes to the opposite party. This will be our control group each year.

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[11] We have considered the effect on the vote of corruption, regardless of whether the party analyze show the absolute majority in the municipality considered.

Both voters' equations are similar for these two national parties (see equations 1 and 2). We attempt to explain the share of voting for PSOE (equation 1) and for PP (equation 2) based on the historical national voting behaviour in the municipality (the lagged variable), the binary variables of corruption cases at the local level by period, and the binary variable to control for the effects of the decision of the accused to stand for re-election, the characteristics of the municipality (density of population, proportion of the elderly in the population, property tax), gross domestic product per capita by region and fixed effects by province and year.

We have applied the following empirical strategy: firstly, both equations (PSOE and PP vote share equation) have been estimated using OLS with control variables. A cluster option by municipality in *Stata* has been included to control for potential heterogeneity among them. We estimate three models, adding municipal characteristics at model (2) and the variable "standing again" in model (3). The latter control personal effects on vote (i.e., whether voters are punishing not at political party but local corrupted politic).

As in Costas-Pérez et al (2012) state, previous studies on this topic fail to account for the omission of popularity shocks. For this reason our second empirical strategy is to implement a *difference-in-differences* estimator (hereafter DiD).

So, both empirical strategies show the following vote equation for the main left-wing party in Spain. The first one has "share-PSOE" as its endogenous variable, while "change in share-PSOE" is the endogenous in the latter.

$$
\begin{aligned}
Share-PSOE_{it} = {} & \beta_0 + \beta_1 Share-PSOE_{it-1} + \beta_2 Corruptionbefore2004_{it} + \\
& +\beta_3 Corruptionperiod2005-08_{it} + \beta_4 Corruptionperiod2009-11_{it} + \beta_5 Again + \\
& +\beta_6 \%Pop{>}65_{it-1} + \beta_7 DensityPop_{it-1} + \beta_8 IBI_{it-1} + \beta_9 GDPpc_{it-1} + \beta_{10} \text{Bi-rate}_{it} + \quad [1] \\
& +\beta_{11} Year + \sum_{i=12}^{63} \beta \text{Province}_i + \varepsilon_{it}
\end{aligned}
$$

Where variables are those defined in previous section. Estimated coefficients for equation [1] are included in Table 5 (Models 1 to 3). The DiD equation is Model (4).

Table 5. Effects of corruption on the main left-wing party (PSOE) vote share (OLS and DiD)

Explanatory variables	(1)	(2)	(3)	(4)
% PSOE vote share in previous elections	0.794 (0.005)***	0.781 (0.006)***	0.781 (0.006)***	-1.069 (0.03)***
Local corruption before 2004	0.003 (0.007)	0.003 (0.007)	0.007 (0.008)	0.008 (0.04)
Local corruption [2005-2008]	-0.0083 (0.003)**	-0.009 (0.004)**	-0.0059 (0.004)	0.003 (0.02)
Local corruption [2009-2011]	-0.0009 (0.002)	-0.0004 (0.002)	8e-5 (0.002)	-0.0002 (0.008)
Standing again			-0.011 (0.006)*	-0.046 (0.024)*
Density of population (lagged)		1e-6 (3e-7)***	1e-06 (3e-07)***	4e-6 (1e-6)***
Bi-annual rate of population		-0.032 (0.018)*	-0.032 (0.017)*	0.045 (0.07)
Local property tax (IBI)		-1e-10 (1e-10)	-1e-10 (1e-10)	-5e-10 (3e-10)
% population > 65		0.045 (0.008)***	0.045 (0.008)***	0.182 (0.04)***
Regional GPD per capita		1e-5 (9e-7)***	1e-5 (9e-07)***	4e-5 (5e-6)***
Year effect	Yes	Yes	Yes	Yes
Fixed effect	Yes	Yes	Yes	Yes
Constant	0.144 (0.002)***	-0.147 (0.015)***	-0.146 (0.015)***	-0.712 (0.111)***
Observations	9167	8942	8942	8941
R²	0.89	0.89	0.89	0.62
F-statistic	(*)	(*)	(*)	(*)

Note 1: *** 1%, ** 5%, *10% significance test. Standard errors are shown in parentheses.
Note 2: (*) Due to the used of both fixed effects by province and cluster by municipality, Stata does not report the F-statistic for conjoint significance.
Note 3: We also estimate all equations using cluster by region, to control data spatial autocorrelation. No changes in coefficients were introduced.

The explanatory capacity of the estimated models is quite satisfactory, with an R^2 close to 0.9. The following conclusions can be drawn from our findings. Firstly, the main explanatory variable in the voters´ equation is the previous behaviour in the municipality.

However, there is a negative effect on votes for national parties in municipalities due to local corruption, but only for cases in the period 2005-2008. This average effect is equal to 0.9 (see model 2 in table 5), which means that PSOE's share of national votes in municipalities accused of corruption decreased by 0.9 percentage

points compared to their previous share. This result is similar in sign but rather lower than estimated by Jiménez and García (2012) for local votes, which shows a variation from 2.2 to 3.7 percentage points, depending on which local election we consider.

Another interesting result is that the variable "Standing again" is significant at 10% and it shows a negative sign. Its coefficient is 0.011, but the variable of local corruption previously mentioned is not significant. This implies that PSOE voters punish not only the party (0.9 percentage points) more severely but also an accused candidate who tries to be re-elected (1.1 percentage points). This coefficient is higher in DiD equation (Model 4, last column).

With regard to the main right-wing party (PP), the empirical approach taken was the same as for PSOE and we estimated a similar equation (number 2):

$$
\begin{aligned}
Share - PP_{it} = {}& \beta_0 + \beta_1 Share - PP_{it-1} + \beta_2 Corruption before 2004_{it} + \\
& + \beta_3 Corruption period 2005 - 08_{it} + \beta_4 Corruption period 2009 - 11_{it} + \beta_5 Again + \\
& + \beta_6 \% Pop{>}65_{it-1} + \beta_7 DensityPop_{it-1} + \beta_8 IBI_{it-1} + \beta_9 GDPpc_{it-1} + \beta_{10} \text{Bi-rate}_{it} + \quad [2] \\
& + \beta_{11} Year + \sum_{i=12}^{63} \beta Province_i + \varepsilon_{it}
\end{aligned}
$$

Table 6 shows the results of the estimation.

Table 6. Effects of corruption on the main right-wing party (PP) vote share (OLS and DiD)

Explanatory variables	(1)	(2)	(3)	(4)
% PP vote share in previous elections	0.83 (0.007)***	0.836 (0.007)***	0.836 (0.007)***	-0.434 (0.057)***
Local corruption before 2004	-0.009 (0.007)	-0.010 (0.007)	-0.010 (0.007)	-0.023 (0.016)
Local corruption [2005-2008]	0.0072 (0.003)**	0.0075 (0.003)**	0.0073 (0.003)**	0.025 (0.01)**
Local corruption [2009-2011]	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.002 (0.006)
Standing again			0.0009 (0.006)	-0.037 (0.01)**
Density of population (lagged)		8e-8 (2e-7)	8e-8 (2e-7)	1e-6 (9e-7)
Bi-annual rate of population		0.056 (0.022)**	0.056 (0.021)**	0.133 (0.051)**
Local property tax (IBI)		-2e-11 (7e-11)	-2e-11 (7e-11)	-8e-11 (2e-10)
% population > 65		0.006 (0.009)	0.006 (0.009)	-0.04 (0.03)
Regional GPD per capita		-5e-7 (7e-7)	-5e-7 (7e-7)	1e-5 (4e-6)**
Year effect	Yes	Yes	Yes	Yes
Province effect	Yes	Yes	Yes	Yes
Constant	0.13 (0.004)***	0.038 (0.014)***	0.038 (0.013)***	-0.114 (0.09)
Observations	8153	7936	7936	7935
R^2	0.94	0.95	0.94	0.44
F-statistic	(*)	(*)	(*)	(*)

Note 1: *** 1%, ** 5%, *10% significance test. Standard errors are shown in parentheses.
Note 2: (*) Due to the used of both fixed effects by region and cluster by municipality, Stata does not report the F-statistic for conjoint significance.
Note 3: We also estimate all equations using cluster by region, to control data spatial autocorrelation. No changes in coefficients were introduced.

In these estimations, the explanatory capacity is also satisfactory, with a high R^2. Nevertheless, in this case, although the results are quite similar, the most relevant fact is that not only did vote share not decrease, but that it actually increased after a case of local corruption. This increase amounted to 0.75 percentage points after a local corruption case in those municipalities that were accused in the period 2005-2008 (see model 2 in Table 6).

Jiménez and García (2012) also found this positive result for PP after a corruption case, which obtained a positive reaction from voters of close to 4 percentage points. Unlike the previous case, the candidate was not a significant covariate in

the estimation. This means that PP voters did not consider the personal actions of the candidate but of the party.

Winter and Weitz-Shapiro (2010) put forward two main possible explanations as to why voters support corrupt politicians (as in the case of PP): the *information hypothesis* and the *trade-off hypothesis*. The former suggests that voters support corrupt politicians when they lack information about a candidate's involvement in corruption upon which they could then act in the voting booth. The latter is understood by voters in the following way: they expect that the benefits from a politician's actions in government will be greater than the costs associated with corruption.

However, as Jiménez and García (2012) state, PP's and PSOE's local corruption cases do not differ substantially from each other, nor are there differences in the structural characteristics or singular behaviour between municipalities. Thus, these authors think that a "*loyalty hypothesis*" applied in this case. It is common knowledge that Spanish right-wing voters are more loyal and faithful than left-wing voters. Moreover, the cornerstone of this phenomenon is probably the peripheral voters, who are more aligned with left-wing parties and, after a corruption case, they change their votes (see DeNardo, 1980; DeNardo, 1986; Grofman et al, 1999 or Lago and Montero, 2010).

Finally, although the number of corruption cases faced by the two parties is quite similar, the main right-wing party in Spain has objected in recent years to judgments concerning local corruption in municipalities governed by PP. PP's voters may therefore use this fact as an argument for party loyalty.

5. Conclusions

Elections are the unique moment in which voters can punish corrupt politicians. However, the expected negative effect on voting behaviour after a corruption case shows some sensitivity due to the fact that voters not only consider candidates´ individual skills but also the party in which they are running for election, and that citizens are not consistent in their voting patterns in different levels of elections.

The process of decentralization that began in Spain after 1978 heralded a new increasing role for local and regional governments in budgetary concerns. Added to this, at the time of the "marvellous" economic boom in Spain in the 2000s, there was a simultaneous boom in local cases of corruption. Although some recent papers have analysed this, none has addressed whether local corruption reduces the importance of national parties in the local arena.

To examine this question, we have elaborated a Spanish municipality database that includes local indicators, polling results on local and national elections and data on local corruption cases, in the period 1999-2011. Descriptive analysis shows that the two-party system (i.e. PSOE and PP, the two main national parties) increased its share from 1987 to 2007, together attaining 70.5% of the votes. Moreover, comparing the results in national polls with those in the immediately preceding regional polls reveals that the two main national parties did not win the race at the regional level, i.e. they were vote losers in the regional calls.

We estimated two national vote equations by municipality, one for the main right-wing party and one for the main left-wing party, using as explanatory variables the previous vote share of the party, the characteristics of the municipality, fixed and temporal effects and a binary variable to control for corrupt municipalities and candidates who stood again.

Our results show two main effects: the first is that voters react softly to local corruption in national parties when they vote for these parties in national elections. In fact, while previous studies have found that corrupt parties lost close to 4 percentage points of their vote share (or more, depending on the database used), this study quantifies it at less than 1%.

However, the second effect is the most "curious": while PSOE's vote share decreased by 0.8 percentage points after a corruption case, PP´s vote share, rather than decreasing, actually increased by 0.7 percentage points. This result is confirmed in a similar analysis done by Jiménez and García (2012), and leads to the positing of a "*loyalty hypothesis*". This fits with the well-known fact that Spanish right-wing voters are more loyal and faithful than left-wing voters.

As a result, we can conclude that a trade-off between local corruption and national votes exists, but it depends on who is accused. Based on data concerning national parties at the local level, although the reduction in votes is not especially high, it should be taken into account by national parties.

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