The Political Economy of the Tactical Allocation of Public Spending: Evidence from Spain

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Chapter 1

Introduction

1. Background and motivation

Over the last few decades a growing body of literature has set and developed the foundations of the positive analysis of Public Finance. The economic methodology has been applied to the study of political agents and institutions giving rise to the so-called *political economy* literature. This line of research rejects the naïve idea of a benevolent planner that designs socially optimal public policies (and, hence, solves market failures) as "there is no suggestion that improvement lies in the selection of morally superior agents who will use their powers in some 'public interest'" Buchanan (1989: 18). The present dissertation studies the targeted distribution of public spending based on the assumption that public officials act as vote- or office-seeking individuals. Specifically, the dissertation examines the political determinants of government spending and the electoral returns to the tactical allocation of funds.

The three empirical studies presented in the following chapters focus on Spain, considering different periods of its history and diverse political regimes. This setting provides me with the opportunity to explore different types of political tactics. In Chapter 2 the role of pork-barrel politics in the allocation of road spending is examined in the context of a semi-democratic regime. Chapter 3 revolves around the introduction of a public employment program and tests for the existence of clientelism (and, in particular, patronage). Chapter 4 estimates the returns that partisan alignment provides in terms of intergovernmental grants and votes for the local incumbent, in a context of high decentralization of public spending.

These three studies have several components in common: voters are individuals with policy preferences; office-seeking politicians and parties run for election with their electoral platforms (plagued with promises that

are meant to be fulfilled in case of victory); when elections take place, voters cast their vote taking into consideration their preferences and the credibility of the candidates' promises[1].

The remaining part of this introduction is divided into three sections. The first one includes a short overview of the political economy of public spending. I then describe the institutional setting of three different periods of Spain's history (from the semi-democratic regime of the 19th century Restoration to the present democratic system) with the aim to show how the linkages between state and citizens have evolved. Lastly, I present a summary of the three central chapters of the dissertation, including the contribution of each study.

2. Elections and tactical politics

Electoral competition models are probably the most widely used models in the research on political economy. These models consider that competition takes place between two office-motivated candidates only interested in winning the next election. In this context, the two main versions referred to are the *median-voter model* (Downs, 1957, Black, 1948), and the *probabilistic voting model* (Enelow and Hinich, 1982). The first of these models shows that, in equilibrium, the candidate that wins an election is the one announcing the policy preferred by the voter with median preferences. Such equilibrium, however, only exists under very restrictive assumptions, such as single-peaked preferences or voting on a single dimension. In contrast, the probabilistic voting model establishes a more general setting than the median-voter model: voting occurs on a multiple dimension; the intensity of policy preferences is also taken into account; and candidates are not identical.

[1] The credibility of politicians and parties depends to a large extent on their performance in the past legislature. Thus, elections act as a mechanism to control and discipline political agents. This setting with imperfect information can be considered an agency problem – following Besley's (2006) discussion – where the party (the "agent") is subject to moral hazard and/or adverse selection issues.

The probabilistic voting model has been commonly used to examine distributive policies. In the widely-cited papers of Lindbeck and Weibull (1987), Dixit and Londregan (1996) and Cox and McCubbins (1986), the theoretical setting is that of two parties competing to attract voters; the latter care not only about their ideology but also about the redistributive benefits they might receive from the elected government. According to the swing-voter model of Lindbeck and Weibull or Dixit and Londregan, parties allocate public spending disproportionally towards swing voters (i.e. mobile voters more prone to change their vote) because they can pose a credible threat in case of not being favored. On the contrary, Cox and McCubbins consider that the candidates' risk aversion leads them to target core voters (who have a more certain return). The swing and core voter models belong to a subfield of political economy named *pork-barrel* or *distributive politics*. This sort of distribution is characterized by its tactical – rather than programmatic – nature and by the fact that the uneven allocation of funds – gathered from a common pool – is used to target a narrow group of beneficiaries that are usually geographically concentrated. To test such hypotheses, one of the main challenges consists in finding an appropriate measure of the share of swing and core voters in a constituency.

The empirical evidence provided by the studies on pork barrel is mixed. Levitt and Snyder (1995) show that US federal spending was unevenly allocated to favor districts with large shares of Democratic voters, especially where the target population of the program was geographically concentrated and in periods of strong Democratic control. In postwar Italy, Golden and Picci (2008) find support for the core-voter hypothesis: influential deputies[2] from the governing party direct greater public works construction to their home districts. Dahlberg and Johanson (2002) examine a Swedish grant program and find that intergovernmental transfers allocated by the incumbent central government to local governments were skewed in favor of municipalities with large shares of swing voters. Further, the

[2] To measure the political influence of deputies, several factors are considered: the deputy's national rank within his party according to the number of preference votes, the deputy's seniority, the deputy's education, the gender of the deputy, whether the deputy is a minister or undersecretary and whether the deputy has ever been influential in the party's hierarchy.

growth of the US federal government during the New Deal has also been subject to numerous studies, several of which show to which extent public spending in that time was to a large extent not based on programmatic grounds (Wallis, 1991, 1998, Wright, 1974).

So far it has been emphasized that candidates are individuals with pure electoral objectives; however, another remarkable feature of candidates is their attachment to an ideology (a vast majority of them is affiliated to a political party), which makes them care also about the type of policies implemented. In contrast to the median-voter model, in a *partisan model* – in which policies are mainly driven by partisanship (e.g. Alesina and Rosenthal, 1995)[3] policy outcomes do not need to converge. Indeed, in many countries across the world (such as in the US) electoral campaigns are strongly polarized. Candidates are willing to run for elections with very different platforms in order not to lose their credibility. If candidates only seek to attract the median voter and present a policy which is distant from their ideology, the likelihood of reneging afterwards is very high and this harms political credibility.

The above-mentioned electoral competition and partisan models do not need to be mutually exclusive. For example, Arulampalam et al. (2009) find that Indian states that in the last state election are aligned with the central government, and swing, receive on average 16% higher transfers than unaligned and non-swing states. The inter-relation between different layers of government has recently received considerable attention by political economy scholars. Favoring co-partisans brings numerous benefits both to donor and recipient governments. On the one hand, providing resources for co-partisans facilitates that the policy preferences of the donor are better matched. On the other hand, it is more fruitful to transfer resources to aligned districts if the donor wants to ensure that he can claim full credit of the investment made. This last point, in turn, helps enhancing the donor's

[3] Another model where candidates are not office-seeking but rather policy-motivated is the *citizen-candidate model* (Osborne and Slivinsky, 1996; Besley and Coate, 1997). This model sets a general-equilibrium approach where any voter can become a candidate and where the policy finally implemented is the one preferred by the winning candidate; hence, ensuring commitment and avoiding reputation issues.

probabilities of re-election as well as the political support for the recipient government, although, as Müller (2007: 268) notes, " while government office is the best precondition for being able to claim credit for public policies, the case is more complicated in coalition than in single-party governments". Some, like Baron and Ferejohn (1989), suggest that it is the leader of the coalition who can claim the greatest credit. The important role of coalitions is also considered by Solé-Ollé and Sorribas-Navarro (2008) when assessing the effects of partisan alignment on intergovernmental transfers in Spain.

When politicians find strong barriers to claim credit from the policies adopted, they may resort to an alternative tactic known in the political economy literature as *clientelism* (a term used to refer to the direct exchange of a citizen's vote in return for public goods, services and jobs[4]). This practice tends to be more prominent in young democracies and for this reason clientelism tends to be the subject of studies on developing countries[5]. Empirical evidence has been provided, for instance, for Argentina (Stokes, 2005, and Calvo and Murillo, 2004), Uruguay (Manacorda et al., 2009), Mexico (De la O, 2013) and Benin (Wantchekon, 2003). The list of quantitative studies on this topic is reduced, in comparison to the large number of descriptive studies. This phenomenon, as argued by Kitschelt and Wilkinson (2002), is due to three main problems: the "conceptual identification" of the patron-client relationship (does the *quid pro quo* exchange of votes for goods, jobs, services, etc. really occur?); the "subjective interpretation" of the exchange (which motivations lie behind?); and the "strategic misrepresentation" of clientelism made by politicians (that is, their denial of such practices). In other words, the line

[4] Piattoni (2001: 6) considers that "all public decision-making may become a token of exchange" but it is worth noting that some of them are more efficient than others in generating and maintaining patron-client linkages. For instance, jobs are particularly effective because they are clearly targeted and easy to withdraw from citizens (a fact that makes the politician's threat credible).

[5] Keefer (2007) finds empirical evidence that younger democracies systematically have an under-provision of non-targeted goods (such as education), overprovision of targeted goods (like infrastructure investment), and higher levels of corruption.

that separates clientelism from usual politics is sometimes thin and this explains why identifying the former turns out to be a difficult task.

3. Spanish institutional background: from a semi-democratic regime to a decentralized State

The evolution of Spanish politics from the Spanish Restoration (1874-1923) to the present days sets an excellent framework to study the evolution of citizen-politician linkages: from the role of *caciques* (i.e. local elites at the service of their clientele) in the 19th century to the partisan strategies of the political parties operating in a 21st century decentralized State.

The Spanish Restoration (1874-1923) offers to political economists and historians a particulary interesting case to study the peculiar functioning of pork-barrel politics in a semi-democratic system. Such system allowed the two hegemonic parties (Liberals and Conservatives) to remain in power for fifty years thanks to the so-called *turno pacífico* (peaceful turn), which relied on an agreement between the Liberals and Conservatives to ensure the peaceful alternation in power. The institutional setting was largely based on the capacity of influence of the rural powers, including *caciques* – who linked citizens to the central government in absence of well-structured political parties[6]. This period of time is considered as "the most stable and long lived of the constitutional regimes of the 19th century" (Shubert, 1992). Regime stability was, indeed, one of the main concerns of the governing parties during the first stage of the Restoration because prior to the *turno pacífico* Spain lived difficult times of social and political unrest. Over the years, however, Spain evolved towards a society with a larger weight of urban elites (unhappy with the hegemonic parties), a growing labor movement and an eroded monarchy – due to the 1898 loss of colonies, amongst other factors. Also, the universal male suffrage was introduced in 1890, with important political consequences. In this new context, the initial

[6] See Varela Ortega (1977) for an accurate and in-depth analysis of political parties and clientelism (or *caciquismo* in Spanish terms) during the Spanish Restoration.

tactics of Liberals and Conservatives had to be shifted drastically, as it is shown in Chapter 2 of this dissertation.

The crisis of the Restoration Regime by the early 20s lead to a military coup in 1923. This was the starting point of the Primo de Rivera dictatorship, which lasted until 1930. During this time interval, clientelism was still persistent and so was it during the Second Republic (1931-1936). The Second Republic took a step forward to strengthen Spain's civil society and the political authority of the state. The power of the Church, the land-owners and the military was limited through anticlerical legislation, and agrarian and military reforms. However, the government's ambition to build a liberal democratic state fell short of expectations and *caciques* remained powerful in rural areas. The opposition to the Second Republic's reforms came essentially from the oligarchic landowners and the rise of the anarchist movement.

The time that follows the Second Republic is the Franco dictatorship. The initial period was characterized by a rigid autarkical system that impoverished a vast majority of citizens. Provided that the State apparatus became the supplier of food and employment, Spaniards became extremely dependent on public goods, which reinforced, in turn, existing clientelist linkages. The 1959 *Plan de Estabilización* (Stabilization Plan) lead to a period of economic growth that fostered urbanization as well as the progressive modernization of the country's economy and society. After the death of Franco in 1975, Spain started its road to democracy. In democratic times, "individual" patrons (the *caciques*) were replaced by "collective" patrons (i.e. political parties) that mediate between the state and its citizens. Three well-known cases are the targeting of Galicia, Andalusia and Catalonia by the People's Party, the Socialist Party and Convergència i Unió (the regionalist party), respectively. The case of Andalusia is especially controversial, since the socialist party has been accused of establishing a plan for rural employment (the so-called PER, *Plan de Empleo Rural*) which has only served to create a political stronghold instead of solving unemployment problems. This issue is empirically analyzed in Chapter 3 of the dissertation.

The PER was introduced by the Spanish central government in 1984 and it was just one of the many reforms approved during the 80s with the aim to modernize the country. One of the most noticeable transformations that Spanish institutions have experienced over the last three decades is the establishment of a decentralized state with the subsequent (and progressive) devolution of powers from the central government to lower layers of government – in particular, to the regional level. The decentralization process, however, has not had the same pace on the expenditure and revenue side. Nowadays regional governments are in charge of providing key services (education, health and social services) but they have low capacity to raise revenues, which make them reliant on central government grants (especially until the 2009 reform).

Decentralization is meant to increase social welfare to the extent that lower-level governments have better access to information on their citizens' preferences, and thus, these can be better matched (Oates, 1999). Another positive aspect of decentralization is the potential improvement in accountability. On the normative side, fiscal federalism theory suggests that the allocation of grants has to guarantee economic efficiency and equity amongst the members of the federation (Musgrave, 1959; Oates, 1972). However, from a positive perspective, grants can also serve to donors for strategically targeting specific districts with the aim to extract further votes (Grossman, 1994). In the case of formula-based transfers, this situation is less likely to occur. But in the case of discretionary transfers (such as capital grants) there is room left for using targeted spending. This is the topic of research in the last study (Chapter 4) of the dissertation.

4. Three empirical studies on the political economy of government spending

Chapter 2: "Pork-Barrel Politics in Semi-Democracies: The Spanish "Parliamentary Roads," 1880-1914"

This chapter analyzes the effects of parliamentary representation on road infrastructure expenditure during the Spanish Restoration.

In economic terms, during the Restoration period roads were a crucial part of the transport network given the low expansion of the railway system at that time. In political terms, roads were the most important collective benefit that a candidate could use to gain his district's electoral support. The new road projects approved between 1877 and 1911 represented more kilometers than the overall built by the State in the whole nineteenth century. This excess was due to the lack of a rational plan for a national road system, which facilitated, in turn, the government's discretion over road construction spending.

The main hypothesis is that the mix of government vote buying and local autonomy shaped the allocation of road resources among provinces. On the one hand, governments subordinated the distribution of resources to the regime's global objectives (in the short run, the implementation of the 'turn' system; in the long run, the search for political stability). On the other hand, members of Parliament competed individually to obtain resources from the government, to increase their reputation and strengthen their links to elites in their districts. To assess empirically these hypotheses a linear panel data model with time and province fixed-effects is applied on a data set of Spanish provinces over the period 1880-1914.

I believe the contribution of this paper is twofold. On the one hand, it is the first time that 19th century electoral data referring to a semi-democratic system have been used to analyze the tactical allocation of public funds among territories. This allows to identify the importance of electoral dynamics within semi-democratic political systems, and to offer an example of the influence of government tactics on infrastructure allocation. On the other hand, the analysis is based in a newly built geographical database containing both electoral outcomes and road expenditures for the Spanish Restoration.

Chapter 3: "Electoral Rewards to Patronage Politics: Evidence from Rural Unemployment Subsidies in Spain"

This study examines the effects of a public employment program – the Spanish Plan for Rural Employment, PER – on the electoral support for the incumbent governments executing the policy. Such governments were the central government (who introduced the program and provided most of the

funding) and the local government (who executed the distribution of public jobs). The program has been a matter of controversy since its establishment in the early 80s and it has been widely cited as an example of patronage politics, the reason being that the allocation of PER jobs at the discretion of local politicians goes hand in hand with the provision of a special unemployment benefit (the agrarian subsidy) prone to foster a dependence relationship between voters and government.

The policy has served to redistribute income from high to low income groups and it has contributed to a reduction in the flows of migration leaving rural municipalities in those regions (Jofre-Monseny, 2012), but it has not fostered economic development in the affected regions (the southern regions of Andalusia and Extremadura). Many suggest that a plausible hypothesis to explain the permanence of such unproductive spending is the electoral rewards that the program provides to incumbents. To test this hypothesis, a difference-in-differences design is applied to a sample of over 3,900 Spanish municipalities covering the period 1979-1993. Also, a triple difference approach is used to account for the fact that rural municipalities of Andalusia and Extremadura were the most affected by the policy (whereas no impact is expected to be found in big cities).

This paper is a contribution to the limited amount of quantitative research on clientelism. I believe the specific features of the PER serve to provide a clear identification of the exchange relation between patrons (politicians) and clients (citizens) and to distinguish it from politics as usual. Also, despite many press articles devoted to the PER, and some descriptive studies, up to now there was no formal attempt to provide empirical evidence for this matter.

Chapter 4: "Partisan Targeting of Inter-Governmental Transfers & State Interference in Local Elections: Evidence from Spain"

In this last study, the questions examined are whether state-level incumbents discriminate in the allocation of transfers in favour of local governments controlled by co-partisans, and whether the electoral prospects of local incumbents improve when they are aligned with the state incumbent.

To estimate the effects of partisan alignment between local and regional governments on capital transfers from the regional to the local level and on the votes cast for the local incumbent, this study uses data covering 3,000 Spanish municipalities during the period 2000-07. The main methodological challenge of this type of analysis consists in finding robust causal estimates. To deal with this issue a Regression Discontinuity Design (RDD) is employed with some important modifications to account for the fact that local councils are elected in Spain using a proportional electoral rule that generates many thresholds at which an additional vote brings one more seat to a party (therefore a party with more than 50% of the votes does not necessarily have more than 50% of the seats). Also, the existence of a proportional rule implies that, in many occasions, governments need to be formed by coalitions.

The findings of this chapter make several important contributions to the existing literature. First, it explores the interactions between local and regional governments, while the vast majority of previous research focused on the relations between federal and regional governments. Second, although the use of a RDD methodology is not a novel approach, it is applied in a new way to adapt it to the peculiarities of the Spanish electoral system. Specifically, a "fuzzy RDD" is used where the variable that predicts the alignment status of a local government is modified to reflect the fact that seats are distributed using the d'Hondt rule.

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Chapter 2

Pork-Barrel Politics in Semi-Democracies: The Spanish "Parliamentary Roads" (1880-1914)

1. Introduction

In 1874, after six years of political instability and civil strife, Spain returned to a parliamentary monarchy headed by the Bourbon dynasty. During the Restoration two political parties (conservatives and liberals) shared power peacefully. They formed a duopoly and alternated in power. At each turn the incumbent party ceded power to an interim government by the other party, who organized the election. The incoming government first planed a preliminary distribution of the chamber seats, which always involved its victory. Then, the appointed candidates had to negotiate the electoral results with local elites in their districts. At the local level, the national agreement was implemented through extensive vote buying, coercion and mass fraud, and by promising individual favors and indivisible benefits to the electorate. Over time, however, the Restoration regime unraveled in the face of increasing competition from third parties. It progressively weakened until it broke down and was replaced by Primo de Rivera's military dictatorship in 1923.

During the Restoration period, roads were one of the most important collective benefits that a candidate could use to gain his district's support. Given the low density of the Spanish railway network and the lack of waterways, roads were an essential component of the country's transport system, and the only way to connect a large share of the national territory with the domestic and international markets. The national government was indeed the main source of funds for building and improving roads, and local elites used their parliamentary representatives to lobby the government for more roads in their territories. In fact, and partially due to the importance of

pork-barrel in road expenditure distribution, the Spanish road network structure seems to have been badly laid out.[1] This might help to explain why, despite their indispensability, investment in the Spanish large transport networks during the late nineteenth and early twentieth century does not appear to have had a positive effect on the country's economic growth (Herranz-Loncán, 2007a).

The absence of constraints on investment decisions encouraged pork barrel in road construction. Before 1914 the Parliament decided on each individual road project instead of any national road system. And it approved such projects at a frenetic pace, authorizing more than 1,000 new road projects between 1877 and 1911. These represented more than 40,000 km: more than all the roads built by the State in the whole nineteenth century.[2] Not surprisingly, in 1912, construction had not even begun on 43 per cent of approved roads.[3] Thus, the very abundance of approved projects gave the executive considerable leeway, because the ministry had to decide what roads would be built. The executive could and often did allocate expenditure for political purposes, like satisfying individual deputies' demands and private interests. As a result, while it was easy for a member of the Parliament (MP) to have a given road project approved by Parliament, it was considerably harder to get the Public Works

[1] Actually, this was often recognized by the Spanish governments. For instance, the Royal Decree of 17 September 1886 clearly stated that some of the recently built roads were completely redundant: "*There might be cases of two, three and sometimes four roads all abundantly servicing the same public interests, and others that run through desert areas, and at such a high cost that it should have been enough to defer its construction through more fertile and populated terrains*".

[2] The 1877 Road Plan favored, with its ambiguity, the further inclusion in it of a large number of additional roads, and it was only repealed in 1911. The process of Parliamentary approval of new roads reached its zenith in the parliamentary year of 1895-1896, when 313 new projects were passed. Many of those roads, known at the time as "parliamentary roads", would not be built during the period. For a more detailed discussion on "parliamentary roads" see, for instance, Cuéllar Villar (2003) or Alzola y Minondo (1879).

[3] This surplus of approved but not yet built road projects could be found through the whole period under study and in all provinces, although it varied substantially among them, ranging from 19 to 65 percent of the total approved roads in each province in 1912.

Administration to pay for the work. Thus, influence both within the legislature and with the administration mattered.

This chapter analyzes what roads the executive agreed to fund. In other words, the topic of interest is the influence of pork-barrel politics on the actual distribution of road construction expenses among the Spanish territories. This is the first and most important step in studying the extent of road expenditure misallocation for political reasons in Restoration Spain. In this way, this study contributes to explaining why, contrary to expectations, the growth impact of transport infrastructure investment was very low in Spain during the period.

Our analysis, however, has to surmount the fact that the Spanish Restoration does not fit well with most of the pork-barrel literature, which was developed for democracies with competitive elections. In such cases, the usual partisan models indicate that an incumbent government may target two groups of districts: either governments channel public funds to the more closely disputed political jurisdictions (that is, they target "swing" voters);[4] or they do so to their "safe" seats (i.e. to their "core" voters).[5] These models, however, fail to describe a regime like Restoration Spain, where the two main parties of the regime (usually called the "dynastic" parties) had agreed to alternate in power. Therefore, the party in power could not use the distribution of public funds to attract swing voters in the next election, since it had acceded to hand over power to the other dynastic party. In other words, the role of pork barrel is difficult to understand under a system in which the party in power, who decides on the allocation of spending, has agreed to be defeated in the next election.

Nevertheless, this peculiarity of the Spanish political system did not eliminate the incentives for governments to use pork-barrel policies. On the one hand, despite electoral results being centrally planned, Madrid's limited capacity to intervene in society implied that elections outcomes had to be negotiated with the local elites, who demanded compensations (such as

[4] See Lindbeck and Weibull (1987); or Dixit and Londregan (1996).

[5] See, for instance, Cox and McCubbins (1986).

public funds) for their districts' electoral support. On the other hand, the two-party system may be seen as a duopoly regime, in which opposition districts were actually those which did not respect the alternation system, and voted for either the dynastic party that was going to lose the election or for a third political force. Restoration Spain provides therefore an interesting case of a political system in which a dominating duopoly used pork-barrel strategies to persuade the electorate to change the sign of their votes in every electoral call.

In this setting, two kinds of political economy models may be relevant to analyze pork-barrel in Restoration Spain. One can see the Spanish Restoration as a semi-democratic regime ruled by a duopoly that furthered its political goals by using the geographical allocation of public resources. More specifically, governments showered resources on those districts that were loyal to the alternation system, and starved the rebellious ones. This would be similar to a typical semi-democratic system,[6] although one in which the hegemonic political force was not a single party but a duopoly. On the other hand, given the importance of local elites, non-partisan motivations may also offer a partial description of the political process. In non-partisan models, the distribution of public funds reflects the influence and ability of individual MPs, who compete for administrative resources to reinforce their links with their electorates. Indeed, bringing home the pork increases MPs' reputation with local elites (Levitt and Snyder, 1995; Levitt and Poterba, 1999; Milligan and Smart, 2005).

In this regard, our results confirm that the allocation of public funds for roads among provinces in Restoration Spain was affected both by the regime's global strategy and aims, and by individual MPs' relative influence. Regarding the former, the outcomes show that, in the early years of the Restoration, those provinces whose districts did not accept the two-party alternation system and, specially, those where more districts elected third-party candidates, received relatively less road expenditures. This pattern reflects the regime's search for stability: it tried to provide incentives for local elites to comply with the system. Yet individual MPS

[6] See, for instance, Diaz-Cayeros et al.(2006) or Hsieh et al. (2009)

also mattered because a province received more resources when more of its MPs had leadership positions and when more of its MPs held secure seats.

Over time, however, the ability or willingness of the party in power to punish deviation seems to have declined. Starting in the last decade of the nineteenth century, provinces that elected candidates from third parties began to receive an increasing share of resources. The timing coincides with the weakening of the Restoration and the gradual modernization of the country. Development, in particular, undermined the political consensus that had underpinned the peaceful alternation system. The change in political strategy is consistent with the predictions of models in which weak semi-democratic or non-democratic regimes tend to give concessions to the opposition (Ellman and Wantchekon, 2000, Robinson and Torvik, 2009; Gandhi and Przeworski, 2006). In the case of the Spanish Restoration, this meant choosing a policy of appeasement of those districts that did not support the rotation of parties in power.

Our analysis is the first to use 19th century electoral data coming from a semi-democratic country to investigate the effect of political factors on the allocation of public funds among territories.[7] To do so a new geographical database on both electoral outcomes and road expenditures for the Spanish Restoration is built. In the next sections those data is used to analyze the influence of both MPs' individual characteristics and the regime's global strategy on the actual geographical distribution of road expenditure.

[7] Other historical analyses on this topic, although focusing on 20th century US data, are, for instance, Wright (1974), Wallis (1998) or Wallis and Weingast (2005).

2. The political system of the Spanish Restoration

In 1874, the Bourbon dynasty returned to the Spanish throne, after a six-year period in which the country was convulsed by violent political conflict. From the start, political leaders who supported the return of the monarchy sought to create institutional stability by building consensus among a large proportion of the liberal elite. This represented a crucial change in relation to Isabel II's reign (1833-1868), when power was monopolized by certain factions, and a growing share of liberals decided that violence and military uprisings were the only available means to gain power. Indeed political violence led to the collapse of Isabel II's regime in 1868 and to six years of instability. The 1874 Restoration attempted to reform the pre-1868 parliamentary monarchy in order to make it more stable and peaceful without engaging in deeper political and social reforms. From this point of view, the regime was a success, as it was more durable than previous parliamentary experiences.[8]

In order to avoid conflict and enhance political stability, the Restoration's conservative founders did not seek to reestablish their former political monopoly. They decided instead to collude with the moderate liberal opposition. This was the origin of the so-called "*turno pacífico*" (peaceful turn) system, based on a cartel agreement between the two hegemonic parties (conservatives and liberals) which lasted for almost half a century. During that period, those two dynastic parties formed a duopoly that alternated in government with the collaboration of the crown, who put its constitutional role at the service of the stability of the system. The arrangement was willingly accepted by a large portion of the Spanish social elite, who shared the objective of political stability without social or political reform (Cabrera and Del Rey, 2002: 20; Dardé, 2003: 292). Moreover the pact kept both the anti-liberal sectors of the Catholic right and groups of leftist republicans and revolutionaries out of the government (Moreno Luzón, 2007: 426; Dardé, 2003: 234).

[8] The historiography on the origins and character of the Spanish Restoration political system is very large; see a useful synthesis in Varela Ortega (2001).

In practice, the *turno pacífico* system operated as follows: each parliamentary election was preceded by the King's appointment of a new Prime Minister (*Presidente del Consejo*), usually from the dynastic party that was not in the current government. Then, with a new government in office, the Parliament was dissolved. Elections were organized under a system of mostly simple majority uninominal districts (except for a few, mainly urban, plurinominal constituencies).[9] Before the election took place, the new government planned its results in the so-called "*encasillado*", which identified who was the officially sanctioned candidate for each district. As might be expected, the "*encasillado*" always involved the overall electoral victory of the new ministry.[10]

However, in spite of the electoral results being planned in Madrid, the center did not control the voting process, due to its limited capacity to intervene at the local level. Indeed, at the time, the province constituted "the most important level of political and social life in Spain" (Moreno Luzón, 2000: 435).[11] Elections were actually overseen at the district level by the local public authorities, under the influence of the local elites (*caciques*). These local actors controlled the electoral outcomes through a variety of means, such as vote buying, coercion and mass fraud, but also by promising individual favors or indivisible benefits to the electorate. Favors and benefits were to be obtained from the Administration thanks to the influence of the elected candidate. Individual favors included exemption from military service, personal interventions in the judicial system, job offers, etc., whereas the most usual indivisible favors were roads, railways, dams, or public buildings (schools, markets, etc.), as well as a preferential

[9] Plurinominal districts were, however, gerrymandered to neutralize, as far as possible, the relatively more independent urban electorate (Dardé et al., 2001: 561; Dardé, 2003: 199, 228).

[10] Although the Spanish Parliament (*Cortes*) had a bicameral structure throughout the Restoration period, this analysis is restricted to the lower chamber (*Congreso de los Diputados*) since the members of the upper chamber (*Senado*) either held their position in their own right, or were appointed by the king or a restricted electoral college that included the provincial administrations (*Diputaciones*) and a limited number of electors designated by the local councils and the wealthiest taxpayers.

[11] See also Cabrera and Del Rey (2002: 76).

treatment in the distribution of the tax burden among districts (Comín, 1988: 505-07, 674; Martorell Linares, 2000: 276-81). As a result, after each election public funds were channeled by MPs to their districts and used by the *caciques* to maintain the loyalty of their clients (Moreno Luzón, 2000: 426). Restoration Spain was therefore a typical semi-democratic country in which candidates built their credibility by exploiting pre-existing patron-client networks (Keefer and Vlaicu, 2007).

Therefore, throughout the Restoration, winning elections required candidates to negotiate support at the local level. They could do so as representatives of the two-party duopoly. Since most local elites did not have a clear party identification, they might be willing to adapt to the duopoly alternation system and give their support to a different party and candidate in each election, if this would grant them more resources. However, some individual candidates, independently from their party of affiliation, proved especially capable in obtaining administrative benefits in Madrid. In this case local elites preferred having stable links with these effective MPs and to ignore the turn. Those candidates would then be repeatedly elected by their districts, regardless of the party in power, and would become "*candidatos propios*", who were said to "own" an electoral district. Actually, some of them belonged to the same regional social elites they represented. These candidates' relative independence from their parties' global strategy was reinforced by the lack of a centralized structure in the parties of the duopoly, which were, especially at the beginning of the period, little more than weak aggregations of cliques and personal factions (Dardé et al., 2001: 564-67.). As a consequence, some historians have described the Spanish central administration as "a political market where local sectors negotiated competitively" through their MPs (Moreno Luzón, 207: 434).[12]

To sum up, during the Restoration the government could not impose electoral results. Instead it had to "buy" the support of the local elites to the official candidates and, in districts where alternative candidates had strong

[12] See also Dardé et al. (2001: 602-03) and Comín (1988: 504).

local links, the pressure of the governments of the duopoly to impose the turn might be ineffective.[13] This, together with the regime's general objective of securing consensus, helps to explain that there was always a significant representation of non-governmental parties in the Parliament. To begin with, the dynastic party that was not in office always had a large number of MPs, which amounted, on average, to one quarter of the Congress throughout the Restoration. Moreover, the Parliament included an initially small but growing number of MPs belonging to some right and left-wing minority parties. These were mainly composed by several republican groups, followed by various regionalists and traditionalists parties and also (by the end of the period) a few members of the socialist party. By the 1890s these outsiders accounted for about 20 percent of the chamber.

Despite this parliamentary diversity, the "*turno pacífico*" was quite successful in achieving institutional stability. Relative to the chronic political turmoil (frequent military uprisings, revolutionary attempts, and regime changes) of the previous decades, the Restoration system operated without interruptions for half a century. However, the regime faced increasing challenges as time went by, which hindered the long-term continuity of the turn system and finally provoked its complete breakdown and the establishment of a military dictatorship, under the auspices of the crown, in 1923.

The crisis of the Restoration became apparent starting in the 1890s, although its triggers had been in place since the establishment of the regime. Those triggers were both external and internal to the political system (Comín, 1988: 494-95). From the point of view of the internal operation of the "*turno pacífico*", local powers progressively gained influence to the detriment of central power, and local elites established therefore more stable links with those candidates ("*propios*") who had proved efficient in obtaining benefits for their districts.

Several reasons explain a strengthening of ties between candidates and local elites. To begin, the passage of time itself proved to the local powers that

[13] See, for instance, Moreno Luzón (2000: 72) or Dardé (2003: 166).

the cartel between the conservative and the liberal party would endure, and that their cooperation was not necessary to avoid a breakdown of the two parties' agreement. As the cartel consolidated, the local elites' need to follow the two-party alternation system was probably perceived as less stringent. The passage of time also reinforced the local clientelistic networks, in which the candidates exerted the role of intermediaries with the central administration. In that context, the establishment of permanent links between the districts and certain candidates favored the regular operation of these clientelistic networks (Moreno Luzón, 2007: 435; Dardé 2001). Finally, given the two main parties' lack of a centralized structure and the gradual crisis of the regime, the candidates increasingly tended to "look for security in a guaranteed local power base" (Moreno Luzón, 2007: 435).[14] As a consequence, the "*propios*" MPs, which did not adapt to the "*encasillado*", became an intrinsic part of the Restoration institutional system.

Nevertheless, the main challenges to the political system of the Restoration came from outside the "*turno pacífico*". As has been indicated, the regime required the liberal elites to agree to share power in return for political stability. However, in the last years of the nineteenth century, the liberal consensus could no longer guarantee stability, for several reasons. On the one hand, the Restoration institutional setting, which was largely based on the capacity of influence of the rural powers, did not adapt to the slow modernization of the country and the urban sectors' increasing presence in the Spanish economy and society. This led a growing share of the urban elites to feel unsatisfied with the governments of the cartel and seek out other representatives (Cabrera and Del Rey, Poder, 2002: 90-99.). At the same time, the labor movement had grown enough for the system to face both a new set of demands of economic and social reform and renewed revolutionary threats. Finally, the monarchy's legitimacy eroded slowly because of an omnipresent corruption and, more sharply, after its defeat in the Spanish American war of 1898. As a consequence, after 1900 the minority parties, which promoted reforms based on ideological arguments,

[14] See also Martorell Linares (2000: 277) or Dardé et al. (2003: 601-02).

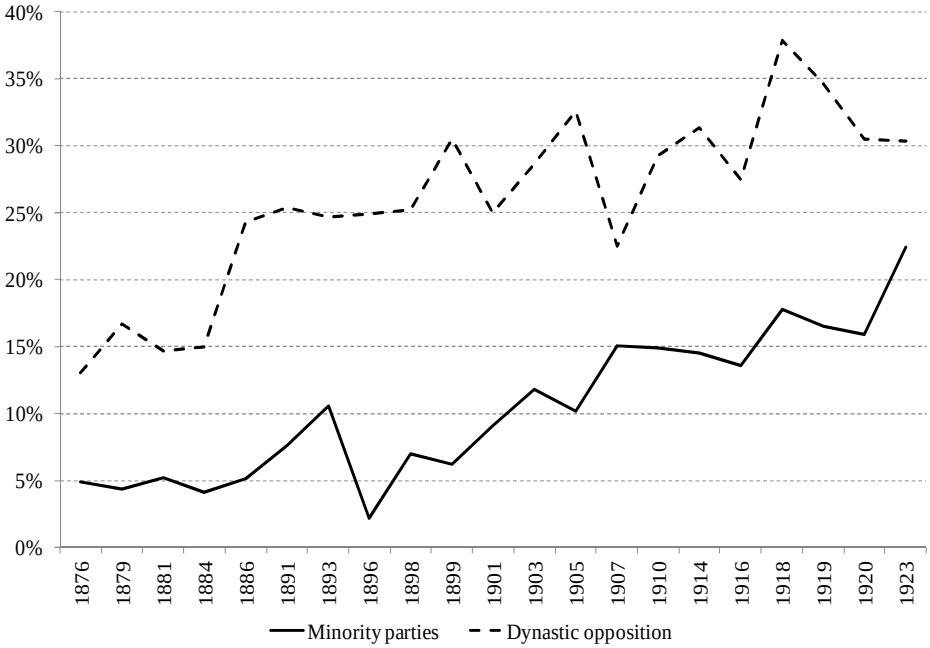
gained influence in a number of Spanish towns, where elections became increasingly competitive.

Electoral competition was also bolstered by the establishment of universal male suffrage in 1890 (Moreno Luzón, 2007; Comín, 1988). This constitutional change was one of the most visible concessions made by the Restoration regime to the progressive liberal elites. The universal male suffrage was a key component of the political program of the Liberal Party, and a necessary condition for both its integration in the regime as a government force and the acceptance of the Constitution by the moderate ranks of the pre-1874 revolutionaries (Dardé, 2003: 205-07).[15] However, this measure actually undermined the dynastic parties. Indeed extensive fraud and vote-buying could only limit the representation of minority parties in the first few elections under universal male suffrage. In fact, after 1900 the extension of the franchise made increasingly difficult to control electoral results in urban constituencies. There, elections gradually became more competitive and based on modern political practices (Dardé, 2003; Cabrera and Del Rey, 2002: 72). At the same time, in rural districts, universal male suffrage forced candidates to reinforce their links with local clientelistic networks (Moreno Luzón, 2000: 72).

The erosion of the Restoration's stability accelerated after World War One. Between 1917 and Primo de Rivera's military coup d'état in 1923, the government found it increasingly difficult to obtain a parliamentary majority and social turmoil was constant, with a growing share of society demanding political reform. However, as has been indicated, the origins of the crisis can be traced back to the first decades of the Restoration period. As may be seen in Figure 1 below, the out-of-office dynastic party's share of elected deputies kept growing over time. The same was true of the minority parties' representation. As a consequence, the margin between the two dynastic parties contracted over time and, more importantly, the margin between these parties and the minority ones became smaller.

[15] This process would be consistent with the idea that the extension of the franchise may be seen as a strategic decision by the political elite to prevent widespread social unrest and revolution, in Acemoglu and Robinson (2000).

Figure 1. Dynastic opposition and minority parties' MPs as share of total.



Sources: Varela Ortega (2001), Sánchez de los Santos (1908 and 1910), El año político (1895-1910), El Imparcial (1876), El Liberal (1881-1910), La Correspondencia de España (1879-1905), La Época (1879-1905), ABC (1905), and data provided by Javier Moreno Luzón.

In sum, over time the strength and stability of Restoration regime eroded to the point that Spain could only go one of two ways: democratic reforms or the elimination of the parliamentary regime. Actually, both solutions were tried during the interwar period. Before 1923, however, the political duopoly survived in an increasingly weak position, and this was probably reflected in a gradual change in its priorities. In the early Restoration years, the government focused on consolidating the two-party cartel and marginalizing other political forces. After 1890, the regime tried instead to keep discontent under control and to appease those social sectors demanding profound reforms (González Hernández, 1997: 181-87; Suárez Cortina, 1998: 243; Cabrera and Del Rey, 2002: 105).

3. The allocation of public resources during the Restoration: the role of governments and individual MPs

Our main hypothesis is that the mix of government vote buying and local autonomy shaped the allocation of road resources among provinces. On the one hand, governments subordinated the distribution of resources to the duopoly's global objectives. In the short run these objectives reduced to implementing the 'turn' system; in the long run they included maintaining political stability without reform. On the other hand, MPs competed to obtain resources from the government, in order to increase their reputation and strengthen their links to elites in their districts. In the next paragraphs some hypotheses are suggested as to how those two sets of factors might have affected the distribution of public expenditure during the regime and how their relative influence might have evolved with social and political change.

3.1. The influence of MPs' individual characteristics and incentives

Individual MPs' strategies seem to have been essential in the operation of the Restoration system. In political economy terms, there was therefore a large margin for the so-called "non-partisan" political factors to influence the geographical allocation of public resources (Levitt and Snyder, 1995; Levitt and Poterba, 1999; Milligan and Smart, 2005). Our hypothesis in this regard is that a province would receive more funds if, on average, their MPs had greater incentives to seek administrative resources for their districts and/or higher capacity of influence on the central administration.

Incentives would depend positively on the degree of uncertainty of future electoral results. For instance, an established MP who "owned" a district (i.e. a "*propio*" MP) would have less need to build his reputation and would seek fewer resources for his constituency, whereas another candidate without a strong electoral basis would put more effort in building his reputation (see, e.g., Dardé et al., 2001: 608). As for each MP's influence in Madrid, it would be enhanced by seniority or a leadership position within his party, and also by being a member of the party in office, since this would grant him better access to government officials through the formal and informal networks established among party members.

3.2. The influence of the regime's priorities: the early decades

The Restoration regime found stability through the two parties' peaceful alternation in power. The system required limiting the opposition parties' parliamentary presence. Our hypothesis is that, during the early decades of the Restoration regime, if a province had a high number of districts that did not follow the turn system (i.e. that elected a higher share of MPs belonging either to the minority parties or to the dynastic party that was out of office), it would be punished, and such penalty would include fewer road funds. In other words, the dynastic parties' duopoly would use public spending to provide incentives for local elites to implement the turn system (Diaz-Cayeros et al., 2006; Hsieh et al., 2009). Actually, since the most serious challenges to the regime came from outside the duopoly, the government would be much tougher on the provinces that elected a higher share of third party MPs, than on those electing candidates from the dynastic opposition (Moreno Luzón, 2000: 61; Dardé, 2003: 253).

3.3. The influence of the regime's priorities: the crisis of the Restoration

After 1890 the regime faced increasing challenges and these hindered the long-term continuity of the turn system. Our hypothesis is that those challenges also affected the global strategy of the regime and the use of the spatial allocation of resources as a political tool. More specifically, in this latter period, the regime tried to keep discontent under control by making certain compromises with at least some sectors of the opposition or, in other words, by exchanging resources for political stability and constitutional loyalty (Ellman and Wantchekon, 2000; Robinson and Torvik, 2009). One available instrument was to give a preferential treatment to "politically sensitive" territories, i.e. those electing candidates who refused the turn system and, especially, those choosing MPs from the minority parties. Therefore, in stark opposition to what is expected in the beginning of the regime, during the latter stage of the Restoration, if a province had a high number of districts that elected their MPs without respecting the peaceful turn and, especially, a large share of districts electing candidates from the minority parties, it would be privileged in the distribution of resources.

4. Empirical framework

Investigating these hypotheses is perforce limited by the availability of data. On the one hand, because road expenditure data are only reported by provinces, but not by electoral districts, electoral outcomes data had to be aggregated by province, and carry out the analysis at the provincial level. This unavoidable spatial aggregation has forced us to smooth local variation and introduces a measurement error problem in the analysis, for which no straightforward solution is available. There are, however, some reasons that may have reduced the incidence of this problem. Indeed, as Carlos Dardé et al. (2001: 563) note, a significant number of provinces showed certain political unity during the period under study.[16] More importantly, local elites would not only be interested in an increase in their district's road mileage, but also in having a good connection with the main markets (such as the provincial capital), which would involve the completion of some provincial roads which ran partially out of their own district territory. Therefore, broadly speaking, the local elites of all districts in each province would actually be interested in the development of the whole provincial road network.

On the other hand, since road investment in the Basque Country and Navarre was mostly financed and executed by the provincial administrations (*Diputaciones*), these four provinces (Álava, Biscay, Guipúzcoa and Navarre) have been excluded from the analysis. Hence, our final sample consists of a set of 45 provinces with an average of 309 districts and 372 elected deputies per election.

The analysis has been restricted to road expenditures undertaken by the central government between 1880 and 1914. The study starts in 1880, the year that followed the 1879 election, which is considered the beginning of the "*turno pacífico*" system. The 1914 adoption of the Ugarte Plan, which reduced the government's discretion over road construction spending, makes that year a good ending point. It is assumed that a given year's

[16] The authors highlight the provincial scope of some local powers at the time, and indicates that many provinces were controlled by a single *cacique* or clientelist network.

investment was influenced by the results of the nearest previous election. In the case of election years, it is considered that the expenditure made by the government during the year was not influenced by that year's election outcomes. This is reasonable given that once approved, infrastructure spending was delayed by a somewhat involved implementation process. In other words, politicians needed some time before their influence on investment showed up at the local level. As a result, the following elections are included: 1879, 1881, 1884, 1886, 1891, 1893, 1896, 1898, 1899, 1901, 1903, 1905, 1907 and 1910.

Our dependent variable is annual expenditures on new road construction in constant pesetas per capita.[17] Information on public road investment has been extracted from the *Memorias, Anuarios and Estadísticas de Obras Públicas*, which were published regularly by the Spanish Ministry of Public Works (*Ministerio de Fomento)* between 1856 and 1924.[18]

The independent variables are all measured annually and at the provincial level. To capture the economic demand for roads, the impact of population density and the level of GDP per capita is estimated.[19] The time gaps in these variables have been filled through interpolation. Provinces with lower population density are expected to get larger construction investment per capita (since a higher level of spending would be necessary in those provinces to connect a given amount of population to the network). The

[17] Investment figures have been expressed in real terms by using the price index for "other construction" investment by Prados de la Escosura (2003).

[18] Although, ideally, the study should have focused on public expenditure dedicated to second and third category roads, which were those more directly linked to territorial interests, the data on road investment are not disaggregated by category for some years of the period under study. However, since second and third category roads accounted for 93% of the new road mileage constructed during the period, it is considered that the aggregate investment on all categories of State roads can be used as a good approximation to this variable of interest.

[19] These time varying variables are considered in Herranz-Loncán (2007), as determinants of provincial road endowments in Spain between 1860 and 1930. Other economic factors that appear to be relevant in that research are construction costs or the maritime or border character of a province. However, since those variables are time-invariant cannot be used to estimate the model through fixed-effects.

opposite (positive) effect should hold in the case of richer (in terms of per capita GDP) provinces.

Then, electoral data is added. In this regard, the main source of information is the appendix to the book *El poder de la influencia*, edited by José Varela Ortega, which contains the name of a large share of the deputies that were elected in each district from 1876 until 1923, as well as their party of affiliation. This database, however, has numerous gaps, which have been filled by drawing on Modesto Sánchez de los Santos' volumes on the chambers elected in 1907 and 1910,[20] the yearly publication *El año político* (1895-1910), some of the newspapers published in the days after each election (*El Imparcial*, *El Liberal*, *La Correspondencia de España*, *La Época* and *ABC*) and the Historical Archive of Deputies (1810-1977) of the Spanish Congress.[21]

This new data set allows us to calculate the *Relative seniority* of each MP, which measures the difference between the maximum seniority in the chamber after each election and the seniority of each deputy.[22] Then, that variable is averaged over the deputies in each province. The lower this indicator (the lower this difference), the more senior these deputies were, and the more able they would be to attract resources to their constituencies. Second, the share of deputies in province *i* and term *t* who had been ministers in previous terms is measured, as a proxy for their long-term political influence. Those MPs with a greater leadership position should garner more public funds for their provinces. Third, to capture the presence of "*propios*" MPs in province *i* and term *t*, two measures are computed to account for the share of deputies who: i) had been elected in the past in the

[20] Sánchez de los Santos, 1908 and 1910.

[21] See the website of the Spanish Congress: http://www.congreso.es/portal/page/portal/Congreso/Congreso/SDocum/ArchCon/SDHistoDipu

[22] Seniority refers to the number of elections, from 1876 until election *t*, in which the deputy X had been elected. Given that legislatures in Restoration times differed considerably in length, the seniority has also been computed by using the number of years in office instead of the number of elections. The results hold similar, but are not presented for the sake of brevity.

same district; and ii) had sat with the opposition for at least one term of office (i.e. had not adapted to the turn system).

Finally, the elected MPs are divided into three types: government MPs, dynastic opposition MPs (Liberal MPs under a Conservative government and Conservative MPs under a Liberal government), and minority MPs (those not running as either Liberals or Conservatives). Then the share of deputies belonging to the dynastic opposition and the share that belonged to the minority parties in each province are computed. [23] Table 1 presents a summary description of the variables and their descriptive statistics and data sources.

[23] Therefore, the share of government MPs is taken as the reference category.

Table 1: Descriptive statistics and data sources

Variable	*Description*	*Mean (S.D)*	*Source*
Road investment p.c.	Pesetas of road investment$_{it}$ / Population$_{it}$	1.16 (1.07)	Ministerio de Fomento, *Memorias, Anuarios and Estadísticas de Obras Públicas* (1880-1914)
% Minority seats	Minority parties' seats$_{it}$ / Total seats$_{it}$	0.07 (0.14)	Varela Ortega (2001), Sánchez de los Santos (1908 and 1910), El año político (1895-1910), El Imparcial (1876), El Liberal (1881-1910), La Correspondencia de España (1879-1905), La Época (1879-1905), ABC (1905) and Historical Archive of Deputies (Spanish Congress).
% Opposition seats	Dynastic opposition party's seats$_{it}$ / Total seats$_{it}$	0.24 (0.18)	
% Propios	% established deputies$_{it}$/ Total n. of deputies$_{it}$	0.28 (0.20)	
% Deputies who were Ministers in the past	Deputies$_{it}$ who were ministers in previous electoral terms/ Total n. of deputies$_{it}$	0.07 (0.25)	
Relative seniority	$\frac{1}{N}\sum_{n=1}\left(\tau_t^{Max} - \tau_{n,i,t}\right)$ τ_t^{Max} : max. number of times that a deputy has been elected up to election year *t* $\tau_{n,i,t}$: nº of times that deputy *n* in province *i* at election year *t* has been previously elected. *N*: total number of deputies in province *i* in electoral year *t*	5.78 (3.61)	
Population density	Population $_{it}$ / Km^2	42.16 (26.27)	Population censuses
GDP pc	(GDP $_{it}$ /1000) / Population $_{it}$	0.46 (0.17)	Data provided by Julio Martínez-Galarraga

Note**:** Subindex *it* refers to province *i* and year *t.*

Taken together, these data form a panel comprising 35 years (distributed among 14 elections) and 45 provinces. Since the behavior of units (provinces) at different points in time can be observed, the variation between units as well as over time can be captured by using a linear panel

data model with both time and province fixed effects as follows:

$$i_{it} = \beta\, Political_{it} + \lambda\, X_{it} + \alpha_i + \alpha_t + u_{it} \qquad (1)$$

where i_{it} is investment per capita on roads; $Political_{it}$ includes the political variables linked to our hypotheses; X_{it} accounts for economic variables that change over time; α_t represents year-specific effects capturing the impact of certain factors (such as economic crises, national policies, etc.) that occurred in a given year and affected all provinces; α_i represents province effects, accounting for factors that are specific to a given area but constant in time (e.g., construction costs, maritime and border provinces, etc.); and u_{it} is an error term.

Regarding the estimation method, since the results presented treat the province effects as fixed, this means that the effects of political variables are identified from within-province variation over time. Finally, according to several tests performed, the disturbances in our panel are both heteroscedastic and autocorrelated, which makes clustering at the province level necessary. Also, the fact that the value of the political variables is the same for the years between two consecutive elections indicate that clustering at the election level is also necessary. So, standard errors are clustered both by province and by election.

5. The politics of road spending

Table 2 below presents the outcomes of a set of regressions based on equation (1). Column (1) presents the fixed-effects estimates obtained from the baseline model (economic variables only) and columns (2) to (5) present the results when political variables are included. In all the regressions the coefficients of the economic variables are statistically significant and have the expected sign: public investment per capita on road construction was lower in densely-populated provinces and higher in provinces with larger GDP per capita.

Table 2: Determinants of the regional allocation of road investment during the Spanish Restoration

	(1)	(2)	(3)	(4)	(5)
			Political variables		
% Minority seats		0.50*			0.40
		(1.690)			(1.355)
% Dyn. opposition seats		-0.01			-0.14
		(-0.058)			(-0.778)
% Propios			0.52**		0.60**
			(2.367)		(2.530)
% Deputies who were Ministers in the past				1.27**	1.32**
				(2.132)	(2.165)
Relative seniority				0.04	0.06
				(0.969)	(1.383)
			Economic variables		
Population density	-0.02**	-0.02**	-0.01*	-0.02*	-0.02*
	(-1.996)	(-2.224)	(-1.772)	(-1.876)	(-1.907)
GDP pc	3.42***	3.01***	3.57***	3.40***	3.20***
	(5.021)	(4.659)	(5.049)	(5.108)	(4.838)
Constant	0.22	0.55	0.06	0.15	0.28
	(0.458)	(1.033)	(0.124)	(0.307)	(0.510)
Nº Observations	1,575	1,575	1,575	1,575	1,575
Time-effects (f_T)	YES	YES	YES	YES	YES
F-test time effects	5.29	5.13	5.18	5.14	5.09
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
R-squared	0.143	0.146	0.149	0.151	0.162

Notes: (1) Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1; (2) dependent variable: road investment per capita; (3) all columns report fixed-effects estimates; (4) DoF adjustment is imposed in fixed-effect regressions.

To evaluate the impact of political factors, let us focus on column (5), which is based on the full model —the other specifications have much the same results. No evidence is found that either the share of minority MPs or the share of the dynastic opposition MPs had a statistically significant effect on the amount of road investment received by a province. By contrast, the proportion of "*propios*" had a significant and positive impact on road investment. It thus seems that "*propios*" did not have lower incentives to lobby for their provinces, and instead it appears that they were particularly good at attracting resources for their provinces. More precisely, a standard deviation rise in the share of "*propios*" among a province's deputies would produce a 0.17 pesetas increase in per capita investment on roads (i.e. 16 percent of the standard deviation of the dependent variable). Similarly, the

higher the provincial share of deputies that had been ministers in the past, the greater the road funds that province received.[24] More concretely, one standard deviation rise in this variable would translate into a 0.33 pesetas increase in road investment per capita (i.e. 31 percent of the standard deviation of the dependent variable).

By contrast, the coefficient of the relative seniority of each province's MPs is not statistically different than zero, a result that, at first sight, seems surprising. There are, however, two possible complementary explanations for that. First, in line with suggestions made by Kevin and Smart (2005), once the seniority of a politician exceeds a certain threshold, his expectations of running for re-election might fall and, as such, he might relax his efforts in attempting to obtain spending for his district.[25] Second, the provincial share of "*propios*" MPs increased a province's allocation of road investment. By definition, these deputies were senior, so it seems that seniority was only relevant when the MP was politically independent and did not respect the 'turn'.

As was suggested in Section 3 of this chapter, the governments' attitude towards the provinces that did not respect the turn may have changed with the gradual erosion of support for the Restoration. This may explain the lack of significance of the variables that measure the share of minority or dynastic opposition MPs when their impact over the whole period is tested. In order to account for the presence of structural change in the relationship between the political variables and road spending, two additional sets of regressions are run. In the first one, whose results are reported in Table 3, the changes in the governments' attitude towards the "rebellious" provinces

[24] The same regressions have been run with two alternative variables to measure the effect of potentially influential politicians: a dummy variable set to 1 if the minister of Public Works was a deputy elected for that province and the share of deputies in each province which were ministers at time t. None of these variables turned out to be statistically significant.

[25] In an attempt to contrast this hypothesis an alternative variable is computed: the share of deputies, in each province, who had been deputies in this legislature and in *all* the previous terms. This means that they were the most senior representatives in the Parliament after each election. In this case, the effect of seniority is negative although not statistically significant (the results are not reported for the sake of simplicity).

are considered to be mainly associated to the exogenous shocks that took place in the 1890s (such as universal male suffrage or the colonial defeat). Therefore, a time dummy variable for the second part of the period under analysis (1891-1914) is defined, which is interacted with both the share of minority and dynastic opposition deputies.[26] This approach allows us to test for level differences between before and after 1890.

[26] Comín (1988: 495), suggests 1898 as the main turning point in the Restoration period. Actually, the main results of the analysis are not altered significantly 1896 or 1898 are taken instead of 1890 (again, these results are not reported for the sake of simplicity).

Table 3: Determinants of the regional allocation of road investment during the Spanish Restoration. Interaction of a dummy for the 2nd sub-period (1892-1914) with the political factors

	(1)	(2)	(3)	(4)	(5)
			Political Variables		
% Minority seats		-1.20*			-1.22*
		(-1.874)			(-1.896)
% Minority seats× 2nd period		2.09***			2.00***
		(3.019)			(2.880)
% Dyn. opposition seats		-0.77*			-1.00**
		(-1.917)			(-2.383)
% Dyn. opposition seats× 2nd period		1.01**			1.13***
		(2.318)			(2.621)
Propios			0.52**		0.59**
			(2.367)		(2.573)
% Deputies who were Ministers in the past				1.27**	1.41**
				(2.132)	(2.371)
Relative Seniority				0.04	0.06
				(0.969)	(1.536)
			Economic Variables		
Population density	-0.02**	-0.02**	-0.01*	-0.02*	-0.02**
	(-1.996)	(-2.447)	(-1.772)	(-1.876)	(-2.102)
GDP pc	3.42***	2.65***	3.57***	3.40***	2.86***
	(5.021)	(4.302)	(5.049)	(5.108)	(4.527)
Constant	0.22	0.97*	0.06	0.15	0.69
	(0.458)	(1.893)	(0.124)	(0.307)	(1.303)
Nº Observations	1,575	1,575	1,575	1,575	1,575
Time-effects (f_T)	YES	YES	YES	YES	YES
F-test time effects	5.29	4.99	5.18	5.14	5.08
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
R-squared	0.143	0.162	0.149	0.151	0.178

Notes: (1) Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1; (2) dependent variable: road investment per capita; (3) all columns report fixed-effects estimates; (4) DoF adjustment is imposed in fixed-effect regressions.

As an alternative a second set of regressions is run, whose results are presented in Table 4, and where it is assumed instead that the governments' change of attitude was gradual, being mainly the result of the country's socioeconomic evolution and the slow weakening of the political system.

This alternative hypothesis is evaluated by interacting the political variables with a linear time trend as follows:

$$i_{it} = \alpha_i + \beta_t(\%\ Minority, \%Dynastic\ opposition)_{it} + \eta(Propios,\ Leadership,\ Seniority)_{it} + \lambda\ X_{it} + \alpha_i + \alpha_t + u_{it}$$

$$\beta_t = \beta_0 + \beta_1 \times trend \qquad (2)$$

Table 4: Determinants of the regional allocation of road investment during the Spanish Restoration. Interaction of linear trend with the political factors

	(1)	(2)	(3)	(4)	(5)
			Political Variables		
% Minority seats		-1.74**			-1.74**
		(-2.557)			(-2.525)
% Minority seats × trend		0.09***			0.09***
		(3.661)			(3.513)
% Dyn. opposition seats		-0.71			-0.92**
		(-1.562)			(-1.976)
% Dyn. opposition seats× trend		0.04*			0.04*
		(1.681)			(1.878)
Propios			0.52**		0.56**
			(2.367)		(2.432)
% Deputies who were Ministers in the past				1.27**	1.35**
				(2.132)	(2.266)
Relative seniority				0.04	0.05
				(0.969)	(1.256)
			Economic Variables		
Population density	-0.02**	-0.03***	-0.01*	-0.02*	-0.02**
	(-1.996)	(-2.599)	(-1.772)	(-1.876)	(-2.270)
GDP pc	3.42***	2.37***	3.57***	3.40***	2.58***
	(5.021)	(3.966)	(5.049)	(5.108)	(4.191)
Constant	0.22	1.17**	0.06	0.15	0.90*
	(0.458)	(2.271)	(0.124)	(0.307)	(1.698)
Nº Observations	1,575	1,575	1,575	1,575	1,575
Time-effects (f_T)	YES	YES	YES	YES	YES
F-test time effects	5.29	4.98	5.18	5.14	4.72
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
R-squared	0.143	0.162	0.149	0.151	0.178

Notes: (1) Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1; (2) dependent variable: road investment per capita; (3) all columns report fixed-effects estimates; (4) DoF adjustment is imposed in fixed-effect regressions.

In both tables, column (5), which shows the coefficients of the full model, confirms the hypothesis that the governments' attitude towards the provinces that did not respect the turn changed over time. In Table 3, higher shares of minority and dynastic opposition MPs reduced government expenditure on road construction during the early years of the period under study, but that effect was reversed after 1890. In addition, during the second sub-period, the positive impact of having a higher share of non-governmental MPs was much smaller in the case of dynastic opposition deputies, something that is consistent with the fact that they represented less of a threat to the regime. More precisely, the coefficients in column (5) indicate that, during the first period, raising a province's share of minority MPs by one standard deviation would provoke a decrease of 0.17 pesetas in road construction per capita in that province (i.e. 16 percent of the standard deviation of the dependent variable). In contrast, during the second period, the same standard deviation increase would have translated into an uptick of 0.11 pesetas per capita (i.e. 10 percent of the standard deviation of the dependent variable). As for the dynastic opposition MPs, they produce similar effects to minority deputies in the first period and just a 2 percent increase during the second one.

The results reported in Table 4 are also consistent with the hypothesis that the regime changed its attitude towards the "rebellious" districts. In this case, using again the coefficients presented in column (5) one can see that in an initial year (t=1) a single standard deviation rise in the variable *% Minority seats* led to a 0.23 pesetas decrease in per capita road investment. However, this effect changed over time and, by 1914 (i.e. at t=35) the effect of an increase of one standard deviation in this variable was a rise of 0.20 pesetas per capita in road investment. Finally, in both tables, the effects of the other political variables ("*Propios*", *Deputies that were ministers in the past* and *Relative seniority*) remain unchanged from those reported in Table 2.[27]

[27] The significance of the interaction of all other (political and economic) variables has also been tested with a dummy for the second period. However, those interactions were not significant, which indicates that the impact of those factors was not affected by structural change.

To sum up, although these two specifications involve different assumptions on the evolution of the relationship between road spending and the political variables, both are consistent with our main hypothesis about the evolution of the regime.[28] In both cases, the results of the estimation indicate that, in the early stages of the Restoration, political stability required the government to distribute relatively less road investment to those provinces where deputies were elected without regard to the turn. By contrast, as time went by and the crisis of the regime became apparent, such punishments did not work and the government tended to change its criteria for the allocation of road funds. As a result, over time, those provinces where the turn system was less respected and, even more so, those electing candidates from the minority parties, tended to receive more resources, probably in an attempt to limit discontent and to appease those social sectors demanding profound reforms.

6. Conclusions

This study has examined the distribution of state funding for road infrastructure during the Spanish Restoration. The case of Spain is particularly interesting because it was a semi-democratic system quite different from those of contemporary developed economies, which are the most frequent object of this kind of political economy analysis. It is also interesting because the hegemonic force was not a party but a duopoly, which established a system of alternation in power.

Our panel data set for Spanish provinces between 1880 and 1914 confirms that political factors played an important role in the regional distribution of road construction expenditures. The analysis shows that the allocation of

[28] Despite the fact that the two sets of regressions are based on different assumptions on the relationship between spending and electoral variables, both sets of results are presented, due to the uncertainty on the real shape of the relationship. The true dynamics was probably a combination of both processes, with some sudden shocks during the 1890s, which cannot be dated with precision, as well as a gradual evolution throughout the whole period under study, with some potential changes in slope which cannot either be dated with precision. Therefore, both models provide two partial and imperfect approaches to that process of change.

public funds was affected by two different sets of political determinants: the delegation characteristics (such as the share of MPs with party leadership positions, and electoral independence), and the regime's global strategy and aims. In particular, during the early stages of the Restoration regime, those provinces with a higher share of districts that did not follow the two-party alternation system and, specially, those electing candidates from third parties, received fewer road funds. A suggestion is that this reflects the regime effort to control elections. Road subsidies were part of a set of incentives that encouraged the provinces to comply with the system. Over time, however, such punishment strategy disappeared and, since the last few years of the nineteenth century, the provinces that elected more candidates from the minority parties actually became privileged in the distribution of resources. Because the change in policy coincided with the weakening of the Restoration regime, this is interpreted as an exchange of resources for political stability in "politically sensitive" provinces.

These results confirm the importance of pork-barrel politics in the allocation of road resources in Restoration Spain, despite the hardly democratic character of the regime. The influence of territorial interests on the geographical distribution of road expenditures was significant and sizeable. Indeed it helps to explain the inefficiency that characterized the construction of the Spanish road network, something of which contemporary opinion was perfectly aware. The waste of resources associated to this process necessarily had to constitute a burden on Spanish economic growth, and to contribute to the relative failure of investment in large transport infrastructure throughout the period under study.

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Chapter 3

Electoral Rewards to Patronage Politics: Evidence from Rural Unemployment Subsidies in Spain

1. Introduction

The redistribution of rents from high-income to low-income groups might be pursued by governments with the use of public employment targeted to the disadvantaged group (Alesina *et al.*, 2000, Gimpelson *et al.*, 2000). Under certain circumstances, however, this type of policy might create undesired side effects such as the direct exchange of votes for access to public employment, namely, patronage. This and other sorts of clientelism, has been argued to have a clear negative impact on economic development (Eisenstadt and Lemarchand, 1981). The Plan for Rural Employment (*Plan de Empleo Rural* – PER), introduced in the Spanish regions of Extremadura and Andalusia by the central government in the early eighties, is an oft-cited example of patronage politics provided that the allocation of PER jobs at the discretion of local politicians goes hand in hand with the provision of a special unemployment benefit (the agrarian subsidy) prone to foster a dependence relationship between voters and government[1].

The purpose of this chapter is to present empirical evidence for the electoral returns to patronage by examining the specific case of the Spanish PER, a public program with particular features that make it susceptible of patronage. The program aims at using public works (essentially,

[1] The detrimental effects of the PER and the agrarian subsidy on the economic development of Andalusia and Extremadura are to some extent similar to those in southern Italy (see Chubb, 1981, 1982, for an in-depth study of Italian patronage). Further, with regards to the effects of welfare benefits on voting behaviour, two prominent examples are those of *Progresa*, a Mexican program of poverty alleviation (see De la O, 2012, Diaz Cayeros et al., 2013) and PANES, an Uruguayan anti-poverty program of cash transfers (Manacorda et al., 2009).

infrastructure projects) to generate temporary employment in the rural areas of Andalusia and Extremadura, thus softening the negative consequences of high unemployment in these regions. The policy has certainly granted additional rents to low income households and, as documented by Jofre-Monseny (2012), it has contributed to a reduction in the flows of migration leaving rural municipalities in those regions (an effect mainly driven by lower out-migration). Nevertheless, the PER has not fostered economic development in the affected regions: Extremadura and Andalusia are still lagging well behind Spain's average region in terms of GDP per capita and unemployment rates[2]. In fact, with regards to unemployment, another relevant finding of Jofre-Monseny's study is that the introduction of the broad program that comprises the PER and the agrarian subsidy increased unemployment rates by 15% in the affected municipalities[3].The Spanish Congress was already made aware of the harmful consequences of the program in 1994 by the Commission of Agriculture, Farming and Fisheries, who argued that "the system has fostered in Andalusia and Extremadura a culture of inactivity, which blocks any initiative of development and deactivates the willingness to work" [4].

Further, despite improving the provision of some local public services, the program has not solved important infrastructure shortages in these regions and the projects have been costly and slowly implemented. The explanation behind the permanence of such unproductive spending might be that politicians see in patronage a fruitful source of electoral rewards that

[2] According to the INE (National Statistics Institute), in 2011 Andalusia and Extremadura's GDP per capita were, respectively, 25% and 30% below the national average (and the two lowest in Spain), and unemployment rates for the same year were, 40% and 15% above the national average, respectively.

[3] Jofre-Monseny employs a 'border' identification strategy, that compares municipalities in Andalusia and Extremadura close to the border with the adjacent regions (Murcia, Castilla la Mancha and Castilla y León), which are also close to the border but not affected by the program.

[4] Statement extracted from the report: "Dictamen aprobado por la Comisión de Agricultura, Ganadería y Pesca en relación con el informe elaborado por la ponencia especial para estudiar la reforma del actual sistema del Plan de Empleo Rural (PER) y el subsidio agrario. (154/000005)", pp. 21. Despite suggesting the need for reforms, the program has not suffered substantive changes since its establishment.

compensates for the inefficient redistribution of income through jobs and, in turn, for its negative effect on economic growth (Wantchekon, 2003; Keefer 2005). In fact, there is the widespread perception that the PER has served as a mere instrument of patronage at the disposal of the socialist party (PSOE), who established the program and has turned Extremadura and Andalusia into its strongholds[5].

In other words, "the Plan for Rural Employment is a public policy directly identified with the captive vote, clientelism, *caciquismo*[6], and corruption" (Corzo, 2002: 189). But despite many press articles devoted to the topic, and some descriptive studies (such as Hopkin, 2007, Corzo, 2002, Hopkin and Mastropaolo, 2001, and Cazorla, 1995), nobody has attempted to provide empirical evidence for this matter. This study is, thus, a contribution to the literature on clientelism, whose scholars claim that the lack of quantitative studies is due to difficulties in providing a clear identification of the patronage relation and the subjectivity in assessing the real motivations behind the exchange of votes (see Kitschelt and Wilkinson, 2002). However, I believe that the specificities of the PER (presented in section 2 of this chapter) help overcoming such problems.

The empirical analysis consists on apply a difference-in-differences (DD) approach to a data set of electoral outcomes from Spanish general and local elections – as both the local and central governments are involved in the allocation of jobs – before and after the introduction of the PER in 1984. In short, the results show that in the municipalities affected by the program, the PSOE increased its share of the general election vote. This positive

[5] The list of newspaper articles reporting this fact is very large. These are just two of the many examples:
"The PSOE sweeps to victory in the PER villages." *ABC*, 29/11/1993
"In the villages where there is more agrarian subsidy the vote for the PSOE is higher than in the rest of Andalusia." *El Mundo*, 26/12/1990

[6] In the Spanish context the term *caciquismo* is commonly used to refer to clientelism. The concept has its roots in the term *cacique*, a word used to refer to local party bosses who gained power by manipulating the administrative machinery for their own personal benefit and that of their clientele in XIX century Spain. Carr (1982) provides a concise description of *cacique*'s role*:* "the cacique always protected his village clientele from the laws, taxes and conscription levies of the outside world of the state".

effect of the PER on election outcomes has its peak during the second term after the introduction of the program but, still, remains significant along all the period under study. In addition, I also analyze whether such increase in the support for the PSOE is partly due to a raise the voter turnout, but I find inconclusive evidence. Lastly, at the local layer of government I do not find evidence of any electoral reward to mayors. Overall, the PER offers an interesting case study of patronage for several reasons: first, the involvement of several layers of government in the process of supplying jobs, allows me to assess whether voters make any distinction when casting their votes in local and general elections; second, it offers a unique combination of patronage jobs and welfare benefits (through the agrarian subsidy), which reinforces the dependence relationship between patrons (politicians) and clients (citizens).

Although there is scarce quantitative evidence for the influence of patronage (or clientelism, broadly speaking) and welfare benefits on election outcomes, my results are consistent with the significant electoral returns found in most of other studies. For instance, Folke et al. (2011) show that patronage helped political parties in US states to increase their probability of remaining in office. Golden and Picci (2011) obtain a positive effect of patronage on preference votes received by elite legislators affiliated with Italy's two main parties. Calvo and Murillo (2004) present evidence for the electoral benefits obtained by the Peronist Party in Argentina from the allocation of patronage jobs[7]. Manacorda et al. (2009) find that the PANES beneficiaries in Uruguay were 28% more likely to support the incumbent government. Finally, De la O (2005) finds that *Progresa,* in Mexico, increased by 5 and 4 percentage points, the voter turnout and the incumbent's vote share, respectively.

This chapter proceeds as follows. Section 2 presents in detail the institutional framework of the Plan for Rural Employment and discusses the

[7] The relevance of this study relies on the analysis made of both the supply and demand side of patronage, which helps identifying why some patrons benefit more than others. The authors conclude that the benefits for the Peronist Party were due to the fact that its constituencies were less skilled and more dependent of public jobs, and its supporters were geographically concentrated.

political economy implications of the program. In section 3 I describe the data used and the empirical strategy. Section 4 presents the results. Section 5 concludes.

2. The Plan for Rural Employment: a tool for political exchange

2.1. Institutional framework

The PER has its origins in the so-called Community Employment (*Empleo Comunitario),* established in 1971 by the Franco regime. The Community Employment was designed to tackle the problem of unemployment but also – and most importantly – to keep social unrest under control. By the end of the 70s, it was not only the government (ruled at that time by the party Unión de Centro Democrático, UCD[8]) distributing the funds of the Community Employment but specially the main unions (Comisiones Obreras, CC.OO, and Unión General de Tranajadores, U.G.T), who were accused of engaging in clientelist relations to recruit new members for the organization (González, 1990). At that time, the PSOE was neither a consolidated nor a well-structured political party as Hopkin and Mastropaolo (2001: 166) notice: "the [socialist] party essentially consisted of small groups of ambitious young politicians in a handful of cities".

A few years later, in 1982, the socialist party (*Partido Socialista Obrero Español*, PSOE) came in power in the Spanish Parliament for the first time in its history. One of the first public programs it implemented was the PER, which was effective from January 1984[9] and was aimed at alleviating the effects of high seasonal unemployment in the rural sector, solving the shortcomings of the Community Employment. The Royal Decree 3237/83 determined that the only Autonomous Regions that could have access to the

[8] UCD was a center-right party that played a major role during the Spanish transition to democracy. It was the first party in government after the Francoist dictatorship and it held power from 1977 until 1982, when it was replaced by the socialist party.

[9] It was initially regulated by the Royal Decree 3237/1983 of 28 December and the Royal Decree 513/84 of 11 January. The few amendments made afterwards are not relevant for this study.

program would be those where the unemployment rate amongst the so-called "seasonal agricultural workers" (*trabajadores eventuales agrarios*) was above the national average or where the amount of such workers was proportionally above to that in other rural areas. The scope of the program was limited to Andalusia and Extremadura given that they fulfilled the necessary requirements: in 1983 the unemployment rate amongst the agrarian workers in Andalusia and Extremadura was 26%[10] (27% in Andalusia and 17% in Extremadura), compared to a share of 11% in the rest of Spain. In 1996, when the People's Party (PP) came to power, it extended the program to the adjacent regions of Murcia, Castilla la Mancha, and Castilla y León.[11]

The PER is part of a broader public program, named SIPTEA (*Sistema Integrado de Protección de los Trabajadores Eventuales Agrarios*), which consists of three pillars to target agricultural workers in southern Spain: occupational training; a special unemployment benefit to seasonal agricultural workers (the agrarian subsidy); and the Rural Employment Plan (PER), through which municipalities, backed by the subsidies from the National Employment Public Service, can offer public jobs to seasonal agricultural workers. In 1984, the agrarian subsidy accounted for 75% of the national minimum wage, to be received during 180 days per year if the worker met the following requirements: the person was unemployed, inscribed in the Social Security census of seasonal agrarian workers, lived in Andalusia or Extremadura, was older than 16 and not old enough to obtain a retirement subsidy, and had worked (and paid contributions to the National Insurance) during the previous 12 months a minimum of 60 working days (the so-called "peonadas", in Spanish) [12]. Compared to the unemployment benefits granted by the "general" social security scheme (which most of the workers contribute to), the agrarian subsidy is more

[10] In 1984, 1985 and 1986 this figure raised to 46%, 44% and 48%, respectively, while it remained below 17% in the rest of Spanish regions.

[11] The program was then slightly amended and renamed PFEA (*Plan de Fomento del Empleo Agrario*).

[12] Besides the minimum working days (which have been reduced several times), the other requirements remained unchanged through the whole period under study (1977-1996).

beneficial to unemployed workers because the benefit received is larger and the minimum number of working hours needed to request it is also higher.

The PER complements the agrarian subsidy to the extent that it finances public works that employ preferably seasonal agricultural workers, who otherwise would find big difficulties in accruing the minimum amount of working days. The type of investment financed is, essentially, basic infrastructure works (such as road pavement) and the main requisite to be fulfilled by the projects is that a substantive share (in many cases up to 75%) of the workers hired must be seasonal agricultural workers currently unemployed. Table 1 shows the growing evolution (especially between 1984 and 1986) of the contracts and funds assigned to the PER. As for the agrarian subsidy (not included in table 1), the total amount of spending raises from 42,130 million (constant) pesetas in 1984 to 60,784 in 1995 but the proportion of spending per beneficiary remains fairly constant –around 22 constant pesetas/beneficiary – and it is the same in Andalusia than in Extremadura.

Table 1: Evolution of the number of contracts and funds assigned to the PER

	No. Employment contracts			**Investment (pesetas per capita)**	
Year	**Andalusia**	**Extremadura**	**Total**	**Total/inhab.**	**Total**
1984	85,191	27,367	112,558	1.4%	5,643.2
1985	196,939	57,598	254,537	3.2%	5,939.6
1986	212,978	73,198	286,176	3.6%	8,630.6
1987	201,556	80,672	282,228	3.6%	9,555.9
1988	159,913	73,387	233,300	2.9%	11,305.2
1989	151,554	65,071	216,625	2.7%	13,348.4
1990	122,590	51,398	173,988	2.1%	13,001.5
1991	113,077	47,866	160,943	2.0%	15,957.7
1992	94,357	43,937	138,294	1.7%	14,143.8
1993	111,830	50,576	162,406	2.0%	14,598.9

Source: Spanish Congress. Doc.61, Serie E. 18 May 1994

The distribution of PER jobs is a joint task of several Administrations. Firstly, the central government, through the National Employment Public Service (INEM), redistributes the PER budget amongst its provincial delegations, who act as the regulatory commissions. The criterion to

allocate the funds to the commissions is the demand and supply of employment in each province. The task of these commissions is, then, to evaluate and approve the reports sent by the city councils, which contain in detail the type of projects to be funded, the number or workers required and the share of unemployed people to be hired. Then, once the provincial delegations approve the projects and their financing[13], it is the mayors who select the employees to be hired.

2.2. Political economy considerations

The fact that the distribution of jobs is made at the mayor's discretion is one of the main aspects that explain the PER's susceptibility to patronage. On one side, mayors have often been accused of allegedly committing fraud (although only a small number have been prosecuted). They can do so in two ways. First, mayors might agree to pay "agrarian wages" to workers. This avoids the enrollment of the workers in the "general" social security scheme, and helps them increasing the number of working hours – taken into account afterwards to claim the agrarian subsidy. Second, mayors (or other representatives in the city council) might agree to sign agrarian cards stating a number of working hours not really accomplished. On the other side, as Cazorla points out, "the person selecting and the person being selected to work meet face to face, which in the rural mindset inevitably generates a feeling of gratitude which can be shown (…) in many ways including that of giving political support" (1995: 49).

Notice that the job *per se* (and the salary received) is fairly unimportant to the worker: the most important advantage extracted from it is the agrarian subsidy. Such benefit, disbursed by the central government, is not collective but personalized and this also influences the voter's decision to support the incumbent. As a result, the PER created in Andalusia and Extremadura a large amount of unfinished public works and an inflated number of

[13] The central government grants to municipalities most of the money they need to provide the jobs. In addition, a smaller part of the funds needed comes from the regional government, which covers the cost of material and equipment, and whenever all these amounts do not suffice, the local government disburses a small portion of the cost.

unemployed people[14]. For instance, Cazorla (1994) reports that in certain seasons there were Andalusian towns where the real number of unemployed individuals was only ten percent out of the total number of subsidized workers.

There are other factors, however, that raise concerns about the political – rather than economic – implications the PER and the agrarian subsidy might have. The program targets low-income individuals and, as noted, the agrarian subsidy accounts only for 75% of the national minimum wage. This means that to the recipient household the benefit usually represents a subsistence rent, which might build a strong dependence relationship between politicians and subsidized workers. As Stokes (2005) points out in her study of Argentinean machine politics, the utility that poor voters obtain from the private reward, exceeds the disutility of voting contrary to their ideological preferences. Stokes' empirical analysis concludes that poverty predicts clientelism. So, the beneficiaries of the PER not only might cast their vote to support the socialist party as an expression of gratitude but also because the political agents can credibly threaten to cancel the program (threat that can be posed by the central government) or to make jobs inaccessible to opposition voters (it is mayors who can exert such influence). In any case, both tactics hinder the voter's possibilities of claiming the agrarian subsidy.

Jobs, rather than non-excludable public goods or other types of public investment, are regarded as a particularly effective way of exerting political pressure because, as noted by Robinson and Verdier (2002), they are "a credible, excludable and reversible method of redistribution which ties the continuation utility of a voter to the political success of a particular politician". Although Robinson and Verdier consider developing countries to be the focal point of clientelism, such practice also can arise within democracies, especially when they are young (Keefer, 2007) – as is the case of Spain in the early eighties. Some might argue that in a democracy with secret ballot elections where the vote is not perfectly observable, the

[14] An example can be found in the municipality of Pinos Puente (in Andalusia) where the number of subsidized workers went from 900 in 1984 to 4,500 in 1987 (i.e. from 7% to 33%, out of total population).

exchange is not self-enforcing and clientelism can no longer be feasible. This argument has already been refuted by several studies because, despite the politicians' inability to monitor the vote, they can certainly observe "a range of other actions and behaviors that allow [them] to make good guesses" (Brusco, Nazareno and Stokes, 2004). This idea is in line with that of Nichter (2008), who argues that under a secret-ballot system, clientelism has more to do with turnout buying than with vote buying. As Nichter mentions, the group of citizens targeted might differ depending on whether vote buying or turnout buying occur. In the first case, core voters are more likely to be the target as the politicians have already established close links with them. In the second scenario, indifferent voters are more likely to be targeted.

3. Data and empirical approach

3.1. Data and variables

Sample. The database used to examine the potential effect of the PER on election outcomes consists of electoral results and voter turnout in the general elections at the municipal level, as well as information about the mayors and his partisan affiliation. The data cover the period 1979-1993. The 1977 general election, the first one to take place under democracy, is excluded from the sample provided that some relevant data needed is unavailable for that year. Therefore, the period under study starts in 1979, the year of the second democratic election. The last election included in the study is 1993 because, as mentioned, in 1996 the PER was replaced by a program (AEPSA) that extended its scope to a larger number of Spanish regions. Thus, the general elections taken into consideration are those held in 1979, 1982, 1986, 1989 and 1993, while the municipal elections are those of 1979, 1983, 1987, 1991 and 1995. The information concerning electoral outcomes, voter turnout and the mayor's party has been obtained from the Ministry of the Interior and several yearbooks from *El País* (a Spanish newspaper).

The final sample contains information for over 3,900 municipalities within the autonomous regions of Andalusia and Extremadura (treatment group)

and the adjacent regions of Castilla la Mancha, Castilla y León and Murcia (control group). Map 1 shows the geographical location of the five regions.

Map 1: Treatment and control regions

The sample is restricted to these five regions with the aim to reduce to the greatest possible extent the disparities between treatment and control groups. Relative to other Spanish regions, Castilla la Mancha, Castilla y León and Murcia presented lower divergences – in socioeconomic and political terms – with Extremadura and Andalusia[15]. As far as socioeconomic features concern, Table 2 presents the results of a test of differences that compares mean values of several variables, taking as a reference group the treated regions and comparing its mean values with i) those for the control group (panel A of Table 2) and ii) those for an alternative control group including all Spanish regions besides Andalusia, Extremadura, Castilla la Mancha, Castilla y León and Murcia (panel B of

[15] In fact, as mentioned, it is those regions where the PER (or PFEA) was extended to in 1996 by the People's Party.

Table 2). The variables selected for the comparisons across regions are: unemployment rates, education levels, population density, population growth and a measure of the "rurality" of a municipality (labeled as *Agrarian activity* and computed as a dummy equal to one if the municipality's main non-tertiary activity is agriculture). The test is limited to these variables (described in further detail below) because they are relevant for the econometric analysis that follows in the next section. Table 2 shows, for instance, that municipalities of Andalusia and Extremadura have, on average, 77.7 inhabitants/km^2 more than municipalities in Murcia, Castilla la Mancha and Castilla y León (see panel A). In addition, panel B shows that the difference between the mean density in the municipalities of Andalusia and Extremadura and the mean density in the municipalities of the rest of Spain (besides those in Murcia, Castilla la Mancha and Castilla y León) is 121 inhabitants/km^2 (being Andalusia and Extremadura less densely populated). Lastly, on the political side, it is worth noting that from 1982 until 1996, all the regional governments, with the exception of Castilla y León (from 1987), were governed by the socialist party.

Table 2: Test of difference in means

	Panel A		***Panel B***	
Variables	Difference (SE)	t-test (p-value)	Difference (SE)	t-test (p-value)
Unemployment	-0.06 (0.002)	-30.93 (0.000)	-0.17 (0.001)	-1.00 (0.000)
Rural activity	0.08 (0.016)	4.87 (0.000)	-0.22 (0.016)	-13.26 (0.000)
Population growth	-0.02 (0.003)	-4.86 (0.000)	0.01 (0.038)	0.31 (0.75)
Education	-0.01 (0.002)	-4.79 (0.000)	0.07 (0.007)	10.01 (0.000)
Density	-77.70 (8.921)	-8.7 (0.000)	121.20 (32.68)	3.71 (0.000)

Notes: (1) In Panel A and B the reference group is the treatment group that includes Andalusia and Extremadura; (2) panel A shows the difference in means when the control group includes Castilla la Mancha, Castilla y León and Murcia; (4) panel B shows the difference in means when the control group includes all Spanish regions besides the treated regions and Castilla la Mancha, Castilla y León and Murcia; (5) the null hypothesis is that the difference in means is not statistically different than zero; (6) a negative sign of the difference represents that averages are higher in the treatment group.

Dependent variable. To estimate the effect of patronage on elections, I use three main dependent variables: the PSOE's vote share in general elections, the voter turnout in general elections (i.e. the total ballots cast as a share of voting population), and a dummy variable indicating whether the mayor of a municipality is re-elected in the next election[16].

Treatment variable. The variable to be used in this study should be, ideally, the number of beneficiaries of the program and its geographical distribution. This information is not available for the period under study; however, I now discuss alternative measures. Provided that the program specifically targets rural municipalities of Andalusia and Extremadura, this kind of municipalities should have in principle a higher concentration of PER jobs. According to the OECD Rural Policy Review of Spain (2009), rural municipalities are defined as municipalities with a population density of less than 150 inhabitants per squared kilometer. Taking this classification as a reference, I construct the variable *Rural* as a binary variable that equals to one if the municipality has less than 150 inhabitants/km^2. Two other indices, however, can be used to contrast the appropriateness of using the population as a proxy of "rurality". One is the share of workers employed within the agricultural sector (variable labeled as *Agrarian workers*) and the other one is a dummy variable equal to one if agriculture is the municipality's main non-tertiary activity (variable labeled as *Agrarian activity*). In section 4 of this chapter I assess formally the validity of these variables as good proxies to the number and distribution of PER beneficiaries. These three measures used to identify rural municipalities are not relevant *per se*, but become the variable of interest once they are interacted with a treatment variable that indicates whether the municipality belongs to the treated regions, and the observation corresponds to a year after 1984.

Control variables. Lastly, to provide more precise and robust estimates the regressions include a set of control variables, which is limited due to the

[16] It is not possible to examine the effect of the PER on the vote share for the mayor at the local elections because this information is not available at the municipal level prior to 1984.

unavailability of data prior to the introduction of the PER. The control variables that could potentially have an effect on either the support for the PSOE, the voters' mobilization (i.e. the turnout) or the mayor's probability of reelection are three. First, the unemployment rate is included as a proxy of poverty provided that low-income households in Spain are more prone to support left-wing parties (such as the socialist party). Also, unemployment may either enhance or deter electoral participation. In turn, if citizens identify the local administration as the provider of employment, unemployment may have a negative effect on the mayor's probability of reelection. The second control variable is *education* (measured as the share of population with studies), which, if it predicts lower levels of poverty, it would have the opposite effect than unemployment. Education can also have an impact on the voter turnout (although the literature is not conclusive on what should be the sign). The third control variable added in the regression is the population growth, which, if driven for instance by an in-flow of migrants, could modify the political preferences of the voters in a municipality. The definitions, data sources, and descriptive statistics of the variables discussed in this section can be found in Table 3 below.

Table 3: Descriptive statistics and data sources

Variable	*Description*	*Mean (S.D)*	*Source*
PSOE vote (%)	No. of votes for PSOE as a share of valid ballots cast; at general election	0.38 (0.17)	Ministry of the Interior
Re-election	Binary variable equal to one if the mayor is re-elected at the election	0.51 (0.50)	
Turnout	Total ballots cast as a share of voting population according to electoral census; at general election	0.78 (0.09)	
PER	Binary variable equal to one if the observation corresponds to a municipality in Andalusia or Extremadura and the election year is after 1984	0.16 (0.37)	- -
Rural	Binary variable equal to one if the municipality has less 150 inhabitants per Km^2	0.66 (0.47)	Population censuses. National Institute of Statistics (INE)
Agrarian workers	Workers employed within the agricultural sector as a share of working-age population	0.34 (0.19)	
Agrarian activity	Binary variable equal to one if the municipality's main non-tertiary activity is agriculture	0.63 (0.48)	
Education	Population with studies as a share of total population	0.20 (0.07)	
Unemployment	Number of unemployed people as a share of labour force	0.13 (0.13)	
Population growth	$(Population_{it} - Population_{it-1})/ Population_t$	-0.04 (0.08)	
Education centres	Education establishments per 1000 inhabitants	0.93 (3.37)	Population census and Census of establishments
Health centres	Health establishments per 1000 inhabitants	0.40 (1.13)	

3.2. Specification

The aim of this study is to identify the average effect of the introduction of the PER on electoral outcomes in the municipalities of Andalusia and Extremadura (those affected by the policy). An ideal strategy would be to use a randomized experiment, to ensure there are no permanent differences in any other pre-treatment variables. However, a counterfactual is not

available as it is not possible to observe electoral outcomes at the same point in time in the treatment regions with and without the introduction of the PER. In this case, one should turn to non-experimental methods that mimic an experiment. In this sense, a well-established econometric technique is the difference-in-differences approach (Card and Krueger, 1994, 2000).This consists on a particular fixed-effects estimation that takes into consideration two types of differences: structural differences between the treatment and the control group, and differences within the treated municipalities over time (i.e. between the pre- and post-treatment periods).

Empirical strategy. The introduction of the Spanish PER in 1984 provides a set up with electoral outcomes for a treatment and control group for two time periods (before and after 1984). This allows assessing formally the electoral consequences of the PER at the central government level using the following baseline model:

$$V_{it} = \alpha_i + \mu_t + \delta\, PER_{it} + \gamma\, X_{it} + \varepsilon_{it} \qquad (1)$$

where V_{it} denotes the election outcome of municipality i at term t (depending on which analysis is run, either the PSOE's vote share in general elections or the voter turnout); α_i and μ_t are municipality and time fixed-effects, to control respectively for municipality-specific omitted variables and local trends; X_{it} is a vector of time-varying control variables (share of population with studies, unemployment rate and share of working-age population) for municipality i; PER_{it} is a binary variable equal to one if the municipality is affected by the Plan for Rural Employment, that is, if the observation corresponds to an election after 1984 and a municipality within Andalusia or Extremadura; ε_{it} is the time-varying error term, assumed to be independently distributed. The key estimate is δ, which indicates the difference between the average change in the vote share for the socialist party (or the average change in the voter turnout) of the treatment group and that of the control group.

Although any municipality in Andalusia and Extremadura can avail itself of the PER, it is especially rural municipalities in these regions which have the vast majority of its beneficiaries. This fact can be considered by introducing the variable *Rural* in equation (1); see equation (2) below.

$$V_{it} = \alpha_i + \mu_t + \beta\, Rural_i + \delta\, PER_{it} + \rho\, Rural_i \times PER_{it} + \gamma\, X_{it} + \varepsilon_{it} \qquad (2)$$

In this case, the coefficient of interest that reflects the impact of the PER in the rural municipalities of the treated regions is $\rho\delta + \rho$), i.e., a triple difference estimate. This gives more robust estimates and controls for potential changes (not motivated by the policy) in the voters' preferences in rural areas of the treatment regions and for changes in the voter's preferences of all municipalities in the treatment group (due to other regional policies that might have affected the voters' perception of politicians).

As for the advantages that mayors can reap from the program established by the central government, I focus on estimating the effect of the PER on the mayors' probability of being reelected. In this case, the specifications are as follows:

$$Reelection_{\text{it}} = \alpha_i + \mu_t + \delta PER_{it} + \gamma X_{it} + \varepsilon_{it} \qquad (3)$$

$$Reelection_{it} = \alpha_i + \mu_t + \beta Rural_i + \delta PER_{it} + \rho Rural_i \times PER_{it} + \gamma X_{it} + \varepsilon_{it} \qquad (4)$$

where the dependent variable *Reelection* is a binary variable that equals to one if the mayor at election t is the same than the mayor elected at t+1 election. The next section contains the results of estimating equation (1) to (4) and the tests performed afterwards to assess the robustness of the estimates.

It is worth noting that the idiosyncratic error term in the linear panel-data models above may suffer from a serial correlation problem, which means that there are unobservable factors that cannot be controlled for which affect election results and, at the same time, are correlated over time within municipalities. Political preferences in a municipality are quite persistent: many municipalities have a historical record of repeatedly voting en mass for the socialist party, the people's party or another party. The test for autocorrelation suggested by Wooldrige (2002) confirms that the null hypothesis of no serial correlation is rejected (F-test = 1886.914, p-value = 0.0000). Therefore, to provide consistent estimates the errors are clustered at the municipality level.

Verification of the "parallel trends" hypothesis. As mentioned in the previous section, the regions that comprise the control group are chosen to minimize disparities between control and treatment groups. Further, the specific selection of the control group is made to ensure a fundamental identifying assumption is met: the trends followed by electoral outcomes in the two groups in the absence of intervention (i.e., before 1984) must be equal. To evaluate this hypothesis formally, Table 4 presents the average trend of the vote share for the PSOE in treatment and control groups before the PER was established and the difference in means. The t-test performed over this sample does not reject the null hypothesis that the difference in means is not statistically different than zero.

Table 4: Test for the parallel-trend assumption

Variable	Treatment group Mean (SE)	Control group Mean (SE)	Difference
PSOE vote share trend	0.073 (0.003)	0.070 (0.001)	-0.003 (0.003)
N. Observations	1066	2837	

Notes: (1) the figures presented in this table correspond to the mean of the outcome variable, i.e. trend of the PSOE vote share in the pre-treatment period; (2) standard errors in parenthesis; t-statistic= -0.8776, p-value= 0.3802.

4. Results

Strong reasons – drawn upon the political economy literature on clientelism – suggest that the unique features of the PER and the agrarian subsidy leave room for a direct exchange of employment for votes. Despite some anecdotal and qualitative evidence presented in the previous sections, up to now there is no quantitative evidence of the extent to which the socialist party or the mayors that allocate PER jobs obtain some sort of electoral reward. The double and triple differences approaches described along section 3 enable to shed some light in this matter.

The starting point of this section consists in evaluating whether a measure capturing the rural condition of a municipality is a good approximation of the share of PER beneficiaries. Table 5 in section 4.1 presents the estimates

that confirm that, indeed, this is the case. Afterwards, the analysis of the electoral returns for the central and the local governments are presented separately in section 4.2. Tables 6 and 7 in section 4.2 show the effect of the PER on the vote share for the PSOE (and its evolution over time) and the voter turnout. Tables 8 and 9 suggest that mayors did not benefit from the distribution of jobs with higher probabilities of being reelected and neither did the socialist mayors provide an advantage to their party in general elections. Lastly, a set of robustness tests are presented in section 4.3. First, the alternative measures of "rurality" are used to confirm the previous results (Table 9). Second, I assess the robustness of the estimates by controlling for the possibility that the approval of the Statutes of Autonomy of Andalusia and Extremadura in the early 80s (rather than the introduction of the PER) determines the change in the political support in these regions given that the devolution of tasks translated into larger transfers of funds to the regional governments (Table 10).

4.1. The determinants of the geographic distribution of PER beneficiaries

The triple difference approach previously mentioned requires the use of an index of "rurality" to have an approximation to the share of PER beneficiaries and, hence three different measures have been selected: *Rural*, *Agrarian workers* and *Agrarian activity*. To test the appropriateness of these variables as good proxies of the share of PER beneficiaries, they are introduced in a regression where the proportion of subsidized seasonal agricultural workers in the municipality is the dependent variable. Such information is available at the municipal level only for the year 2000, from the system of multi-territory information of Andalusia, SIMA. In some of the regressions I also include the unemployment rate as an explanatory variable because, as already explained, the supply and demand of employment is the indicator used by the central government to allocate the program funds amongst the provincial delegations and also because the approval of the projects by these delegations depends on the share of unemployed workers to be hired by the city council in each project. Results are presented in Table 5.

The positive sign and the statistical significance of the estimates confirm that the three measures of "rurality" selected are good predictors of the

share of PER beneficiaries: being a rural municipality or a municipality whose main non-tertiary activity is agriculture increases by around 6 percentage points, on average, the share of PER beneficiaries, while an increase by one percentage point in the share of either agrarian workers or unemployment rates translates into a 20-30% higher share of such beneficiaries. The model with the highest explanatory power is that of column 7 (i.e. the one including both the unemployment rate and the share of agrarian workers in a municipality).

Table 5: Determinants of the distribution of subsidized seasonal agricultural workers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Rural municipality	0.05*** (0.007)				0.03*** (0.007)		
Agrarian activity		0.06*** (0.005)				0.06*** (0.004)	
Agrarian workers			0.25*** (0.020)				0.31*** (0.017)
Unemployment				0.22*** (0.018)	0.20*** (0.018)	0.22*** (0.017)	0.29*** (0.014)
Constant	0.32*** (0.040)	0.33*** (0.031)	0.26*** (0.032)	0.30*** (0.033)	0.21*** (0.038)	0.16*** (0.030)	0.00 (0.030)
Observations	735	735	735	735	735	735	735
R-squared	0.282	0.367	0.433	0.374	0.396	0.503	0.650

Notes: (1) Dependent variable: subsidized seasonal agrarian workers as a share of working-age population; (2) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (3) SE clustered by municipality; (4) the control variables included in all specifications are: share of population with pre-compulsory education, share of population with post-compulsory education and share of working-age population; (5) see Table 3 for definition of independent variables.

4.2. The electoral rewards to the distribution of PER jobs

PSOE votes in general elections. Table 6 reports the estimates of equation (1) and (2), that is, the average effect of the introduction of the PER on the vote share of the socialist party at the general elections in Andalusia and Extremadura as a whole (column 1) and also in their rural municipalities (column 2) – considered as such if they have less than 150 inhabitants/km^2 – where the share of PER beneficiaries is higher. The results show that, on average, the municipalities of Andalusia and Extremadura increased their support (in terms of votes) to the socialist party by around 3 percentage points after the introduction of the PER. This coefficient remains

statistically significant when control variables (education, unemployment rate and population growth) are included. Column 2 presents the triple differences estimates (i.e. those corresponding to equation 2 above). The results in this column show that the coefficient of the *PER* variable is not statistically significant, which indicates that non-rural municipalities in Andalusia and Extremadura did not significantly offer higher support for the PSOE after the introduction of the PER. This is consistent with the previous discussion; see for instance, the first newspaper headline in footnote 5 where it is stated that only "villages" (and not large cities) are meant to reward the socialist party. In column 2, however, the point estimate associated to the interaction variable *PER*×*Rural* is 0.03. This coefficient, which is statistically significant, indicates that under the PER policy, the vote share for the PSOE is 3 percentage points higher in rural. Considering that the average vote share for the PSOE in rural municipalities was 35% before the establishment of the program, the estimates suggest an average increase of 8.6% in the support for the socialist party after 1984.

The control variables are also statistically significant and the sign of the associated coefficients is as expected: a one percentage point increase in the unemployment rate increases by 6 percentage points the vote share for the PSOE (a 16% increase for an average municipality where the PSOE obtains 38% of votes); a one percentage point increase in the share of educated population raises by 7 percentage points the support for the PSOE; the population growth has a positive effect on the vote share for the PSOE but is only statistically significant at the 10%. A possible explanation for the effect of the population growth could be that, as the PER reduced the outflows of migrants from the treated regions (Jofre-Monseny, 2012), the residents who refrained from emigrating from Andalusia and Extremadura and, to a lower extent, the immigrants who were attracted to these regions by the generous welfare benefits offered by the program, would support the PSOE for its policy.

Table 6: Effects of the PER on the support for the PSOE at general elections and its evolution over time

	(1)	(2)	(3)	(4)
PER	0.03***	0.00	0.03***	0.00
	(0.004)	(0.011)	(0.004)	(0.011)
Rural				
PER×Rural		0.03***		
		(0.011)		0.03***
PER × Term1989-93			0.00*	(0.011)
			(0.002)	
PER × Term1993-96			-0.01***	
			(0.003)	
PER × Term1989-93 × Rural				0.01***
				(0.002)
PER × Term1993-96 × Rural				-0.01*
				(0.003)
Controls:				
Unemployment	0.07***	0.06***	0.07***	0.06***
	(0.015)	(0.015)	(0.015)	(0.015)
Education	-0.07***	-0.07***	-0.07***	-0.07***
	(0.016)	(0.016)	(0.016)	(0.016)
Population growth	0.02*	0.02*	0.02**	0.02**
	(0.009)	(0.009)	(0.010)	(0.010)
Constant	0.27***	0.27***	0.26***	0.26***
	(0.003)	(0.003)	(0.003)	(0.003)
Observations	19,456	19,456	19,456	19,456
R-squared	0.530	0.530	0.530	0.531
Municipality fixed-effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: (1) Dependent variable: PSOE's vote share at general elections; (2) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (3) SE clustered by municipality; (4) time fixed-effects in all equations; (5) Term1989-93 and Term1993-96 in columns 3 and 4 are time dummies indicating the electoral term; (6) the reference term is that of 1986-1989 (i.e. first term after the PER was introduced; (7) see Table 3 for definition of independent variables and controls.

Persistence over time. In this study, it is also relevant to examine the evolution of the electoral rewards to the PER across time for two reasons. First, as noted, from the early 90s there were already major concerns about the fraud committed by local representatives when allocating jobs and signing agrarian cards with fake working hours. To lower the capacity of such representatives to commit fraud, the regulatory commissions took a (slightly) more active role in monitoring the process. Second, as time goes by citizens might become more reluctant to exchange their vote for

employment the more aware they are of the negative consequences that this extended practice has had on the economic development of the region. To examine the evolution of the estimates of equations (1) and (2) across time, I include in these equations time effects for the "post-treatment" terms interacted with the other relevant variables (taking as the reference term the first one after the introduction of the PER). The outcomes are presented in columns 3 and 4 of Table 6. When looking at rural municipalities of Andalusia and Extremadura, the results in column 4 show that during the first term after the establishment of the PER, the difference in the vote share for the PSOE between rural and non-rural municipalities was around 3 percentage points during the first term (1986-1988), 4 percentage points during the second term (1989-1992) and 3 percentage points during the last term analyzed (1993-1995). Therefore, although the effect of the PER had a peak in the second term after its introduction, the positive impact is persistent during all the period under study. This suggests that the increase in democratic culture did not weaken the ties between patrons (politicians) and clients (voters). Instead, it run parallel to the establishment of a clientelist network that reinforced the patron-client dependence and favored the continued reward to the socialist party.

Plausible explanations. The increase in the support for the socialist party could be explained partly from lower abstention rates amongst PSOE voters provided that abstention in Spain tends to be higher amongst the left-wing voters (which embraces PSOE supporters) than amongst the right-wing. [17] To examine this issue further, I run the regressions on equations (1) and (2) using as a dependent variable the voter turnout at the general elections. Results are presented in Table7. The coefficients in column 4 suggest that in rural municipalities of Andalusia and Extremadura the introduction of the PER increased by 5 percentage points the voter turnout.

[17] A clear example is that of the 2004 Spanish general elections where there was a substantive increase in the turnout of 7 percentage points, which lead the PSOE to its victory. The main opposition party, the People's Party, had a major lost of votes in percentage terms but not in absolute number of votes, which means that the mobilization of voters did not favour the PP (see Boso et al. 2005). Furthermore, in a quantitative analysis of the Spanish case, Rowe et al. (2012) find that a one point increase in voter turnout raises the vote share for the socialist party by 0.5 points in the short-run and by 0.8 points in the long-run.

To an average rural municipality in Andalusia and Extremadura, with 72% turnout before 1984, this represents a 7% increase.

Table 7: Effects of the PER on turnout at general elections

	(1)	(2)
PER	0.01***	-0.04***
	(0.002)	(0.005)
Rural		
PER x Rural		0.05***
		(0.005)
Constant	0.70***	0.70***
	(0.002)	(0.002)
Observations	19,456	19,456
R-squared	0.421	0.425
Municipality fixed-effects	Yes	Yes
Controls	Yes	Yes

Notes: (1) Dependent variable: voter turnout at general elections; (2) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (3) SE clustered by municipality; (4) time fixed-effects in all equations; (5) the control variables included are: *education*, *unemployment* and *population growth*; (6) see Table 3 for definition of independent variables and controls.

An alternative possibility that could partly justify the increase in votes for the socialist party in general elections after 1984 might be a shift of votes coming from other parties' supporters. In 1982, the second most voted party in both the treatment and control regions was the People's Party (known at that time as Alianza Popular, at the same time that attracted part of UCD's votes when it dissolved in 1983), with an average vote share of 35% (against 40% for the socialist party). The PP, exerting its role as the main opposition party, repeatedly criticized the PER and, thus, it would be plausible that the introduction of the program had a negative impact in its vote share. This is indeed confirmed when equations (1) and (2) are regressed using as dependent variable the vote share for the PP. In this case, the triple difference estimates (eq.2) show that on average the PER decreased by 14 percentage points the PP's vote share. However, it is worth noting that in the case of PP's supporters (who are strongly leaned towards the right) it is likely that only a minor share switched their vote towards the PSOE.

Another party that could have been electorally punished by the introduction of the policy was the communist party (initially Partido Comunista de España, and after 1986 comparable to Izquierda Unida). As noted early, the main unions – closely linked to the Communist Party –were accused of attracting affiliates through the discretionary allocation of funds from the Community Employment. Indirectly, if this also represented higher support for the Communist Party, then the introduction of the PER, which left the unions with no control on the program's funds, would have translated into lower vote shares for the Communist Party. In this case, it is more likely that votes switched from the Communist Party to the socialist party given the left-wing ideology of both parties. A formal assessment of this hypothesis does not provide statistically significant results with the DD approach. On the contrary, the triple differences approach – i.e. the analysis when "rurality" is accounted for – does yield statistically significant results (although at the 10%). In this case, the reduction of the vote share for the communist party after 1984 was a 1 percentage point.

Local election outcomes. At the local level, I examine the effect of the introduction of the PER on the mayor's probability of reelection. Note that in this case it is not only relevant whether the political party hold office from one term to another, but whether the mayor, individually, was rewarded by the citizens who received PER jobs. Table 8 presents marginal effects for OLS and logit regressions. As shown in columns (1) to (4), the establishment of the program did not affect the mayors' probabilities of being reelected.

Another fact to take into consideration is the partisan alignment between socialist mayors and the party ruling at the central government, which could have provided mayors with further resources to distribute jobs. Moreover, as Golden and Picci (2011) suggest, the advantage the politicians might enjoy from the use of pork barrel or clientelism, depends on their ability to claim credit from the benefits distributed. In the context of the Spanish PER, the mayors are certainly able to claim credit for the jobs allocated but not for the agrarian subsidy collected thanks to the public job. Therefore, to mayors, the credit from the program might be easier to claim if they are aligned with the central government responsible for distributing the unemployment benefit. In columns 2 and 4 this hypothesis is tested by

introducing the *PER×Rural×PSOE* interaction, where PSOE is a dummy variable equal to one if the municipality is governed by a socialist mayor. The coefficient associated to the *PER×PSOE* interaction term in column 3 is significant, and it does indicate that socialist mayors were more likely to be re-elected after the PER. However, this result has some pitfalls. First, it is only significant at the 10 percent and not robust to the use of a non-linear probability function. Second, the variable of interest, *PER×Rural×PSOE*, which reflects whether mayors from rural municipalities (i.e. the areas with the most PER beneficiaries) increased their re-election probabilities after the introduction of the program, is not statistically significant. Overall, the results suggest that the mayors – no matter their party of affiliation – did not reap any advantage at municipal elections. This is consistent with the pattern described in Corzo's analysis of the Spanish PER (2002: 336): "the clientelist relation is not established with the closest level of power but, if it exists it is with the one who takes the most relevant decisions."

Table 8: Effects of the PER on the mayor's probability of re-election

	(1)	(2)	(3)	(4)
	OLS		Logit	
PER	0.01	-0.22*	0.01	-0.93
	(0.078)	(0.128)	(.435)	(0.604)
PER × Rural	0.01	0.05	-0.10	0.10
	(0.078)	(0.131)	(0.431)	(0.622)
PSOE		0.21***		1.19***
		(0.025)		(0.143)
PSOE × PER		0.29*		1.18
		(0.157)		(0.816)
PSOE × PER × Rural		-0.02		0.05
		(0.163)		(0.121)
Observations	7,081	7,081	7,081	7,081
R-squared	0.060	0.062	--	--
Chi-squared	--	--	234.9	230.9
Municipality fixed-effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: (1) Dependent variable: dummy variable indicating whether the mayor is reelected at election t+1; (2) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (3) SE clustered by municipality; (4) time fixed-effects in all equations; (5) PSOE= binary variable equal to one if the mayor is affiliated to the socialist party; (6) all regressions include control variables: *education unemployment;* (7) columns 1 and 3 also include as a control dummy variables that account for the party of the mayor; (8) see Table 3 for definition of independent variables and controls; (9) coefficients in columns 3 and 4 are marginal effects at the means.

The previous results could have several explanations. The first one is that the worker's main benefit from the PER, as mentioned early, was the indirect collection of the agrarian subsidy and therefore workers would strongly identify the socialist party at the central government as the authority responsible for the policy. Second, the range of distributable "favors" at the mayor's disposal is not only limited to PER jobs. Thus, at the local level the relevance of employment might be diluted by other actions coming from mayors.

The analysis conducted in this section, however, has certain methodological shortcomings that ought to be pointed out. Not only there is no available disaggregated data of the distribution of vote shares amongst parties in municipal elections prior to 1984 (which would allow to estimate, for instance, if the mayors' incumbency advantage changes after the establishment of the PER) [18] but also there is no information available for the candidates running for each election. Such information would allow controlling for candidates that are incumbents or challengers, which would provide more robust estimates. The distinction between incumbent and challenger is relevant in this analysis as the former should be the ones experiencing a higher increase in the probability of re-election, provided that they are the suppliers of jobs.

The finding of a null effect of the PER on the mayor's probability of re-election suggests that mayors did not benefit directly from allocating jobs. Another possibility, however, is the existence of a reverse coattails effect, such as the ones described in Ames (1994). This effect refers to the electoral advantages obtained by presidential candidates in municipalities where the mayor represents their party.[19] To test for this hypothesis an interaction term is introduced to account for the effect of the establishment of the PER in rural municipalities governed by the socialist party (variable

[18] The term "incumbency advantage" refers to the fact that incumbents in a political office tend to obtain larger vote shares (compared to the new challengers) if they run for re-election. One of the first attempts to provide empirical evidence on this matter is Erikson (1971).

[19] Ames finds a significant effect in the presidential election of Brazil in 1989, when voters could weakly identify with political parties.

labeled as *PSOE* × *PER* × *Rural*). The results presented in Table 9 suggest that this was not the case, given that the interaction term is statistically insignificant. This may mean that the role of mayors is that of mere intermediaries who deliver jobs (also known as brokers in the literature on clientelism) or, as mentioned, that the only benefit from the entire program which voters considered important was the unemployment subsidy.

Table 9: Effect of the PER on PSOE's vote share at general elections. Does having a socialist mayor provide an advantage?

	(1)	(2)
PER	0.01	0.01
	(0.013)	(0.011)
PSOE	0.12***	0.04***
	(0.003)	(0.002)
PSOE × *PER*	-0.06***	-0.02**
	(0.015)	(0.009)
Rural	-0.02***	
	(0.008)	
PER × *rural*	0.04***	0.02**
	(0.014)	(0.012)
PSOE × *PER* × *rural*	0.02	0.01
	(0.016)	(0.009)
Constant	0.37***	0.26***
	(0.008)	(0.003)
Observations	19,515	19,456
R-squared	0.561	0.550
Municipality fixed-effects	Yes	Yes
Controls	Yes	Yes

Notes: (1) Dependent variable: PSOE's vote share at general elections; (2) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (3) SE clustered by municipality; (4) time fixed-effects in all equations; (5) the control variables included are: *education*, *unemployment* and *population growth*; (6) PSOE= binary variable equal to one if the mayor is affiliated to the socialist party; (7) see Table 3 for definition of independent variables and controls.

4.3. Robustness tests

To conclude the results section, additional findings are included with the aim to test the robustness of the previous estimates. Firstly, I test whether the results found in the previous sections are driven by the specific selection of the variable *Rural* as an index of "rurality". To assess this possibility, the

same regression are run using the alternative variables previously mentioned (*Agrarian activity* and *Agrarian workers*). The analysis is conducted for general election outcomes and for the mayor's probability of being reelected (Table 10). The results presented show that the previous findings remain significant when we measure the "rurality" of a municipality with the share of agrarian workers (but not when we measure it with the *Agrarian activity* variable). The estimates in column 2 suggest that, overall, the introduction of the PER raised the vote share for the socialist party by 6 percentage points. Column 1 also suggests that the introduction of the program had an effect but this was not different in municipalities where agriculture was the main non-tertiary activity.

With regards to the impact of the PER on the voter turnout, I reject the hypothesis that the PER had an effect in agrarian municipalities of Andalusia and Extremadura and neither in municipalities with large shares of agrarian workers, which questions the robustness of the previous finding.

Table 10: Robustness test (I). Effect of the PER on general election outcomes. Alternative measures of "rurality"

	(1)	(2)	(3)	(4)
	Dep. variable: PSOE's vote share		Dep. variable: Turnout	
PER	0.03***	0.02***	0.01**	0.01***
	(0.005)	(0.005)	(0.003)	(0.004)
PER × Agrarian activity	0.01		0.00	
	(0.006)		(0.004)	
Agrarian workers		-0.05***		-0.02**
		(0.012)		(0.009)
PER × Agrarian workers		0.04***		-0.01
		(0.013)		(0.009)
Observations	19,456	19,456	19,456	19,456
R-squared	0.530	0.531	0.422	0.422
Municipality fixed-effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: (1) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (2) SE clustered by municipality; (3) time fixed-effects in all equations; (4) the control variables included in all specifications are: *education*, *unemployment* and *population growth*; (5) coefficients in columns 7 and 8 are marginal effects at the means; (6) see Table 3 for definition of independent variables and controls.

As for the impact of the program on the mayors' probability of reelection, the finding that the PER had no statistically effect remains unchanged when using the alternative proxies of "rurality" (Table 11).

Table 11: Robustness test (II). Effect of the PER on local election outcomes. Alternative measures of "rurality"

	(1)	(2)	(3)	(4)
	Dep. variable: mayor's probability of reelection			
	OLS		Logit	
PER	0.04	0.06	0.11	0.16
	(0.039)	(0.045)	(0.189)	0.230
PER × Agrarian activity	-0.05		-0.20	
	(0.043)		(0.212)	
Agrarian workers		-0.07		-0.55
		(0.085)		0.461
PER × Agrarian workers		-0.17		-0.67
		(0.133)		(0.734)
Observations	7,081	7,081	7,081	7,081
R-squared	0.060	0.061	0.110	0.108
Municipality fixed-effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: (1) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (2) SE clustered by municipality; (3) time fixed-effects in all equations; (4) the control variables included in all specifications are: *education*, *unemployment* and *population growth*; (5) coefficients in columns 7 and 8 are marginal effects at the means; (6) see Table 3 for definition of independent variables and controls.

Finally, to evaluate further the robustness of the finding that the PER benefited electorally the socialist party, I contrast the alternative explanation that it was not the PER but the decentralization process started in the early 80s (prior to the introduction of the PER) in Andalusia and Extremadura what had an effect on the support for the socialist party in these regions.

The Spanish Constitution approved in 1978 established the right of the regions for autonomy, which set the bases of the current system of Autonomous Regions in Spain. Andalusia and Extremadura approved their Statute of Autonomy in 1981 and 1983, respectively, and this was followed by a decentralization of powers from central to regional governments, coupled with large transfers of funds to compensate for the costs. At the time of the approval of Andalusia and Extremadura's Statutes (and, through

the rest of the period under study) their regional governments were aligned with the central government, which could have lead to certain bias in the allocation of transfers.[20] If these funds were used, for example, to build new schools or hospitals, voters could also have incentives to reward the PSOE for that. The devolution of powers in the health sector in Andalusia was in 1984 and in Extremadura it was in 2001, while in the education sector unrelated to universities the devolution of powers was in 1982 in Andalusia and in 1999 in Extremadura (Informe CEOE, 2011).

To test for the possibility that the decentralization process had an impact on the vote share for the PSOE in general elections, I add as control variables the number of education and health centres per 1000 inhabitants. The results, not presented for the sake of brevity, show that the sign, significance and magnitude of the coefficients associated to the main variables (*PER* and *PER* × *Rural*) remain unchanged and therefore the results presented in the previous section are confirmed. [21]

5. Conclusions

This article provides empirical evidence on the electoral returns to the discretionary allocation of public employment. It does so by examining the Spanish Plan for Rural Employment (PER), a program that provides temporary jobs to seasonal agricultural workers in order to mitigate the negative consequences of high unemployment in the rural municipalities of certain regions in Spain (Andalusia and Extremadura).

The PER has been highly controversial since its establishment in 1984 and it is regarded as a mechanism to simply ensure a subsistence rent to many households without solving effectively the unemployment problem. The main concern, however, is the widespread perception that the PER has been used by the Spanish socialist party to create and consolidate its strongholds

[20] Arulampalam *et al*., 2009, for instance, show that this is the case in India.

[21] The coefficient associated to both the share of education and health centres is statistically insignificant.

in the southern regions of Andalusia and Extremadura. Despite the relatively large number of references to this topic in the political science literature, so far no attempt was made at quantifying the electoral benefits received by the PSOE. In fact, there is not a large sample of studies on clientelism providing quantitative evidence for these matters.

The empirical analysis undertaken consists on using a double and triple differences design to assess the political changes that occurred after the introduction of the PER. Such changes may, *a priori*, affect two different layers of government. On the one side, the central government, who was responsible for establishing and funding the PER, as well as for distributing a special unemployment benefit (mainly targeted at PER beneficiaries). On the other side, the local government, who was responsible for the (discretionary) allocation of PER jobs amongst its citizens.

The findings of this study can be summarized as follows. First, rural municipalities of Andalusia and Extremadura (those mostly affected by the PER) experienced an increase in the vote share for the socialist party in the general elections after the introduction of the program. Second, the positive effect of the PER on the support for the PSOE remains statistically significant during the whole period under study but it has a peak during the second term after 1984 and it weakens thereafter, probably because of a stronger monitoring of the process of allocation of jobs in the 90s (which reduced to a certain extent the chances of fraud). Third, a plausible explanation for the raise in the vote share for the PSOE could be an increase in the voter turnout (which, in Spain, tends to favor left-wing parties). Although I do find some evidence pointing towards this hypothesis, the significance of the results is not robust to the choice of alternative measures of "rurality". Finally, I test for the impact of the PER on the mayor's reelection probabilities given that they are ultimately the suppliers of jobs. However, I do not find evidence neither of the electoral rewards to mayors in local elections (not even for those affiliated to the socialist party) nor of a reverse coattails effect that grants electoral advantage in general elections to the party aligned with the mayor. The most plausible explanations are that mayors are merely regarded as brokers delivering jobs – therefore, not with power to take top-level decisions about the program – and/or that voters do not see in PER jobs (and the wages earned through them) a benefit *per*

se but an instrument to obtain a more generous welfare benefit (the agrarian subsidy).

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Chapter 4

Partisan Targeting of Inter-Governmental Transfers & State Interference in Local Elections: Evidence from Spain

1. Introduction

In recent decades, a number of countries have decentralized their provision of public services (see, e.g., Shah and Thompson, 2004). Such measures are recommended by scholars and international organizations alike as part of reform packages that can improve the efficiency and effectiveness of public service delivery (e.g., Brosio and Ahmad, 2009). A better matching of preferences (e.g., Oates, 1972) and increased accountability (e.g., Seabright, 1996) are the arguments often used to support this policy. Decentralization is typically recommended if these benefits can compensate for any inefficiency generated by spillovers and/or the limitations of economies of scale. However, whether decentralization can actually deliver these benefits is more controversial, with failure often being attributed to measures that are only 'partial' in nature, a term coined to refer to situations where the devolution of fiscal power is limited (e.g., Brueckner, 2009, and Devajaran et al., 2009). For instance, some authors claim that debt-related moral hazard problems can arise as a result of an excessive reliance on transfers (e.g., Rodden, 2002, and Weingast, 2009). Similarly, corruption is also said to be more prevalent with transfer-dependent sub-national governments, because of the diminished interest of voters in holding politicians accountable (e.g., Weingast, 2009, and Brollo et al., 2012). Moreover, according to Khemani (2010a and 2010b), 'partial' decentralization might reduce citizen's awareness of sub-national responsibilities thus fostering clientelism and rent-seeking.

Various authors also point to the problems created by higher layer partisan incumbents that discriminate between aligned and unaligned local governments when allocating transfers, to the point that they are even able

to influence the results of sub-national elections (Diaz-Cayeros et al., 2006, and Scheiner, 2005). This interference in the workings of local elections can ultimately undermine one of the very benefits of decentralization, namely the improvement in politicians' accountability[1]. It is this specific issue that this chapter focuses its attention on. The issue examined is whether the control of a higher layer of government by one party is beneficial for its co-partisans holding power at a lower layer. Specifically, our main goal is to determine whether Spanish regional governments (the so-called Autonomous Communities) allocate more transfers to aligned local governments – i.e., to municipalities in which the mayor is affiliated to the same party than the regional president. The focus is on earmarked capital transfers, which are deemed to be the most discretionary of the transfers made in Spain. Additionally, it is analyzed whether partisan alignment has an effect on the votes obtained by a mayor at the local elections, and whether this effect is related to the larger amount of transfers allocated to aligned mayors. Finally, to shed some light on the mechanisms explaining these results, this study analyses how these effects differ across municipalities depending on whether regional and local elections are held on the same day or not, the competitiveness of the regional election, or the amount of regional budgetary resources.

Our analysis is motivated by a large amount of anecdotal evidence that suggests that the parties controlling higher layers of government allocate more resources to local governments run by co-partisans, and that inter-governmental transfers are an important means of achieving this goal. At least in Spain, our case of study, voters and politicians alike seem to believe

[1] Some authors go further and suggest that the overall level of political competition in the country can be reduced if holding mayoralties helps the higher layer incumbent to become entrenched (see Scheiner, 2005). Other authors claim that the mere structure of local government might be endogenous to these practices, since incumbents might be reluctant to push for full decentralization if this fosters competition (see Khemani 2010b).

this to be the case. A recent post in a Spanish blog is illustrative of this:

> "The other problem [with transfers] is the 'old-boy network' and the 'partisanship' of grantors. Nobody dares to meddle with this issue, for fear of being added to the black list, and so risk receiving less than is usually received, but the reality is that having a 'friend in the right place' and being a 'member of the party' weights much more heavily than it should in the awarding of transfers." (http://blocs.mesvilaweb.cat/sbaulida)

Other informal evidence suggests that being aligned with a party controlling the higher layer might help a candidate to win more votes at the local elections, and that this might also be due to the higher amount of resources channelled to that municipality. Here is an example of how parties campaigned for votes at the last local elections held in Spain in 2011:

> "People should understand (when deciding their vote) that it is the PP (Partido Popular, the main right-wing party) who will be in control of the resources of the government of the Autonomous Community." (http://comarcalia.info/).

But can these examples be generalized or are they just a Spanish anomaly and anecdotes that emerge in the middle of a keenly contested electoral campaign? We argue that they are not merely anecdotal, and to demonstrate this, a more systematic analysis is undertaken drawing on a new database of regional transfers to local governments and of voting patterns at local elections for around 3,000 Spanish municipalities for the period 2000 to 2007. Likewise, we do not believe this issue to be limited to Spain, and so the results should be informative for other countries. For instance, Scheiner (2005) describes cases of both developing (e.g. India, Brazil and Mexico) and developed countries (e.g. Japan, Austria and Italy) in which transfers to local governments are politically manipulated in favour of co-partisans. However, only a few papers provide quantitative, empirical evidence of this effect. Using US data, Grossman (1994) finds that states aligned with the federal government do, in fact, receive more funds. Arulampalam et al. (2009) find that the effect of alignment in India is to increase transfers from central to state governments by up to 16%. Diaz-Cayeros et al. (2006), focusing on the Mexican case, find that under the PRI, state governments controlled by this party received up to 40% more transfers than those

controlled by the opposition. Solé-Ollé and Sorribas-Navarro (2008), and Brollo and Nannicini (2012), the only papers to examine grants to local governments, find an 'alignment effect' of between 30 and 40% for the cases of Brazil and Spain, respectively. A number of papers also examine the impact of alignment between layers of government on electoral outcomes[2]. There is evidence, for example, of the effects of the US presidential vote on state legislative elections (see, e.g. Campbell, 1986). Similar interactions are found for Argentina by Gélineau and Remmer (2006). In a comparative study of Argentina, Canada, Germany and the US, Rodden and Wibbels (2011) show that the interaction between federal and state or provincial elections becomes more apparent the more centralized the parties are. Bottom-up effects, from gubernatorial to national elections, are found by Samuels (2000) for Brazil.

The study of this chapter contributes to these two lines of literature in several ways. First, our focus on regional-local interactions provides greater plausibility to the main line of reasoning used in explaining the alignment effect, i.e. the difficulties in assigning political credit to the different government layers. Note, for instance, that the spending responsibilities of these two layers of government tend to overlap to a greater extent than those of federal and state governments. Indeed, quite often the provision of basic infrastructure (the specific target of the transfers studied) is a joint task, shared by state and local governments. Second, by focusing on local elections we are able to present evidence not only of existing discrimination in transfer allocation but also of the influence of higher layer incumbents on the results of elections at lower layers. It is worth noting that no previous attempts have been made in the literature to analyze 'incumbency spillover' effects between regional and local elections. Third, the use of data from several regions allows us to exploit institutional and political differences across these areas, which might shed some light on the particular

[2]Most of the papers dealing with 'incumbency spillover' effects examine interactions between different elections at the same level of government. There is evidence of US Presidential and Gubernatorial effects on the elections for the federal and state legislatures, respectively (e.g. Campbell and Summers, 1990; Folke and Snyder, 2012). Similar effects are found in Europe by Hainmueller and Kern (2008) and Ade and Freier (2011).

mechanism at work. In this sense, we are able to examine whether the effect of alignment on transfers and votes depends on the availability of budget resources in the region, the timing of regional and local elections, and the competitiveness of regional elections.

Fourth, we are aware that alignment status might well be correlated with party popularity and so a Regression Discontinuity Design (RDD) is used in the analyses of this chapter, thus focusing on candidates that barely won or lost a majority of seats at the local elections. Several recent papers in the 'incumbency advantage' literature use RDD as their main identification strategy (e.g., Lee, 2008; Lee et al., 2004; Hainmueller and Kern, 2008; Broockman, 2009; Folke, 2010; Folke and Snyder, 2012; Trounstine, 2011, and Ade and Freier, 2011). More closely in line with our concerns, Brollo and Nannicini (2012) use this procedure to study the effect of alignment on transfers in Brazil. However, the use of the traditional 'close elections' RDD, where the threshold is located at 50% of the vote, is problematic in our case, for two reasons. Firstly, local councils in Spain are elected using a proportional electoral rule, the d'Hondt rule, which generates many possible thresholds at which an additional vote can result in a party gaining one more seat, and none of these thresholds is necessarily located at 50% of the vote. To deal with this problem, the forcing variable used is the share of votes that the regional incumbent's bloc has to lose (win) in the local elections in order to lose (gain) the majority of seats on the local council. Secondly, in a large proportion of municipalities, no party has more than 50% of the seats, which means that in many cases the mayor is elected on the formation of a coalition of parties. In this chapter, it is documented that usually these coalitions are formed along ideological lines. This means that the discontinuity in the treatment probability is lower than one, and, as such, requires the use of a 'fuzzy' RDD (Van der Klauw, 2002; Lee and Lemieux, 2010). This method consists basically in instrumenting the alignment status with a dummy equal to one if, at the local elections, the ideological bloc of the incumbent grantor obtains more seats than those won by the opposition bloc. This also constitutes a contribution of this study to the RDD literature. Earlier papers have developed an RDD for proportional elections (see Folke, 2010, and Ade and Freier, 2011), and this is used as a benchmark for the present study.

Using the aforementioned 'fuzzy' RDD, we find a highly marked effect of partisan alignment between regional and local governments on the allocation of regional transfers to local governments. Local governments controlled by the same party as the regional government receive 83% more funds for earmarked capital transfers than is the case of similar unaligned municipalities. This effect is more than twice that estimated by OLS or 'difference-in-differences'. Moreover, mayors belonging to the same party as the regional president receive around 10% more votes at the local elections. These effects are stronger when regional and local elections are held on the same day. We also find that these effects are larger in regions with less competitive regional elections, and with more budget resources. This last finding suggests that the effect of alignment on votes works, at least partly, through the allocation of transfers.

The chapter is organized as follows. The next section reviews the theoretical arguments that explain why alignment between incumbents at different layers of government might have an effect on the allocation of transfers. Section three provides the background information on Spain (i.e. local governments, transfers, and local politics) needed to set the stage for the subsequent analysis. Section four describes the econometrics and the data. Section five presents the results. The last section concludes.

2. Theoretical discussion

In this section, we review the main theories that predict an alignment effect (i.e., that municipalities controlled by the same party as that to which the regional president belongs will receive larger transfers from this layer of government). We briefly summarize the main theories of targeted public spending, then discuss how predictions may vary in the case of inter-governmental transfers (as opposed to the incumbent's direct spending), and consider whether the outcomes in local vs. regional elections matter to the higher layer incumbent, and whether the timing of the two elections is also important.

Swing voters, core voters, and *pivotal districts.* Extant models of distributive politics offer several explanations as to the ways in which

public spending policies might target different groups of voters. First, higher layer incumbents might seek to enhance their probabilities of being re-elected by allocating more resources to constituencies with many *swing voters* (Lindbeck and Weibull, 1987; Dixit and Londregan, 1996), on the understanding that their low party allegiance might make it easier to buy their votes. Secondly, politicians may choose to allocate transfers to places in which their parties' *core voters* concentrate. There are several rationales that might account for this behavior. Risk-averse incumbents, for example, might prefer the lower degree of vote variability among core voters to the only potentially higher average vote return in swing districts (Cox and McCubbins, 1986). Additionally, the vote returns of a core-voter strategy might be higher if incumbents have a better understanding of the specific needs of their core supporters (Cox, 2009) or if transfers to these places are effective in boosting turnout (Ansolabehere and Snyder, 2006)[3]. Thirdly, when there are many electoral districts and the purpose is to secure a majority of seats, the strategy might be to allocate more resources to *pivotal districts*, i.e., those in which the incumbent won/lost by a narrow margin (Snyder, 1989; Case, 2001)[4].

Transfers and alignment. However, none of the above approaches is able to capture one of the fundamental traits of intergovernmental transfers. Contrary to other targeted spending programs, which are implemented directly by the incumbent, intergovernmental transfers are decided by the higher-layer grantor government but executed by the sub-national recipient government. This is especially true in the case of earmarked capital transfers, which are the focus of this study. In this case, the grantor selects the projects based on its own priorities and partly funds them, but it is the local government that must propose specific projects for funding and who has to contribute local funds to them and take responsibility for their

[3]To date the empirical evidence is not conclusive as to which of these two hypotheses is most pertinent, some papers supporting the *swing voter* hypothesis (Case, 2001; Johansson, 2003; Dhalberg and Johansson, 2002) and others the *core-voter* one (Ansolabehere and Snyder, 2006).

[4] The empirical counterparts of the *pivotal district* and of the *swing voter* hypotheses are similar, since the proportion of swing voters is often proxied by the incumbent's vote margin (Johansson, 2003; Case, 2001).

execution. This overlapping of responsibilities means that the grantor cannot expect to reap all the political benefits from the tactical allocation of these transfers, since some share in the benefits must seep back to the local government. This should not represent an impediment for the higher layer grantor if the local government is controlled by the same party as the upper layer grantor (i.e., both layers are *aligned*). However, if the local government is controlled by the opposition, such transfers might not be that effective in improving the electoral prospects of the higher-layer incumbent.

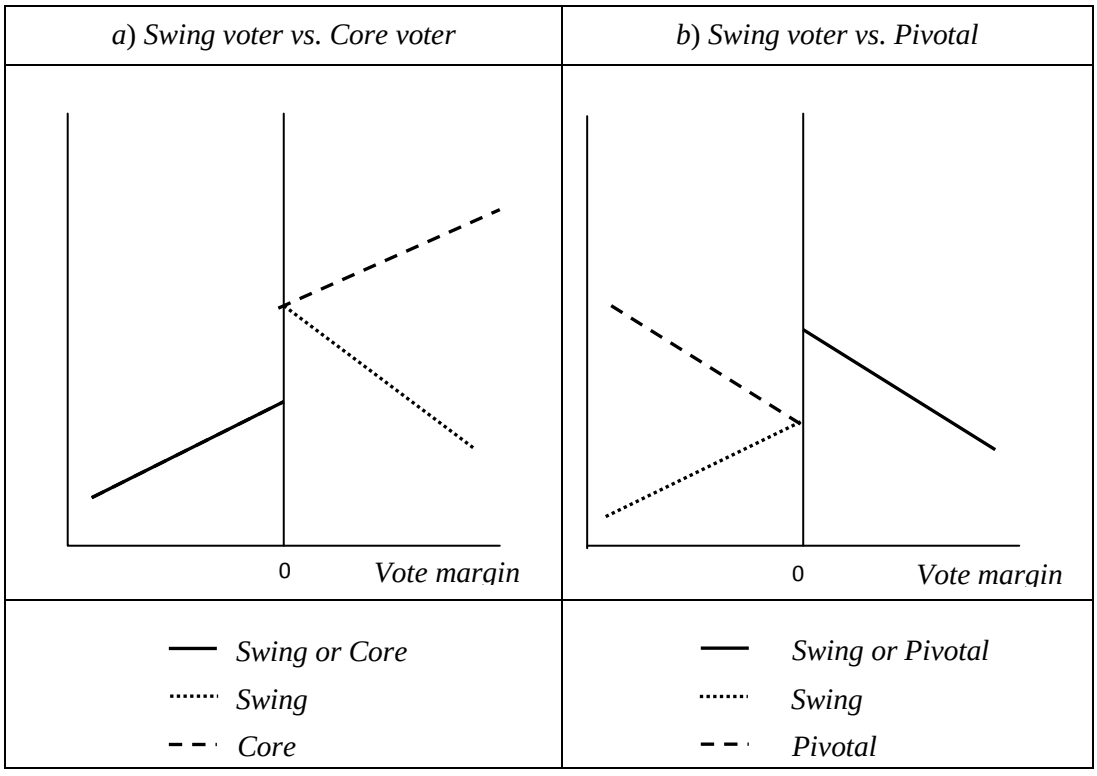
At least two different explanations might be invoked to explain this seepage of electoral benefits across layers of government. Firstly, voters might split the political credit derived from the provision of the infrastructure between layers of government (Arulampalam et al., 2009). When credit is attributed to the grantor government, the party in control at this layer can reap all the electoral benefits. If credit is divided equally between all layers, no party can obtain an advantage from the additional transfers allocated to a municipality. When the strategy of the incumbent is to target swing voters, the division of political credit between layers means that a larger proportion of transfers will be allocated to aligned governments with larger numbers of swing voters (Arulampalam et al., 2009; Solé-Ollé and Sorribas-Navarro, 2008). The bold and dotted lines in Panels (a) and (b) in Figure 1 plot a hypothetical (and over-simplified) linear relationship between the electoral vote margin of the higher-layer incumbent and the transfers allocated to the municipalities under this hypothesis. The graph implicitly assumes that there are more swing voters in municipalities with a narrow margin of victory[5]. If the municipality is aligned with the higher layer incumbent (a situation that occurs when the vote margin of the regional incumbent is positive) and voters split credit between the two layers, the amount of transfers received will be higher, as indicated by the jump or discontinuity in the relationship between transfers and vote margin. This jump vanishes

[5] As discussed by Johansson (2003), this will be true if the distribution of ideological preferences in support of the incumbent (and, hence, against the opposition) is symmetric and single-peaked. Dahlberg and Johansson (2002) present results that suggest that the departure from these assumptions is not dramatic in practice.

when voters are able to assign all the credit to the higher layer of government.

Secondly, it is conceivable that partisan alignment between layers of government might also confer some benefit on the higher layer incumbent enabling him to reach his core supporters. The mayor might be particularly adept at identifying who the party's core supporters are at the local level and what their specific needs are. Thus, controlling the mayoralty would ensure that the initial goals of the projects funded by the higher layer of government do not become distorted. Such a scenario suggests that the alignment effect might also interact with the core voter strategy. The bold and dashed lines in Panel (a) of Figure 1 show the shape of a hypothetical relationship between the incumbent's vote margin and transfers under this hypothesis. In this case, we assume that transfers grow with votes at both sides of the zero-margin threshold. As in the swing-voter case, alignment makes the amount of transfers jump at the threshold. Of course, the alignment effect vanishes if the grantor is able to monitor the use of transfers fully without the help of the mayor.

Figure 1: Transfers vs. vote margin in Swing voter, Core voter & Pivotal municipalities



Regional vs local elections. These two justifications of the interaction between the alignment status and the incumbent's vote margin at the higher layer rely implicitly on the assumption that incumbents aim to maximize their probability of being re-elected at the next higher-level elections. Arulampalam et al. (2009) explicitly acknowledge this fact. The only paper that suggests that the incumbent's strategy might, in fact, be focused on winning local elections is Brollo and Nannicini's (2012). This paper argues that in Brazil the best strategy for the federal president prior to the local elections is to try winning as many mayoralties as he can, since mayors are influential opinion leaders in their communities and by engaging in campaigning and rent-seeking activities on the president's behalf can help win more votes for the president at the higher layer elections.

In line with this hypothesis, to use the resources at his disposal efficiently, the higher layer incumbent should focus his attention on aligned *pivotal municipalities*, i.e., those in which the mayoralties were won by the narrowest margins. This strategy would target more funds for these municipalities (compared to aligned municipalities won by a larger margin) and punish unaligned pivotal municipalities, which would receive less money than aligned ones with a similar vote margin as well as less money than unaligned municipalities that the higher layer incumbent lost by a greater margin. The dashed and bold lines in Panel (b) of Figure 1 illustrate this idea. Brollo and Nannicini (2012) find mixed evidence in favor of this tactic, which they refer to as 'tying your enemy's hands in close races'.

Concurrent vs. alternating elections. Brollo and Nannicini (2012) focus on the case of Brazil, where local elections are held in the middle of the federal term-of-office. As we explain below, in Spain regional and local elections are concurrent in some regions and alternating in others. This distinction allows us to compare the strength of the alignment effect in both cases. The simultaneous occurrence of the elections may either reduce or increase the alignment effect. On the one hand, it might shift the attention of voters towards the issues that are most relevant at the regional level, thus limiting the tactical use of transfers to localities. Likewise, if the alignment effect only occurs when the strategy focuses on capturing mayoralties, then the urgency of winning the next regional election (typical of concurrent

elections) might attenuate the alignment effect. Before regional elections, the regional incumbent might choose to focus on his core voters and if he is able to monitor the use of resources without the help of mayors, this will generate a core-voter type profile but without any discrimination in favor of the aligned mayors. On the other hand, the simultaneous holding of regional and local elections may increase the salience of local issues during the campaign for the regional elections. For example, in concurrent elections, regional candidates may well be obliged to speak about local infrastructure during campaign visits to municipalities. Similarly, even if transfers do not matter directly for regional elections, they might matter indirectly through their effect on the local elections, and the simultaneous occurrence of both elections could thus generate a 'bandwagon effect', with the impact on the vote of the local incumbent being transferred to some extent to the vote of the aligned regional incumbent. Finally, note that even in concurrent elections, the strategy of capturing mayoralties might make sense if the regional elections are not competitive. Intuitively, if the regional incumbent feels safe, there would be less need to try to increase the total number of votes. Instead, it might be worthwhile pursuing a longer-term strategy, i.e., winning additional mayoralties. This would allow more perks to be distributed to party supporters and might prove helpful at future regional elections.

3. Background information on Spain

3.1. Spanish municipalities

Spanish government comprises three layers: central, regional, and local tiers. There are seventeen regional governments, the so-called Autonomous Communities (ACs), which have fairly wide-ranging spending responsibilities including, for example, the provision of health care, education and welfare. Spain's local layer consists of over eight thousand municipalities, most of which are relatively small. These municipalities are multipurpose governments, with major expenditure categories corresponding to the traditional responsibilities assigned to the local public sector (environmental services, urban planning, public transport, welfare, etc.), with the exception of education, which is the responsibility of the regional government. Current spending is financed out of the

municipalities' own revenues (approximately two thirds) and unconditional grants (approximately a third). The latter are allocated according to a formula, which hinders the use for pork-barrel politics. However, the funding of capital spending is heavily dependent on grants: in 2008, capital grants, on average, represented 38% of capital spending. Most Spanish municipalities do not have the capacity to fund necessary investments from other sources: their tax bases are quite limited, extraordinary resources from asset sales are not always available, and some municipalities may even have problems to access credit.

Capital grants are transferred primarily from the regional layer (64%) and take the form of 'project grants'[6]: there is an open call at regular intervals (usually yearly) and a municipality can apply by submitting its infrastructure projects (e.g., street and road paving, sewage systems and water pipes, parks and recreations, educational and sports facilities, etc.). These are evaluated according to previously established criteria (typically published in the call), which are subject to the interpretation of the grantor. Provisions are usually made for funding emergency situations or projects considered a priority concern by the regional government. The call often does not specify clearly the weight attached to each of the criteria or it fails to specify the link between the score assigned to each criterion and an objective variable, leaving this very much at the discretion of the grantor.

3.2. Local politics in Spain

Local elections are held every four years on the same day throughout all the Spanish municipalities. Voters choose between several closed party lists. The electoral system is a proportional one, votes being allocated to seats using the d'Hondt rule with a threshold. The mayor is subsequently elected by a majority of the council (see Colomer, 1995). The council operates as a small representative democracy, and has to reach a majority vote to pass the initiatives and regulations proposed by the mayor, who acts as the agenda-setter. The discipline enforced by Spain's political parties means that the chances of amending the mayor's proposals are quite low when the mayor's

[6] A 19% comes from upper-local governments and the rest from the central government or the European Union.

party or coalition controls a majority of the seats. The proportion of coalition governments is high (around 30% during the terms we analyze), and most are formed along ideological lines. There are, however, exceptions to this rule due, for example, to the fact that the platforms of many local parties are based solely on local issues and so they are under less compulsion to reach an agreement on ideological grounds or because of pressure from higher party ranks. Nevertheless, the influence of the party on the behaviour of local politicians is substantial, the local political system being seen as a first step to subsequent promotion at the regional and national levels.

Elections to the regional parliament are also held every four years and on the same day than the local elections in thirteen out of the seventeen regions. We refer to these polls as *Concurrent* elections. In the remaining four regions (i.e., Galicia, Catalonia, Basque Country, and Andalusia), regional elections are held in the middle of the local governments' term of office. We refer to these polls as *Alternating* elections. Voters also choose between several party lists, and the electoral system is also based on the d'Hondt rule with a threshold. Representatives elect the regional president who, in turn, decides the composition of the Cabinet. Here, also, around a third of the administrations are coalition or minority governments.

4. Empirical design

4.1. The 'fuzzy' RDD

Papers using observational approaches to estimate the effect of party ideology on votes and policy outcomes may suffer from an omitted variables problem: party control can be correlated with the incumbent's popularity and this, in turn, might have an impact on the outcome variable. To deal with this problem some papers have recently adopted the 'close-race' Regression Discontinuity Design (RDD) framework (see Lee, 2008; Lee et al., 2004; Pettersson-Lidbom, 2008; Ferreira and Gyourko, 2009; Albouy, 2010, Folke, 2010, Trounstine, 2011, and Gerber and Hopkins, 2011). The reasoning behind this method is that elections won by a narrow margin are in practice very similar events to elections lost by a similar narrow margin. Thus, by focusing on close races, the RDD generates quasi-

experimental estimates of the effects of interest (see Hahn et al., 2001). In a recent survey, Green et al. (2009) show that RDDs are comparable in accuracy to experimental studies.

As mentioned, Brollo and Nannicini (2012) use this approach to estimate the effect of partisan alignment on the allocation of federal transfers to local governments in Brazil. In this case, the treatment variable is defined as a dummy indicating whether the party of the federal President (or the coalition that supports him) won the local election. The authors restrict the analysis to two- and three-candidate races so as to avoid problems generated by the fact that Brazil is a highly fragmented, multi-party system without any stable party coalitions. In any case, the plurality rule used in Brazilian elections allows the authors to apply the traditional 'close-elections' RDD. This is not an option in our case, since local councils are elected in Spain using a proportional electoral rule. This rule generates many thresholds at which an additional vote brings one more seat to a party, and these are not necessarily located at the 50% vote threshold. To deal with this problem, we proceed in two steps. First, we compute our forcing variable as the share of votes that the ideological bloc (i.e., left or right) of the regional incumbent has to lose (win) to lose (gain) the majority of seats in the local council (and, thus, change its alignment status), henceforth referred to as the vote margin. The calculation of this vote margin is not trivial and has required the development of a specific procedure based on the d'Hondt rule. We provide more details on this method in section 4.4 and in Annex A.

Second, we show that if the ideological bloc of the regional incumbent has a majority of seats in the local council it is more probable (although not certain) that this bloc also holds the mayoralty, which means that the two layers of government are aligned. This reflects the fact, discussed above, that, more often than not, coalitions are formed along ideological lines. This means a 'fuzzy' RDD has to be used (Van der Klauw, 2002; Lee and Lemieux, 2010), since this allows the treatment (i.e., alignment) to be determined only partly by whether the assignment variable (i.e. the vote margin) crosses a cut-off point (from negative to positive). While in the 'sharp' RDD the probability of treatment jumps from 0 to 1 when the assignment variable crosses a threshold, the 'fuzzy' RDD involves a smaller

jump in this probability. Since the probability of treatment jumps by less than one at the threshold, the discontinuity in the outcome variable (that is, votes or transfers) at this point can no longer be interpreted as an average treatment effect. However, the treatment effect can be recovered either by dividing the jump in the outcome variable by the jump in the probability of treatment or by estimating the effect of alignment on the outcome by 2SLS, using the threshold dummy as an instrument for alignment.

4.2. Equation specification

In our case, we use the following three-equation model:

$$t_i = \alpha\ a_i + g(m_i) + \varepsilon_i \quad (1)$$

$$v_i = \beta\ a_i + f(m_i) + u_i \quad (2)$$

$$a_i = \gamma\ d_i + h(m_i) + \upsilon_i \quad (3)$$

where t_i=per capita transfers received by the local government before the local election; a_i=1 if there is alignment between the regional and the local government and zero otherwise; m_i= regional incumbent's vote margin at the previous local elections; v_i= vote share of the local incumbent at the local elections; d_i=1 if the regional incumbent's vote margin is positive (i.e. d_i=1 if m_i>0); the terms $f(m_i)$, $g(m_i)$ and $h(m_i)$, include polynomial terms of orders one or higher, fitted separately at either side of the threshold (see Lee et al., 2004; Lee, 2008, and Lee and Lemieux, 2010). The first equation is used to estimate the effect of alignment on transfers. The second estimates the effect of partisan alignment on the local incumbent's vote. The third describes the discontinuity in alignment that we then use to identify the effects of interest. Substituting (3) into (1) and (2) we obtain the reduced form equations:

$$t_i = \varphi_1\ d_i + k(m_i) + \omega_i \quad (4)$$

$$v_i = \phi_1\ d_i + j(m_i) + \nu_i \quad (5)$$

where $\varphi=\alpha\gamma$ and $\phi=\beta\gamma$ are the 'intent-to-treat' estimates, which are equal to the product of the effects of alignment on votes and on the discontinuity. The estimation of equations (3), (4) and (5) allows us to recover the effect of alignment on votes and transfers as $\hat{\alpha} = \hat{\varphi} / \hat{\gamma}$ and $\hat{\beta} = \hat{\phi} / \hat{\gamma}$. We could

also estimate (1) and (2) by 2SLS, using d_i as an instrument for a_i. Both procedures should deliver the same estimate as long as the order of the polynomials $h(m_i)$ and $j(m_i)$ or $k(m_i)$ is the same. The estimates obtained can be interpreted as a weighted Local Average Treatment Effect (LATE), where the weights reflect the ex-ante likelihood of being near the threshold (see Lee and Lemieux, 2010). The specification in (2) and (3) can easily be modified to analyze possible heterogeneous effects. Being z a dummy variable defining two non-overlapping groups of municipalities, we have:

$$t_i = \eta_1 d_i + \eta_2 d_i \times z_i + \eta_3 z_i + k(m_i) + p(m_i \times z_i) + \varsigma_i \quad (6)$$

$$v_i = \lambda_1 d_i + \lambda_2 d_i \times z_i + \lambda_3 \times z_i + j(m_i) + l(m_i \times z_i) + \varpi_i \quad (7)$$

To deal with the possible correlation of this dummy with other traits that differ across subsamples we introduce the interactions between alignment and several of the variables that can affect differ across municipalities and the discontinuity dummy and the polynomial at the same time. Thus, the interpretation of the differential effect of alignment across subsamples relies on an identification strategy based on controlling for observables. Furthermore, in order to shed further light on the possible mechanisms behind the alignment effect we can examine the shape of the polynomial at either side of the threshold, comparing these results with the predictions derived from the different theories surveyed in section two. We are, however, also well aware that the shape of the polynomial has no causal interpretation in an RDD. To attenuate this problem, we discuss the shape of the polynomial only after the inclusion of a set of controls. The graphs used for this purpose plot the residual of the dependent variable (either transfers or vote share) against the forcing variable. This means that in this case too our identification strategy relies on our controlling for observables and that the conclusions reached are not as reliable as those derived from the main RDD estimates.

4.3. Econometrics

In implementing the RDD we have taken various methodological decisions. First, as shown above, our main estimation method uses all the observations while controlling for a flexible polynomial. Following Lee and Lemieux (2010), we explicitly test for the optimal order of the polynomial with the Akaike information criteria. This procedure allows us to retain the entire sample when estimating the heterogeneous effects. A possible drawback of this method is that our results might be sensitive to outcome values for observations far away from the threshold (see Imbens and Lemieux, 2008). To cope with this problem we also provide additional results obtained by restricting the bandwidths to 25% and 12.5%. The reason for this choice is that the optimal bandwidth size (Imbens and Kalyanaraman, 2009), is very close to 25% both for transfers (26.3%) and for votes (23.8%). Thus, in line with Lee and Lemieux (2010), we present our results with optimal and half optimal bandwidths.

Second, in order to show the need for using a 'fuzzy' RDD, we verify the discontinuity in the treatment probability. To verify that there is a substantial discontinuity is tantamount to having a strong first-stage relationship in an IV design. Third, we also check the continuity of the forcing variable around the threshold by inspecting the histogram and using a more formal test (see McCrary, 2008). The continuity test provides a means for discarding the manipulation of the forcing variable, an issue raised in various papers (see, e.g., Caughey and Sekon, 2011). For this same purpose, we also test for the continuity of some pre-determined covariates. Finally, we also provide some results using a set of control variables (see next section), in order to provide an additional validation check for our estimates (coefficients should not change greatly) and to improve the precision of our estimates. Furthermore, the use of covariates helps in the interpretation of the shape of the polynomials, since, as already mentioned, they have no causal interpretation in an RDD analysis.

4.4. Sample and data

Sample. We estimate the effects of partisan alignment between local and regional governments on transfers from the regional to the local level and on the votes cast for the local incumbent using data on Spanish

municipalities. We use two cross-sections of data, for the terms 2000-03 and 2004-07, with around 3,000 municipalities in each. The sample is determined by data on transfers taken from a survey on budget outlays conducted yearly by the Spanish Ministry of Economics. This database includes all the municipalities with more than 5,000 residents and a representative sample of the smaller ones[7].

Transfers. The main results we report are for the estimation of the alignment effects on capital transfers allocated to local governments in the two years preceding the next local election. As explained in section two, given the characteristics of these transfers, we expect them to matter more in the period running up to local elections. This distinction, however, is irrelevant for twelve out of the fifteen regions (i.e., those with *Concurrent* elections), as regional and local elections are held on the same day. It is true, however, than even if local elections matter most, the effect of alignment might differ in those regions with *Alternating* regional and local elections (see section two for a discussion) and this is why we also present our results for each of the samples. Although not included here for the sake of brevity, we will also discuss the results obtained when analyzing the effects of alignment on transfers two years before the regional elections (in the case of *Alternating elections*) and during the first half of the term (in the case of *Concurrent elections*).

In any of these cases, the two-year aggregation helps reducing the volatility of the variable and the use of yearly information will not provide any statistical advantage, since the alignment status does not change between years within these two year periods. As we explained above, we focus on capital grants originating from the regional government because of a presumably higher discretionality in their allocation. However, to confirm this intuition we also present results for the effect of alignment on current grants and on grants originating from other layers of government (Central and Upper-Local).

[7] Due to problems in accessing the data, the analysis is restricted to fifteen regions, excluding the Basque Country and Navarre. These are quite small regions and their exclusion should not represent a big problem.

Votes. The second outcome variable we analyze is the mayor's vote share in the 2003 and 2007 local elections. Our results using the coalition's vote share and the probability of mayoral re-election are similar and not reported here for the sake of brevity. Votes by party at the local elections of 1999 and 2003 are used to construct the forcing variable and the discontinuity instrument. See Table A.1 in Annex A for the source of the vote results.

Alignment. As explained above, alignment is measured as a dummy equal to one when the mayor and the regional president belong to the same party, regardless of whether the government at both layers is a single party or a coalition[8]. See Table A.1 for the sources of these variables. As robustness checks, we have also analyzed whether the results are affected by the use of more comprehensive alignment definitions: situations where one party, even if it is not the main one, is present at both layers, and situations where the mayor and the regional president simply belong to the same ideological bloc and not only to the same party.

Forcing variable. As explained above, our main forcing variable is the *Regional incumbent's bloc vote margin*, computed as the votes needed for the ideological bloc of the regional incumbent to gain/lose the majority of seats in the local council, expressed as a percentage of total votes cast at the local elections. To define ideological blocs we classify all the parties standing at the local elections in three groups: *left*, *right* and *local parties* (see Table A.1 for more details). When the regional party is a left/right political party, all the categories except left/right are included in the regional opposition's bloc. As a robustness check, we also provide results after excluding those municipalities with representation of *local parties* from the analysis. The results obtained do not depend on the specific treatment of these parties.

To compute the votes needed to bring about a change in the majority of seats from one bloc to another, we use a very similar method to that developed by Folke (2010). He provides an algebraic formulation for this

[8] The concrete definition of alignment used determines the size of the sample, since we exclude the observations not included on the treatment or the control group.

distance under the Saint-League system, the one in operation in Sweden (his country of study). With this formulation he is able to compute the number of votes that each party needs to win (or lose) an additional seat. We develop a similar algebraic formulation for the d'Hondt system used in Spanish local elections. What we compute is the number of votes that the ideological bloc to which the regional president belongs must lose (gain) to lose (win) a majority of seats at the local elections. In order to do this, we make a number of assumptions regarding vote migration. We consider that the marginal votes lost (won): i) go (come) to (from) abstention, or ii) to (from) abstention and partly to (from) the other ideological bloc. We also assume that these votes are distributed among the parties of the bloc in line with their initial vote share in the bloc. The main results of the study use the vote margin computed under assumption i)[9]. Intuitively, in this case, our formulation works as if we were subtracting small numbers of votes from the mayor's bloc, distributing them among the parties according to their vote share within the bloc, while keeping the number of votes for the parties of the other bloc constant. As we subtract votes, seats shift from one bloc to the other. The procedure stops when we observe a shift in the seat majority from one bloc to the other. The number of votes needed to reach this point divided by the total number of votes initially cast at the election is our measure of vote margin. See Box A.1 in Annex A for the algebraic formulation used to compute the vote margin[10].

Control variables. In order to provide a further check on the reliability of the RDD results and to improve the efficiency of our estimates, we also present results when controlling for several covariates. In the case of the transfer equation, we control for log(population), land area per capita, property tax rate, assessed value of the property, debt burden, and Regional dummies × term effects (see also Solé-Ollé and Sorribas-Navarro, 2008). In the vote share equation, we control for party of the mayor × term effects, Regional dummies × term effects, incumbent's historical vote share,

[9] As a robustness check we have also examined whether the computation of the vote margin under assumption (ii) does change the results.

[10] In Annex B we also provide a numerical example which illustrates how this method works in practice.

historical turnout at local elections, local coalition dummy, local first-term dummy, and population size dummies.

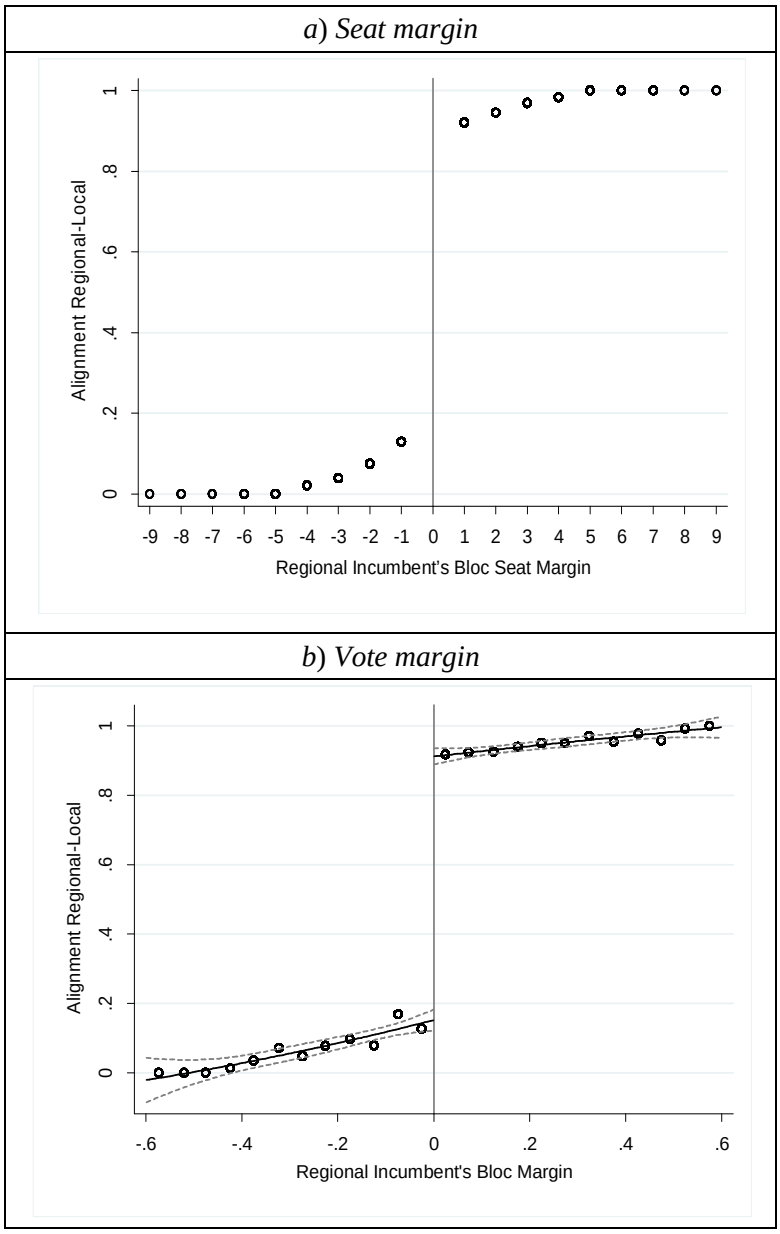
5. Results

5.1. Exploring the discontinuity

Figure 2 plots the seat margin of the regional incumbent's bloc at the local elections against its alignment status which is given a value of one if the mayor and the regional president belong to the same party. The graph shows a considerable jump when the ideological bloc of the regional incumbent moves from -1 seat to +1 seat (i.e., when it requires one additional seat to gain/lose a majority of seats).

Although it might seem appropriate to perform the analysis by comparing the average value of transfers or votes for the municipalities located at the -1 and +1 values of the seats margin, this would not be correct, since this is quite a large group with considerable internal variability in the popularity of the regional incumbent. For this reason, we use the vote margin as the forcing variable, computed as the percentage of votes needed for the regional incumbent's bloc to win/lose a majority of seats in the city council. Panel b in Figure 2 shows the plot between this forcing variable and the alignment status. The dots represent averages of the alignment dummy over 5% bins. The size of the bin has been selected using the 'bin test' proposed by Lee and Lemieux (2010). The black line is the flexible polynomial fitted separately on both sides of the threshold. From the figure it is evident that there is a sizeable jump in the probability of alignment when moving from -1 to +1 seats.

Figure 2: Alignment vs margin



Notes: (1) 2000-03 and 2004-07 terms. (2) Alignment Regional-Local = 1 if the mayor and the regional president belong to the same party. (3) *Regional incumbent's bloc seat margin* = distance in seats to a change in ideological bloc's seat majority; seats as obtained at the 1999 and 2003 local elections. (4) *Regional incumbent's bloc vote margin* = distance in percentage of votes to a change in ideological bloc's seat majority; vote shares as obtained at the 1999 and 2003 local elections (see Box A.1 in Annex A). (5) Dots = Bin averages; Bin size = 0.05 (40 bins); optimal bin size selected using a standard F-test for nested models (Lee and Lemieux, 2010). (6) Black line = 2nd order polynomial, fitted separately on either side of the zero threshold, using the full bandwidth. (7) Dashed lines = 95% confidence interval. (8) See Table A.1 in Annex A for variable definitions and data sources.

Table 1 shows the results obtained when estimating the discontinuity with different bandwidths: 100% with polynomials of orders 1 to 3, and 25% and 12.5% with a *local linear regression*. In the full sample case, the Akaike information criterion suggests that it is optimal to fit a 2nd order polynomial. In this case, the estimated value of the discontinuity is 85%. The results do not change much when other polynomial orders are used or when the bandwidth is restricted.

Table 1: Discontinuity in the probability of alignment

	(i)	(ii)	(iii)	(iv)	(v)
d	0.879 (89.13)***	0.853 (55.02)***	0.848 (39.90)***	0.897 (102.78)***	0.865 (59.64)***
R^2	0.860	0.860	0.860	0.805	0.771
AIC	-2368.86	-2380.02	-2376.29	--.--	
Bandwidth	100%	100%	100%	25%	12.5%
Polynomial order	1	2	3	1	1
Obs.	4344	4344	4344	2243	1150

Notes: (1) 2000-03 and 2004-07 terms. (2) Dependent variable is Alignment, *a* = 1 if mayor and the regional president belong to the same party. (3) Explanatory variables: discontinuity dummy d and polynomial on the *Regional incumbent's bloc vote margin*; polynomial fitted separately on either side of the zero threshold; *d* is one if vote margin is positive and zero if vote margin is negative. (4) Bandwidth = 100% indicates that all the observations have been used in the estimation; 25% of vote indicates a bandwidth of -25% to 25%, 25% being (approximately) the optimal bandwidth of both the transfers and incumbent's vote share used in Tables 2 and 3 (see below). (5) *t*-statistic in parentheses, robust standard errors used; ***, ** & * = statistically significant at the 99%, 95% and 90% levels. (6) AIC = Akaike information criterion.

A possible concern with the RDD is the possibility that the forcing variable might be manipulated. This could occur, for example, if the electoral results have been manipulated or, in the case of multi-party governments, if the vote of the last representative needed to form a winning coalition has been bought. We deal with this last problem by using local votes for the ideological bloc of the regional incumbent as opposed to votes obtained by the actual coalition that supports the mayor. A way of verifying that the forcing variable has not been manipulated is to examine its histogram or, more formally, to test for the continuity of this variable at the cut-off by running local linear regressions of the log of the density separately on both sides of zero (see McCrary, 2008). We have performed both checks, and we have not found any evidence of manipulation. Another validity check consists on testing for the presence of a discontinuity in the pre-determined

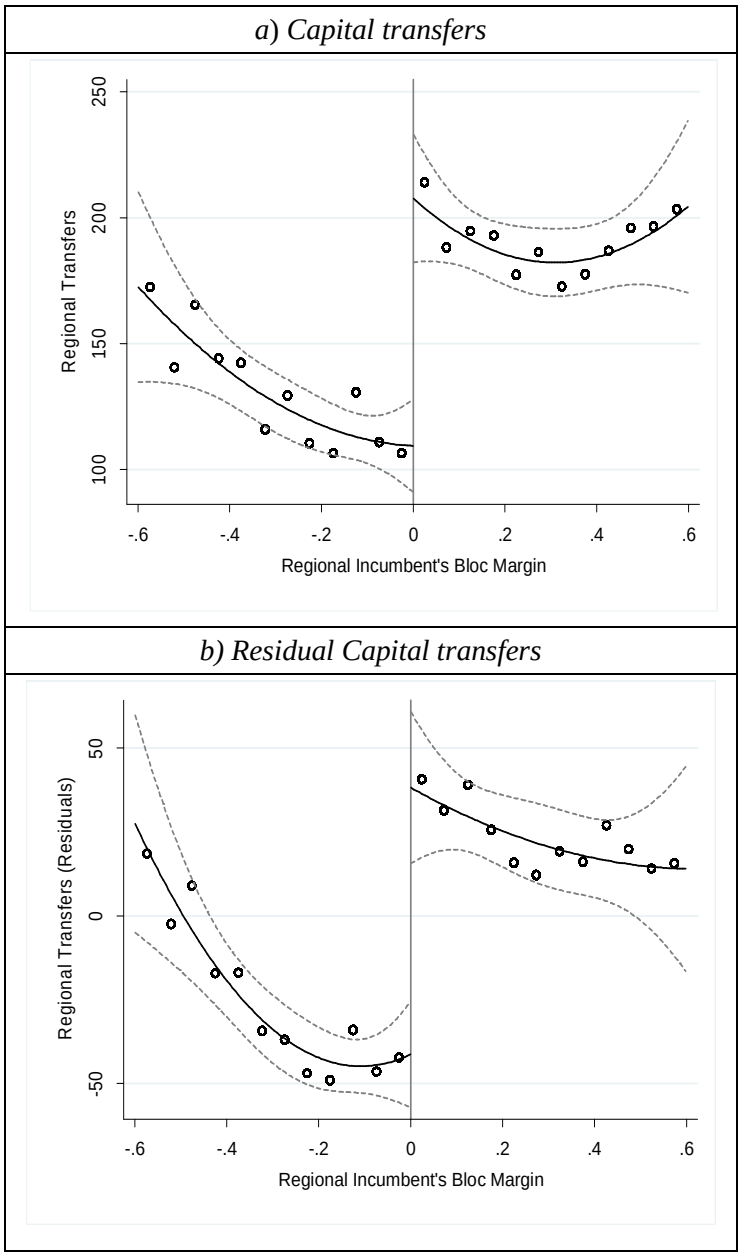
covariates. The results of this exercise also suggest that none of these variables is discontinuous around the threshold[11].

5.2. Partisan alignment and transfers

Figure 3 below shows the plots between the forcing variable and both the amount of capital transfers and of residual transfers (i.e., the residual of a regression between transfers and control variables). The graphs suggest that there is a clear discontinuity: municipalities marginally on the right of the cut-off (those which are very likely to be aligned) do receive much greater sums in transfers than those marginally on the left (those which are very likely to be unaligned). The result is a little bit clearer when using residual transfers. This shape suggests that the strategy used by regional governments revolves around trying to influence close local races in places where the mayor is a co-partisan.

[11] All these results are reported in Annex B, Table B.1, Figure B.1 & Figure B.2.

Figure 3: Capital transfers vs vote margin



Notes: (1) Regional transfers = Capital transfers from the Regional to the Local government during the last two years of the 2000-03 and 2004-07 municipal terms. (2) Black line = 2nd order polynomial, fitted separately on either side of the zero threshold, using the full bandwidth. (3) Black line = 2nd order polynomial, fitted separately on either side of the zero threshold, using the full bandwidth (4) See Figure 2.

Tables 2a and 2b below present the RDD estimates. Panel (a) shows the *Reduced form* estimates while Panel (b) reports the 2SLS results. Columns (i) to (iii) show the results with the full sample and with polynomials of orders 1 to 3. The polynomial of order 2 is the optimal one (according to the AIC criterion). Column (iv) repeats the results using the optimal polynomial but introducing the control variables in the equation. Columns (i) to (iv) in Table 2b present the results with the 25% and 12.5% bandwidths, using a *local linear regression* and without (i and ii) and with control variables (iii and iv). The estimates are quite robust to the choice of bandwidth and polynomial order and to the introduction of covariates. The *reduced form* coefficients are around 80 euro and those of the 2SLS are around 92 euro. This amount has to be compared with the transfers received by unaligned municipalities just at the left of the cut-off, which are around 107 euro. With these numbers, an aligned municipality would receive 83% more per capita transfers than a similar unaligned one.

Table 2a: Effect of alignment on capital transfers. RD results

	(i)	(ii)	(iii)	(iv)
	a) Reduced form			
d	63.86	78.55	79.84	80.56
	(6.12)***	(5.07)***	(4.05)***	(5.95)***
R^2	0.081	0.082	0.082	0.282
AIC	58434.10	58429.23	58433.09	--.--
	b) 2SLS			
a	75.65	89.36	92.97	91.65
	(5.31)***	(5.08)***	(4.54)***	(4.97)***
Bandwidth	100%	100%	100%	100%
Pol. order	1	2	3	2
Controls	NO	NO	NO	YES
Obs.	4344	4344	4344	4344

Notes: (1) See Table 1. (2) *Reduced form* = OLS regression of capital transfers against *d*, which is one if vote margin is positive and zero if vote margin is negative, controlling for a two-sided polynomial of the vote margin; 2SLS = 2SLS estimation of capital transfers against the alignment dummy, *a*, using *d* as the instrument, and controlling for the same polynomials. (3) Control variables included: log(population), land area per capita, property tax rate, assessed value of the property, debt level and Regional × term effects . See Table A.1 in Annex A for definitions and data sources. (4) Optimal polynomial order used in column (iv).

Table 2b: Effect of alignment on capital transfers. RD results

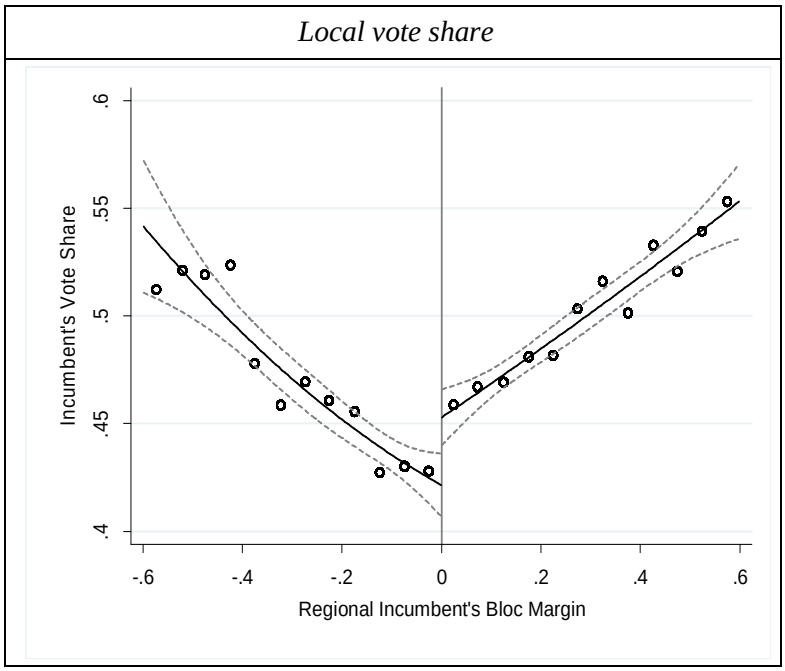
	(i)	(ii)	(iii)	(iv)
	a) Reduced form			
d	75.11 (4.39)***	78.15 (4.86)***	75.58 (5.68)***	80.00 (6.02)***
R^2	0.073	0.229	0.104	0.234
AIC	--.--	--.--	--.--	--.--
	b) 2SLS			
a	83.73 (4.88)***	87.12 (4.97)***	87.37 (5.13)***	90.39 (5.76)***
Bandwidth	25%	25%	12.5%	12.5%
Pol. order	1	1	1	1
Controls	NO	YES	NO	YES
Obs.	2243	2243	1150	1150

Notes: (1) See Table 1. (2) *Reduced form* = OLS regression of capital transfers against *d*, which is one if vote margin is positive and zero if vote margin is negative, controlling for a two-sided polynomial of the vote margin; 2SLS = 2SLS estimation of capital transfers against the alignment dummy, *a*, using *d* as the instrument, and controlling for the same polynomials. (3) Control variables included: log(population), land area per capita, property tax rate, assessed value of the property, debt level and Regional × term effects . See Table A.1 in Annex A for definitions and data sources. (4) Local linear regression with optimal bandwidth used in columns (i) and (ii); ½ of optimal bandwidth used in columns (iii) and (iv).

5.3. Partisan alignment and votes

Figure 4 shows the plot between the forcing variable and the mayor's share of the vote. The graph suggests that there is a discontinuity in the vote share: local incumbents marginally to the right of the cut-off do receive more votes than those marginally to the left. The shape of the plot is as expected: to the right of the cut-off the local incumbent's vote share is positively correlated with that of the regional incumbent's ideological vote share; to the left of the cut-off, both variables are negatively correlated.

Figure 4: Local vote share vs vote margin



Notes: (1) Local vote share = % vote share of the local incumbent party at the 2003 and 2007 elections. 3) Black line = 2nd order polynomial, fitted separately on either side of the zero threshold, using the full bandwidth.

Tables 3a and 3b present the RDD estimates. Here, also, the results are quite stable across specifications. The reduced form coefficients are statistically significant at the 99% level in all cases and identify a discontinuity between 3.8% and 4.4%. The 2SLS results suggest that the average treatment effect is higher, between 4.3% and 5.8%. These are sizeable effects, especially if we take into account that a mayor's vote share at the left of the cut-off is just 42.7%, meaning that an aligned mayor will receive 10.07% (=4.3% over 42.7%) more votes than a similar unaligned mayor. Additional results (not shown here) suggest that the effects on the votes for the whole coalition are a bit lower, implying that the mayor's party is the one that benefits most from alignment with the regional government.

Table 3a: Effect of alignment on local vote share. RD results

	(i)	(ii)	(iii)	(iv)
	a) Reduced form			
d	0.066 (9.16)***	0.048 (5.00)***	0.047 (4.01)***	0.044 (3.64)***
R^2	0.096	0.103	0.100	0.554
AIC	-4931.17	-4957.77	-4949.28	--.--
	b) 2SLS			
a	0.075 (6.44)***	0.053 (5.06)***	0.049 (4.78)***	0.058 (4.86)***
Bandwidth	100%	100%	100%	100%
Pol. order	1	2	3	2
Controls	NO	NO	NO	YES
Obs.	4344	4344	4344	4344

Notes: (1) See Table 2. (2) Dependent variable: % vote share for the mayor. (3) Control variables: party of the mayor × term effects, Regional dummies × term effects, incumbent's historical vote share, historical turnout at the local and regional elections, local coalition dummy, local first-term dummy, and population size dummies (see Table A.1).

Table 3b: Effect of alignment on local vote share. RD results

	(i)	(ii)	(iii)	(iv)
	a) Reduced form			
d	0.053 (5.59)***	0.044 (2.56)***	0.036 (2.38)***	0.038 (2.67)*
R^2	0.065	0.571	0.140	0.644
AIC	--.--	--.--	--.--	--.--
	b) 2SLS			
a	0.059 (5.71)***	0.051 (2.56)***	0.038 (3.10)***	0.043 (2.81)***
Bandwidth	25%	25%	12.5%	12.5%
Pol. order	1	1	1	1
Controls	NO	YES	NO	YES
Obs.	2243	2243	1150	1150

Notes: (1) See Table 2. (2) Dependent variable: % vote share for the mayor. (3) Control variables: party of the mayor × term effects, Regional dummies × term effects, incumbent's historical vote share, historical turnout at the local and regional elections, local coalition dummy, local first-term dummy, and population size dummies (see Table A.1).

5.4. OLS and 'difference-in-differences'

The estimated effect of alignment on capital transfers (83%) is twice as large as the effect estimated by Solé-Ollé and Sorribas-Navarro (2008)

using 'difference-in-differences'. This differential is striking, given that both studies draw on very similar data. Comparison of the respective results, however, is difficult, since the samples and periods are different. To determine the causes of this discrepancy, we have also estimated the alignment effect on transfers by OLS and 'difference-in-differences' (i.e., including municipality fixed effects) in our sample, controlling in both cases for the full set of control variables. The results, shown in Table 4, imply that aligned municipalities receive 52% more grants than unaligned municipalities. This is higher than the 40% reported by Solé-Ollé and Sorribas-Navarro (2008), but still much lower than our RDD estimates.

Table 4: Effect of alignment on transfers & local vote share. OLS & Difference-in Differences

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
	a) *Capital transfers*			*b*) *Vote share*		
a	61.65	60.45	63.90	0.092	0.031	0.042
	(10.34)***	(5.07)***	(5.11)***	(21.23)***	(7.17)***	(5.08)***
R^2	0.102	0.214	0.328	0.103	0.243	0.554
Controls	NO	YES	YES	NO	YES	YES
Municipality fixed-effects	NO	NO	YES	NO	NO	YES
Obs.	4344	4344	4344	4344	4344	4344

Notes: (1) See Tables 2 and 3. (2) Standard errors clustered at the municipality level in eq. (iii) & (vi).

5.5. Other transfers

We have also estimated the effect of being aligned with other layers of government (Upper-local government, and Central government) on the amount of capital transfers allocated by these layers to municipalities. The reason we do not focus on these transfers from the outset is the smaller quantities involved. The results are shown in Table 5 and suggest that municipalities aligned with Upper-local governments receive around 60% more transfers than those unaligned. The effect on capital transfers allocated by the central government is much lower, around a 27% increase, and is not statistically significant. A possible explanation for this result might be the fact that it is quite difficult for central government to discriminate in its allocation of resources given the high number of Spanish

municipalities (around 8,000) and the consequent lack of specific knowledge about the local political situation of each. Thus, it might be the task of intermediate governments (regional and upper-local) to help channel the monies of central government to the most politically sensitive places (see also Castells and Solé-Ollé, 2005, and Solé-Ollé, 2012).

We have also estimated the alignment effects on the current transfers allocated by each of the three upper layers of government. In each case the alignment effect is not statistically significant. This is as expected, since most current transfers to Spanish municipalities are formula-based and, as such, are much more difficult to manipulate than earmarked transfers for capital projects. Overall, our results identify the instruments and governments that are most prone to being affected by political tactics in Spain: capital transfers and intermediate governments, mainly regions and, to a lesser extent, also Upper-local governments.

Table 5: Effect of alignment on other types of transfers. RD results

	(i)	(ii)	(iii)	(iv)	(v)
	Capital transfers:		*Current transfers:*		
	Provincial	*Central*	*Regional*	*Provincial*	*Central*
	a) *Reduced form*				
d	22.44 (3.34)***	9.33 (1.23)	8.92 (0.78)	3.44 (0.45)	4.56 (0.27)
	b) 2SLS				
a	27.65 (3.45)***	8.54 (1.10)	12.34 (0.66)	5.09 (0.37)	8.98 (0.12)
% Increase	62.43	27.13	10.75	12.67	9.76
Obs.	3982	4344	4344	3982	4344

Notes: (1) See Table 2. (2) % *Increase* = 2SLS coefficient over capital transfers evaluated at left limit of the threshold.

5.6. Robustness checks

The results are robust to many changes in some key aspects of the methodology. We briefly discuss the main conclusions of this analysis[12]. First, the results are very similar when using two other (more comprehensive) measures of alignment: (i) including all the cases in which the main party at one layer (the one holding the mayoralty or the regional presidency) is a mere partner in the coalition at the other layer, and (ii) including includes cases in which the two layers are considered to be aligned if the mayor's party belongs to the same ideological bloc than the party of the regional president, but it is not necessarily the same party. Second, the results are also robust to the exclusion of the municipalities in which local parties are represented in local councils, and to using only the municipalities in which the two main parties obtain more than 80% of the vote. Finally, the results are more or less the same when using an alternative measure of vote margin, computed on the assumption that votes are transferred not solely from abstention but also from the opposition bloc.

5.7. Heterogeneous effects

Concurrent vs. Alternating elections. Table 6 shows the RDD results (*reduced form*) obtained when including interactions of the discontinuity dummy and the polynomial terms with the election timing dummies. The results suggest that the effect is much higher (nearly twice as high) in the case of *Concurrent* elections than in the case of *Alternating* elections.

[12] The tables showing the complete results are included in Annex B, Table B.2.

Table 6: Effect of alignment on capital transfers. Electoral margin and fiscal capacity

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
	All elections				*Concurrent*		
d × *Concurrent*	91.28 (4.90)***	--.--	--.--	67.00 (3.77)***	--.--	--.--	--.--
d × *Alternating*	51.06 (2.96)***	--.--	--.--	43.15 (2.20)**	--.--	--.--	--.--
d × *Competitive*	--.--	50.02 (3.29)***	--.--	--.--	53.59 (7.07)***	--.--	47.75 (3.78)***
d × *Non-competitive*	--.--	111.28 (6.73)***	--.--	32.06 (4.22)***	121.57 (8.00)***	--.--	115.64 (8.23)***
d × *High resources*	--.--	--.--	108.85 (4.19)***	16.06 (1.58)	--.--	106.89 (5.29)***	18.23 (2.23)**
d × *Low resources*	--.--	--.--	90.48 (5.15)***	--.--	--.--	86.14 (9.64)***	--.--
Difference [F-test p-value]	46.91 [0.000]	25.36 [0.000]	18.39 [0.121]	30.85 [0.002]	67.98 [0.012]	20.67 [0.048]	67.89 [0.000]

Notes: (1) See Table 3. (2) Reduced form RD results. (3) Competitive/Non-competitive = vote share for the regional incumbent >(<) lower than the median. (4) High/Low resources = per capita resources (transfers + standardized tax revenues) >(<) than the median. (5) All equations have been estimated using the full sample, a two-sided second order polynomial for each of the interacted variables, and the full set of control variables. (6) Difference = difference between the coefficients of the two mutually exclusive categories (e.g., in column (iv) concurrent vs. alternating, and in column (viii) High margin vs. Low margin). (7) Standard errors clustered at the regional level.

Table 7: Effect of alignment on local vote share. Electoral margin and fiscal capacity

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
	All elections				*Concurrent*		
d × *Concurrent*	0.048 (4.01)***	--.--	--.--	0.038 (2.82)***	--.--	--.--	--.--
d × *Alternating*	0.012 (1.29)	--.--	--.--	0.010 (1.39)	--.--	--.--	--.--
d × *Competitive*	--.--	0.037 (2.65)**	--.--	--.--	0.029 (4.53)**	--.--	0.006 (0.42)
d × *Non-competitive*	--.--	0.047 (6.96)***	--.--	0.012 (1.78)*	0.048 (4.02)***	--.--	0.030 (3.28)**
d × *High resources*	--.--	--.--	0.064 (5.86)***	0.027 (2.15)**	--.--	0.061 (3.13)***	0.045 (2.38)**
d × *Low resources*	--.--	--.--	0.028 (1.78)*	--.--	--.--	0.038 (4.40)***	--.--
Difference [F-test p-value]	0.028 [0.049]	0.010 [0.565]	0.026 [0.015]	0.018 [0.047]	0.019 [0.035]	0.023 [0.040]	0.024 [0.042]

Notes: (1) See Tables 2 and 4. (2) Reduced form RD results.

To shed some light on the mechanism that can derive these results, we interact discontinuity dummy and the polynomial terms, not only with the election time dummies, but also with the other potentially disturbing variables. We consider, for example, that the alignment effect might also be affected by whether: (i) regional elections are competitive or not, (ii) the region has a large amount of budget resources, meaning it can allocate more generous capital transfers and that the differences between aligned and unaligned municipalities might be more marked, (iii) the municipality has greater needs or is in a poorer financial situation. The competitiveness of regional elections has been proxied by a dummy (*Competitive*) which is equal to one if the regional vote share of the regional incumbent in the previous regional election is lower than the sample median. The availability of budget resources has been measured by a dummy which indicates whether the region has more resources than the median (*High resources*)[13].

[13]This variable is equal to one (zero) if per capita standardized resources (transfers + standardized tax revenues) is higher (lower) than the sample median. Regional-level data to compute this variable comes from BADESPE (Institute for Fiscal Studies, Ministry of Economics).

Municipal needs and the municipal financial situation are proxied by three dummies: *Small*, indicating whether the municipality has less than 5,000 residents, *Debt*, indicating whether the debt burden per capita lies above or below the median, and *High fiscal capacity*, indicating whether the per capita assessed value of the property lies above or below the median. We find that *Concurrent* is quite strongly correlated with *Competitive* (correlation coefficient equal to -0.52) and with *High resources* (correlation coefficient equal to 0.18) but not with the other variables (correlation coefficients around 0.05-0.07, in absolute value).

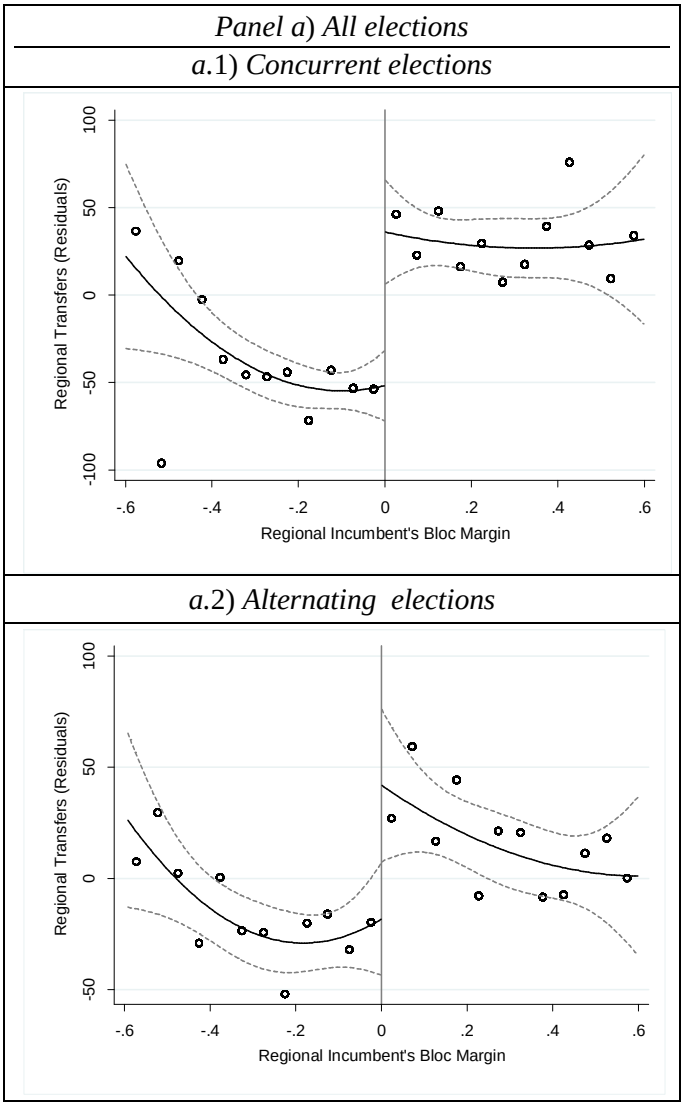
In Table 6, column (iv) shows the results when introducing the interaction with the three variables at the same time. The previous results still hold; the effect in *Concurrent* elections being more marked than that in *Alternating* elections, despite the relevance of the other interactions. However, the difference between *Concurrent* and *Alternating* elections is now much smaller, probably as a result of the aforementioned correlation between election type and the degree of competitiveness of the regional elections. In results not shown in Table 7, we find that all the financial needs and financial situation variables have a positive impact on the alignment effect, but these interactions are not statistically significant and their inclusion does not modify our conclusion regarding the difference between *Concurrent* and *Alternating* elections. In Table 7 we repeat the analysis but now for the local vote share. Once again, the alignment effect in *Concurrent* elections is stronger than that in *Alternating* elections even when we control for the other interactions.

The top panel in Figure 5 shows the plot between *residual transfers* and the *vote margin* for *Concurrent* and *Alternating* elections. The discontinuity is clearly larger in the first case. The shape of the two plots is similar, but in the case of *Alternating* elections the slope at the right of the threshold is more clearly negative. We will return to this when interpreting the results in the next section.

Finally, the availability of data for the *Alternating* elections sample allows us to look at the effect of transfers two years before regional elections (as opposed to two years before the municipal ones). Our results (not reported here for motives of space) show that in this case partisan alignment has no

effect on the amount of capital transfers allocated. It seems therefore that these transfers matter mostly for local elections[14].

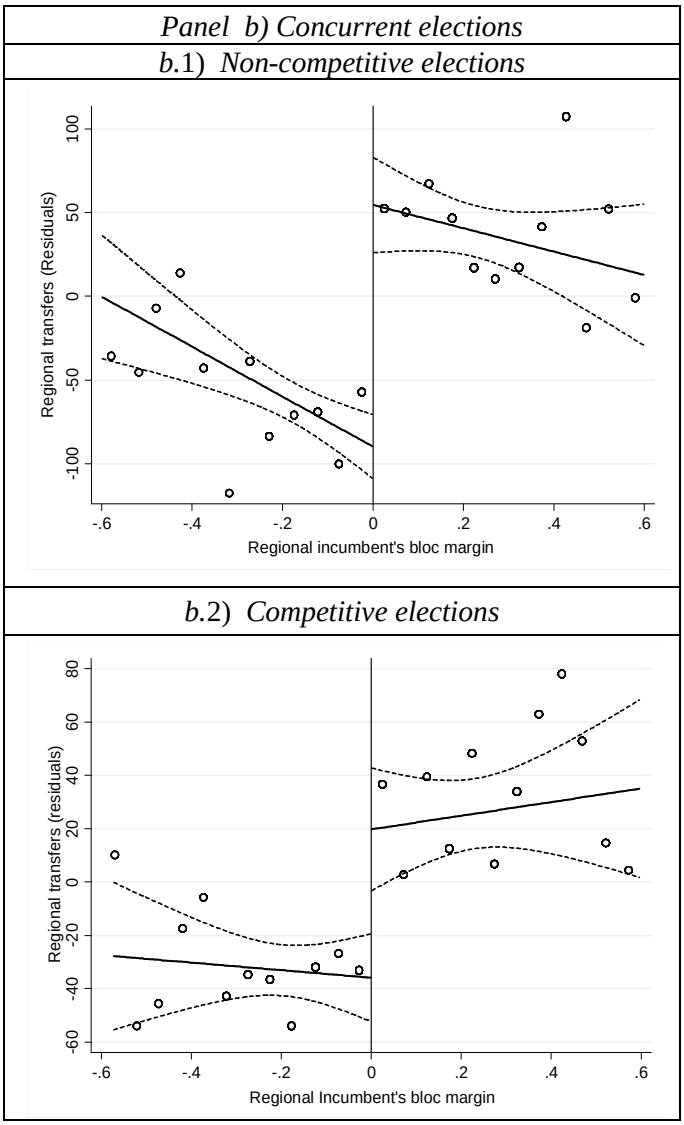
Figure 5: Residual capital transfers vs. vote margin. Election timing & competitiveness



Notes: (1) See Figure 2. (2) Residual transfers = residuals from a regression between capital transfers and controls.

[14] Additionally, we have used the sample of *Concurrent* elections to look at the effect of alignment during the first two years of the (regional and local) term-of-office. In this case, we find an effect of alignment on transfers which is approximately half the magnitude of the effect found for the second half of the term.

Figure 5: Residual capital transfers vs. vote margin. Election timing & competitiveness (continued)



Notes: (1) See Figure 2. (2) Residual transfers = residuals from a regression between capital transfers and controls.

Competitiveness and Budget resources. Columns (ii) and (iii) in Table 6 present the results for the interactions with the *Competitiveness* and *Budget resources* dummies, and column (iv) shows the effect of these interactions when they are introduced at the same time and simultaneously with the election type interactions. The results of this last column show that the alignment effect is also stronger in *Non-competitive elections* and in regions with *High budget resources.* Since there are just three regions with

Alternating elections, and given the correlation between election type and *Competitiveness* and *Budgetary resources*, we repeated the analysis considering only the subsample of municipalities in regions with *Concurrent* elections. The results are shown in columns (v) to (vii) in Table 6 and suggest that the differences persist: the effect of alignment on capital transfers is higher in municipalities belonging to regions with *Non-competitive elections* and in regions with *High budget resources*. The differences are statistically significant and meaningful, especially for the *Competitiveness* interaction.

The bottom panel in Figure 5 shows the plot between *Residual transfers* and the *vote margin* for *Non-competitive* and *Competitive Concurrent* elections. The discontinuity is larger when regional elections are non-competitive and the slope of the polynomial is clearly negative only in this case. We will return to this result below.

5.8. Interpretation of the results.

Our results can be interpreted as follows. First, the greater alignment effect reported here for *Concurrent* than for *Alternating* elections might be due to a modification in voter behavior (and, hence, in politicians' incentives) occurring in this latter case due to the simultaneous occurrence of local and regional elections. In *Concurrent* elections, voters cast their votes for local and regional candidates at the same time. In this case, if capital transfers confer some sort of advantage to the local incumbent, this advantage might automatically be transferred to the candidate from the same party at the regional level. This 'bandwagon effect' between candidates from the same party standing at simultaneously held elections has been documented in the literature (see, e.g., Ade and Freier, 2011). Similarly, in *Concurrent* elections, the local and regional campaigns might be more closely connected, with regional candidates having to speak about local issues during visits to municipalities due to the greater salience of such questions in the local campaign. This means that even if the infrastructure funded by capital transfers from regional governments plays a small role in party platforms at the regional level, it might have an indirect effect on voters' decisions at that level. The absence of an alignment effect on local votes in the *Alternating* case can be similarly explained.

Second, the fact that, in *Alternating* elections, alignment only seems to matter before municipal elections, but not before the regional ones suggests that regional incumbents care most about these local contests. In this case (and also in the case of *Non-competitive Concurrent* elections), the shape of the polynomial also points in the same direction, suggesting that regional incumbents aim at capturing as many mayoralties as they can. Figure 3 clearly shows that transfers decrease before the threshold and increase after, which is the pattern identified in section two for this type of electoral strategy (recall Figure 1). Although the effect estimated through RDD cannot be extrapolated to observations far from the threshold, the shape of the polynomial can be informative about the strategies used by the regional incumbents. Among the aligned municipalities, the regional government would rather target pivotal municipalities than loyal ones, while pivotal unaligned municipalities might be specially punished. Figure 5 shows that this strategy is most apparent when elections are *Alternating.* However, Figure 5 also shows that in the *Concurrent* elections, regions with *Non-competitive* regional elections also adhere to this pattern. Moreover, the polynomial in regions with *Competitive* elections is quite flat, and the slope is even positive to the right-hand side of the zero-margin threshold. Similarly, the size of the discontinuity is much lower in this case. This suggests that an electoral strategy centered on pivotal municipalities might underlie the results of the *Concurren*t elections sample, at least for regions with *Non-competitive* elections. For the remaining regions in this sample, this strategy might be attenuated by a strategy that focuses on locations of core voters, with the aim of improving the chances of winning a highly competitive regional election by trying to mobilize the electorate.

6. Conclusion

In this study we have used a 'fuzzy' RDD to estimate the effect of partisan alignment between regional and local governments both amount of transfers received and on the vote for the local incumbent at the local elections. We have provided very strong evidence that voters give more support to local incumbents belonging to the party that controls the regional government. Our results suggest that aligned municipalities obtain 83% more per capita transfers than unaligned municipalities. Aligned incumbents also win 10%

more votes than unaligned incumbents. These estimates are much higher than previous estimates for Spain using 'difference-in-differences' techniques and much higher than results reported for other countries, including those using an RDD.

We have also documented that the effect of partisan alignment is stronger: (i) when regional and local elections are held on the same day, (ii) when regional elections are less competitive, and (iii) when the regional government has more budget resources to fund these discretionary transfers. This interaction with the amount of budget resources suggests that the effect of alignment on transfers ultimately has consequences in terms of votes. Some secondary evidence suggests that the alignment effect might arise as a result of a regional electoral strategy centered on the transfer of resources to pivotal and aligned municipalities with the aim of winning as many mayoralties as possible. This strategy seems more evident in *Alternating* elections and in *Non-competitive Concurrent* elections. It seems, therefore, at least in some cases, that the regional incumbent pursues a deliberate strategy of interfering in the outcome of local elections. As discussed in the introduction, such practices might erode accountability at the local level and, thus, undermine the very benefits of decentralization.

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Annex A:

Data and variables

Table A.1: Variable definition and data source

	Definition	*Source*
Capital transfers: *- from the Regional gov.* *- from the Central gov.* *- from the Upper-Local gov.*	Capital transfers from the Regional (R), Central (C), or Upper-Local (UL) governments per capita (items 7.5, 7.2 & 7.6.1 of the revenue budget)	Survey of local finances undertaken yearly by the Spanish Ministry of Economics (years 2000-2007)
Current transfers: *- from the Regional gov.* *- from the Central gov.* *- from the Upper-Local gov.*	Current transfers from the R, C, or UL governments per capita (items 4.5, 4.2 & 4.6.1 of the revenue budget)	
Vote share: *- Mayor* *- Coalition*	Votes for the party of the mayor and for the coalition supporting him at the local elections, in % of votes cast	Local election statistics (votes and seats for all the parties) and partisan identity of the mayor, provided by the Spanish Ministry of Interior & Ministry of Public Administration. (2003 and 2007 local elections)
Alignment (*a*)*:* *- Regional-Local* *- Central-Local* *- Upper-Local-Local*	Dummy equal to one if the party of the mayor is the same as that of the president of the Autonomous Community, the C government or the UL government	
Incumbent's bloc seat majority (*d*): *- Regional-Local* *- Central-Local* *- Upper-Local-Local*	Dummy equal to one if the ideological bloc of the party of the president of the Autonomous Community, the C government or the U-L government has more seats in the local council than the other ideological bloc	
Incumbent's bloc vote margin (*m*): *- Regional* *- Central* *- Upper-Local*	% of votes cast at the local elections that have to be added to (subtracted from) the ideological bloc of the R, C or UL incumbent to win (lose) a majority of seats in the local council.	Vote margin computed with the same data using an algorithm developed for this purposes that replicates the workings of the d'Hondt rule (see Table A.2 in Annex A)

Table A.1: Variable definition and data source (continued)

	Definition	*Source*
Income per capita	Residents' income level, as estimated from objective indicators (e.g., cars, bank deposits, etc.)	Anuario Económico de España, La Caixa (years 2000-2007)
Debt burden	Debt service (capital, item 9 of the spending budget, + interests, item 3) as a share of current revenues	Ministry of Economics (years 2000-2007)
Land area per capita	Urban land area per capita, including both built on area and un-built land plots	Centro de Gestión Catastral y Cooperación Tributaria, Spanish Ministry of Economics (years 2000-2007)
Property tax rate	Nominal property tax rate (IBI), % on assessed property value	
Property value	Assessed property value per capita	
Population	Resident population	Padrón de Habitantes, National Institute of Statistics (years 2000-2007)
% Old	% resident population older than 65 years	
% Young	% resident population younger than 18 years	
% Immigrant	% resident population non-EU immigrant	
% Unemployed	% resident population unemployed	
Left mayor	Mayor belongs to a left-wing bloc party	Local election statistics (votes and seats for all the parties) and partisan identity of the mayor, provided by the Spanish Ministry of Interior & Ministry of Public Administration. (all local elections since 1979)
Coalition	Mayor governs in coalition with other parties	
Local party	Party of the mayor cannot be classified as left or right wing	
Historical turnout	% of voting age residents voting at the local elections held since 1979	
Historical vote share	% vote share for the ideological bloc of the mayor at the local elections held since 1979	

Table A.2: Computing the vote margin

Explanation:

The forcing variable for our RDD is the *Regional incumbent's bloc vote margin*, computed as the ratio between the minimum number of votes needed for the ideological bloc of the regional incumbent to gain/lose the majority of seats in the local council and the total votes cast at the local elections.The computation of this measure is not straightforward and requires a consideration of the specific allocation system used to assign votes to seats, in this case the d'Hondt rule. Under this rule the votes for each party are divided by 1, 2, 3, 4, …, N, where N is the number of seats to be assigned. The resulting quotas or comparison numbers are ranked and N seats are allocated using this ranking.

We have developed an algebraic procedure to compute the *vote margin* for each of the municipalities in the sample[1]. Our procedure works by subtracting votes from the regional president's ideological bloc if it holds a majority at the local level, or adding votes if it does not. We make some initial assumptions regarding the migration of these votes. First, we assume that these votes either i) go to (come from) the abstention or ii) go to (come from) both the abstention and the parties in the opposition bloc. The formulation we present here is for the first approach i) and the formula used in the second approach and the Stata code are available upon request. Second, we assume that the votes lost by (added to) the regional incumbent's bloc are allocated between the parties belonging to this bloc proportional to their initial vote share in the bloc. Below we present the formulation used for the close election cases[2] –i.e., cases where the seat margin is –1 or +1.

Notation and definitions:

v_I^i & v_O^k : votes for parties *i* and *k*., from the regional incumbent's (*I*) and opposition's (*O*) blocs, respectively.

α_I^i & α_O^k : votes for parties *i* and k as a proportion of the votes for the bloc they belong to.

s_I^i & s_O^k: seats for parties *i* and *k*.

$c_I^i(s_I^i) = v_I^i / s_I^i$: comparison number for the last seat won by party *i*.

$c_I^i(s_I^i + 1) = v_I^i / (s_I^i + 1)$: comparison number for the next seat to be gained by party *i*.

$c_I^{\min}(s_I) = \min_i (c_I^i(s_I^i))$: smallest comparison number for the last seat gained by a party in *I*.

$c_I^{\max}(s_I + 1) = \max_I (c_I^i(s_I^i + 1))$: largest comparison number for the next seat to be gained by a party in *I*.

$c_O^k(s_O^k)$, $c_O^k(s_O^k + 1)$, $c_O^{\min}(s_O)$ and $c_O^{\max}(s_O + 1)$: comparison numbers for the opposition's bloc.

Table A.2: Computing the vote margin (continued)

Formulation:

If the regional incumbents's bloc holds a majority in the local council and, so, a party from the opposition bloc has to gain a seat, its comparison number for the next seat to be gained, $c_O^{\max}(s_O+1)$, must be larger than the comparison number for the last seat distributed to a party in the regional incumbent's bloc, once υ votes are subtracted from that bloc. The condition for party *z* in the opposition gaining a seat is:

$$c_I^{\min*}(s_I) < c_O^{\max}(s_O+1) \qquad [A.1]$$

where $c_I^{\min*}(s_I)$ is the smallest comparison number for the last seat originally gained by a party, say party *x*, among the parties from the regional incumbent's bloc once υ votes have been subtracted. *z* is the party that has the highest comparison number for the next seat to be gained among all the parties of the opposition bloc. Expression [A.1] can be rewritten as $(v_I^x - \upsilon^x)/s_I^x < v_O^z/(s_O^z+1)$, where $\upsilon^x$are the votes subtracted from party *x*.[3] Under the assumption that all the parties from the regional incumbent's bloc lose votes according to the votes originally cast, expression [A.1] determines that the total amount of votes that the regional incumbent's bloc has to lose to lose one seat is equal to:

$$\upsilon = (\upsilon^x/\alpha_I^x)+1 \text{ where } \upsilon^x = (c_I^{\min}(s_I) - c_O^{\max}(s_O+1))s_I^x \qquad [A.2]$$

If the regional incumbent's ideological bloc is in a minority in the local council, the votes to be added to the opposition bloc for a party, say part *y*, in this bloc to gain a seat are such that:

$$c_O^{\min}(s_O) < c_I^{\max*}(s_I+1) \qquad [A.3]$$

where $c_I^{\max*}(s_I+1)$ is the largest comparison number for the next seat to be gained by party *y* from the regional incumbent's bloc, once δ votes are added to the opposition bloc. Party *y* is the one that originally has the highest comparison number for the next seat to be gained. Expression [A.3] can be re-written as:

$$\delta = (\delta^y/\alpha_I^y)+1 \quad \text{where} \quad \delta^y = (c_O^{\min}(s_O) - c_I^{\max}(s_I+1))(s_I^y+1) \qquad [A.4]$$

Notes: (1) A numerical example illustrating the workings of this algebraic procedure has been included in Annex B. (2) Whenever the seat margin is larger than one, the procedure we now explain is simply iterated until there is a switch in the bloc holding the majority. Then, the final measure of the "vote margin" is an aggregation of votes needed to lose (win) all these seats. (2) Party *x* is such that equation [A.1] and $\min_M(v^i_M - v^i)/s^i_M$ hold. Party *x* will typically be the party that gained the last seat. If there is another party that gained a seat (but not the last one) and which accrues a greater share of votes, this party could be the one that has to be considered in order to guarantee that the opposition bloc gains just one seat.

Annex B:

Tables and Figures

Table B.1: Covariates' discontinuity tests

	Polynomial order					
	1			2		
	Coef.	*t-stat.*	AIC	*Coef.*	*t-stat.*	AIC
Population	3420.72	(0.74)	109764.10	9565.95	(0.37)	109764.74
Land area per capita	-1245.01	(1.34)	5332.12	-1244.22	(0.56)	5330.19
Urban	0.001	(1.23)	3211.23	0.023	(0.10)	3200.10
Coastal	0.034	(0.87)	4321.11	-0.021	(0.10)	4110.00
Income per capita	-0.016	(2.23)***	-9808.695	-0.006	(0.89)	-9827.357
Debt burden	-0.002	(0.75)	-11005.18	0.003	(0.66)	-11010.14
Property tax rate	-0.035	(-2.19)***	-3798.31	-0.013	(0.11)	-3603.87
Property value	-1.56	(-1.14)	39425.43	0.039	(0.02)	39245.64
% Old	0.0145	(2.27)***	-13354.79	0.0160	(2.18)**	-13353.9
% Young	0.0005	(0.46)	-22868.14	-0.0004	(0.35)	-22869.18
% Immigrant	-0.001	(0.23)	-16161.93	0.001	(0.24)	-16164.2
% Unemployed	-0.001	(0.80)	-22059.92	-0.002	(1.68)*	-22059.13
Left mayor	-0.085	(-2.26)**	6270.26	0.009	(0.25)	6251.11
Coalition	-0.104	(-2.43)***	7869.52	-0.040	(1.11)	7862.51
Local party	0.009	(0.38)	5642.64	0.042	(1.22)	5644.44
Historical	-0.003	(-0.09)	-9133.25	-0.011	(1.48)	-9150.14
Historical vote	0.027	(2.00)***	-6234.66	-0.002	(0.22)	-6385.87

Notes: (1) Full sample (Obs. = 4344) used in the estimation. (2) Reduced form estimation: OLS with spline polynominal of order 1 or 2 fitted separately on both sides of the threshold. (3) AIC= Akaike Information Criterion.

Table B.2: RDD Robustness checks

	(i)	(ii)	(iii)	(iv)	(v)
	Panel A: *Reduced form*				
	A.1 *Capital transfers*				
	Partner alignment	*Bloc alignment*	*No local parties*	*Two parties*	*Alternative margin*
d	70.13 (9.43)***	55.93 (4.38)***	77.42 (3.86)***	97.85 (4.47)***	81.15 (6.23)***
R^2	0.288	0.215	0.290	0.214	0.294
	Panel B: 2SLS				
	B.1 *Capital transfers*				
	Partner alignment	*Bloc alignment*	*No local*	*Two parties*	*Alternative margin*
a	84.45 (5.02)***	82.81 (4.37)***	88.06 (3.87)***	98.40 (4.47)***	92.67 (4.99)***
Obs.	4671	6000	2977	1876	4344

Notes: (1) See Tables 2 & 3. (2) All equations have been estimated with the full sample, a second order polynomial and the same controls as before. (2) Partner alignment = the regional and the local government are considered to be aligned if the mayor and/or the main partner of a coalition belong to the same party; Bloc alignment = the regional and the local government are considered to be aligned if the mayor's party belong to the same ideological bloc; No local parties = municipalities where local parties get represented excluded from the analysis; Two parties = sample includes only municipalities where the two main parties get more than 80% of the vote; Alternative distance = distance to change in seat majority computed allowing migration of votes between parties.

Table B.2: RDD Robustness checks (continued)

	(vi)	(vii)	(viii)	(ix)	(x)
	Panel A: *Reduced form*				
	A.1 *Capital transfers*				
	Partner alignment	*Bloc alignment*	*No local parties*	*Two parties*	*Alternative margin*
d	0.033 (3.42)***	0.029 (3.21)***	0.036 (2.95)***	0.045 (5.04)***	0.043 (4.33)***
R^2	0.241	0.207	0.311	0.276	0.567
	Panel B: 2SLS				
	B.1 *Capital transfers*				
	Partner alignment	*Bloc alignment*	*No local*	*Two parties*	*Alternative margin*
a	0.040 (3.39)***	0.039 (3.21)***	0.038 (2.96)***	0.047 (5.03)***	0.055 (5.18)***
Obs.	4671	6000	2977	1876	4344

Notes: (1) See Tables 2 & 3. (2) All equations have been estimated with the full sample, a second order polynomial and the same controls as before. (2) Partner alignment = the regional and the local government are considered to be aligned if the mayor and/or the main partner of a coalition belong to the same party; Bloc alignment = the regional and the local government are considered to be aligned if the mayor's party belong to the same ideological bloc; No local parties = municipalities where local parties get represented excluded from the analysis; Two parties = sample includes only municipalities where the two main parties get more than 80% of the vote; Alternative distance = distance to change in seat majority computed allowing migration of votes between parties.

Figure B.1: Continuity of the forcing variable. Full sample

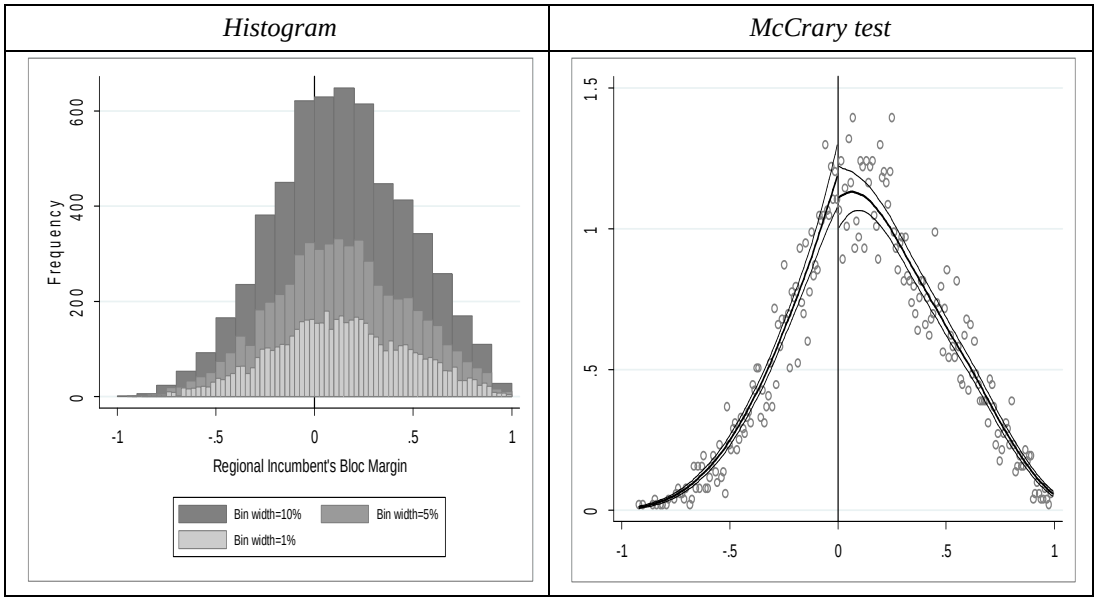
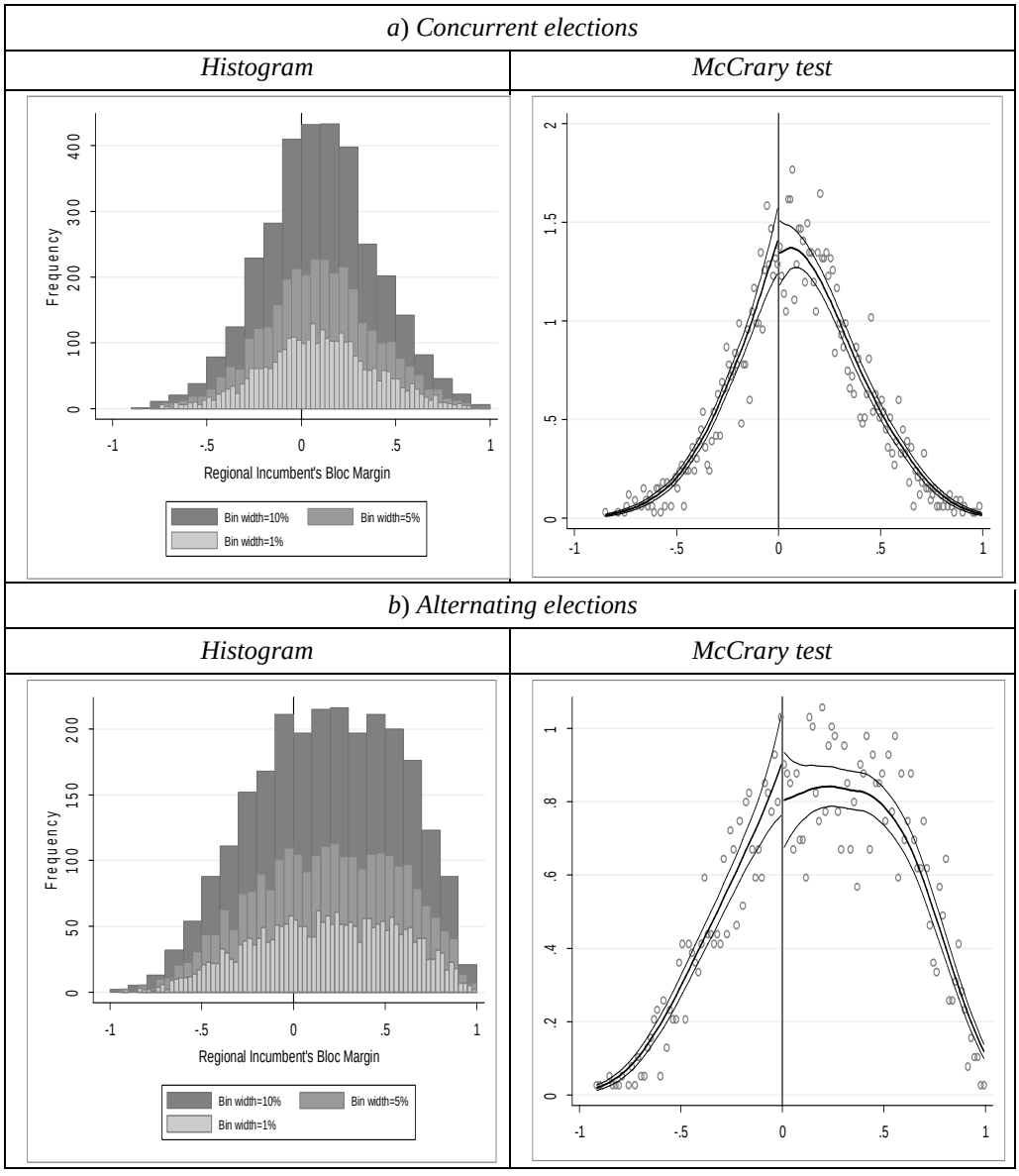


Figure B.2: Continuity of the forcing variable. Concurrent vs. Alternating elections



Computing the vote margin

An example. The forcing variable for our RDD is the *Regional incumbent's bloc vote margin*, computed as the ratio between the minimum number of votes needed for the ideological bloc of the regional incumbent to gain/lose the majority of seats in the local council and the total votes cast at the local elections.

Table B.3: Example of how the Regional Incumbent's bloc vote margin is computed

	Panel a) *Initial seat allocation*				*Panel b*) *Final seat allocation*			
Ideological blocs	*Regional opposition*		*Regional incumbent*		*Regional opposition*		*Regional incumbent*	
Parties	P1	P2	P3	P4	P1	P2	P3	P4
Votes (v^i)	95	957	207	1116	95	957	152	820
Vote share (v^i/V)	0.04	0.40	0.09	0.47	0.05	0.47	0.08	0.41
Seats (s^i)	0	6	1	6	0	7	1	5
Seat share (α_i)			0.16	0.84				
Panel c) *Seat allocation*								
Divisors	*Comparison numbers*							
1	95.00	957.00	207.00	1116.00	95.00	957.00	152.00	820.00
2	47.50	478.50	103.50	558.00	47.50	478.50	76.00	410.00
3	31.67	319.00	69.00	372.00	31.67	319.00	50.67	273.33
4	23.75	239.25	51.75	279.00	23.75	239.25	38.00	205.00
5	19.00	191.40	41.40	223.20	19.00	191.40	30.40	164.00
6	15.83	159.50	34.50	186.00	15.83	159.50	25.33	136.67
7	13.57	136.71	29.57	159.43	13.57	136.71	21.71	117.14
8	11.88	119.63	25.88	139.50	11.88	119.63	19.00	102.50
9	10.56	106.33	23.00	124.00	10.56	106.33	16.89	91.11
10	9.50	95.70	20.70	111.60	9.50	95.70	15.20	82.00
11	8.64	87.00	18.82	101.45	8.64	87.00	13.82	74.55
12	7.92	79.75	17.25	93.00	7.92	79.75	12.67	68.33
13	7.31	73.62	15.92	85.85	7.31	73.62	11.69	63.08
υ_i			55	296				
Vote distance (υ)			351					
Vote margin			14.67%					

The computation of this quantity is not straightforward and requires paying attention to the workings of the procedure used to assign votes to seats, the 'd'Hondt rule'. As we already explained, under this rule the votes for each

party are divided by 1, 2, 3, 4, etc. The resulting quotas or comparison numbers are ranked and a fixed number of seats is allocated using this ranking. Panel (a) in Table B.3 illustrates how the 'd'Hondt' rule works with an hypothetical example with four parties, two belonging to the ideological bloc of the regional incumbent (P3 and P4) and two belonging to the ideological bloc of the opposition (P1 and P2). The ideological bloc of the regional incumbent got 1,323 votes, a 56% of the votes cast at the municipal elections, and 7 out of 13 seats, 6 for P4 and 1 for P3, and so it holds the mayoralty. On the opposition side, all 6 seats went to party P2.

In Panel c) we detail the procedure followed to allocate seats, showing the comparison numbers obtained after dividing the votes of each party by each divisor. The first seat has been allocated to P4 with a comparison number of 1,116.00, the second one to P2 with a comparison number of 957, the third one again to P4 with comparison number of 558, and so on. The last seat allocated is the sixth seat of P2 (and of the opposition's bloc) with a comparison number of 159.50, which was slightly higher than the comparison number of the seventh seat of P4 (which would have been the eighth seat of the regional incumbent's bloc). Intuitively, in order for the opposition bloc to have a majority of seats, votes have to be detracted from parties in the other bloc (or added to the parties in this bloc) to raise the first of these comparison numbers above the second one. In Panel (b) of Table B.3 we show a situation where this happened. To move from the initial seat allocation in Panel (a), with a majority of the regional incumbent's ideological bloc, to the final seat allocation in Panel (b), with a majority of seats for the regional opposition, we have subtracted 351 votes from the incumbent's bloc, allocating these votes amongst parties in the bloc in proportion to their initial vote share (i.e., 55 subtracted to P3 and 296 to P4). The ratio between these 351 votes and the total number of votes is 14.67% and is our measure of the *Regional incumbent's bloc vote margin*.

Chapter 5

Concluding remarks

This dissertation examines several aspects of the political economy of government spending centering the analysis on two specific issues: the political determinants of public expenditures (analyzed in Chapters 2 and 4); and the effects of the tactical allocation of spending on voter behavior (studied in Chapters 3 and 4). The three empirical studies that constitute the dissertation focus on the Spanish case. The studies reveal that no matter which political system is in place, there always exist room for the misallocation of public resources targeted with electoral goals; yet, political tactics tend to adapt to the constraints set by each institutional framework. This concluding chapter summarizes the main findings of the three studies and discusses several implications.

The study of the distribution of road investment in Restoration times presented in Chapter 2 shows that the allocation of administrative resources among provinces depended on two sets of factors. The first one is the individual characteristics of the members of the Parliament (MPs). In this sense, the results suggest that both the share of MPs with a party leadership position and the provincial share of "*propios*" (i.e. senior MPs that were attached to a particular district and that did not respect the turn at some point) mattered for the distribution of resources. This last result, joint to the fact that the MPs' seniority is found to be statistically insignificant, reveals that only a particular type of senior MPs (the "*propios"*) had the ability to attract resources.

The second factor that had an impact on the allocation of spending during the Restoration was the regime's global search for stability. During the early stages of the Restoration regime, those provinces with a higher share of districts that did not follow the two-party alternation system and, specially, those electing candidates from third parties, received fewer road funds, probably as a punishment strategy to have elections under control.

Over time, however, there was a shift in the political tactics of the Regime and, by the end of the nineteenth century, the provinces that elected more candidates from the minority parties (the non-hegemonic parties) were favored with larger shares of road investment. This fact coincided with the weakening of the Regime and the socioeconomic changes in the country (one of them being the introduction of the universal male suffrage in 1890).

The results of this first study posit a puzzling question: why should the ruling party of a "weakly institutionalized polity" – where public officials can use coercion, violence and mass fraud – have any incentive to skew public resources in favor of particular groups to win elections? The findings – consistent with Ellman and Wantcheckon (2009) – suggest that when the opposition reaches a degree of political power that threatens the regime, concessions may be granted in order to keep the social and political situation under control. Electoral competition under this type of polities has not received much attention to date and further research should be done in this direction as electoral dynamics differ substantially from those in an established democracy. Such examination of electoral dynamics could be applied, for instance, to evaluate whether the tactics used by the Mexican PRI to remain in power for over seventy years – see Diaz-Cayeros et al. (2006) – remained unchanged over such a long period of time.

Further, the lack of economic criteria in road planning may have detrimental and persistent effects to be considered (although not estimated in this dissertation). As argued in chapter 2, neglecting economic factors may explain, in part, the fact that investments in large transport networks during the late nineteenth and early twentieth century in Spain did not spur economic growth in the country (Herranz-Loncán, 2007).

Although the situation described in Chapter 2 took place in the 19th century, pork-barrel politics still exist nowadays in Spain, as shown by several studies. The findings in Solé-Ollé (2012) suggest that tactical motives played an important role in the distribution of infrastructure investment across regions during the period 1964-2004 in Spain as funds were skewed towards regions with close elections (in terms of vote margin and votes needed to obtain an additional seat) and regions aligned with the central government. In this line, Castells and Solé-Ollé (2005) also show

that political factors – mainly, the electoral productivity of investments – were one of the main determinants of the regional allocation of infrastructure investment over 1987-1996. From another perspective, Bel (2012) argues that over the last three centuries the Spanish central government's investment in infrastructure has been used to centralize the transportation system around Madrid, its political capital, thus largely disregarding efficiency criteria.

Besides political reasons, socioeconomic factors are also behind the allocation of public spending. Governments have widely used spending as a means of redistributing rents from high to low-income individuals. On the one side, EU structural funds are a clear example. Specifically, "Objective 1" funds, which are granted to NUTS2 regions with a GDP per capita level below 75% of the EU average, have served to increase the growth of the recipients (Becker et al., 2010). A closer look at this issue reveals heterogeneous effects: in regions with low capacity to administer the funds, grants are inefficiently spent with consumption – instead of production – purposes and may become a source of political corruption (Becker et al. 2012). On the other side, inefficient public spending can also arise from public employment. In Italy, for instance, public jobs have redistributed income between the North and the South but, at the same time, the South has become overly dependent on public employment as a permanent source of income (Alesina et al., 2001). In Spain a similar vicious cycle arises in the case of the Plan for Rural Employment (PER), the topic of interest in the third chapter of the dissertation.

Chapter 3 aims at estimating the impact of the introduction of the PER on the electoral support for the incumbent governments to assess the possibility that jobs where directly exchanged in return for votes at the local and central elections. At the central government level, the findings of this study suggest that, in general elections, the establishment of the PER increased by 3 percentage points the vote share for the socialist party in the rural municipalities of the treated regions – which represents an average increase of 8.6%. The study also examines the evolution of this effect over time and shows that it remained persistent, suggesting that despite the increase in democratic culture the ties between patrons (politicians) and clients (voters) did not weaken. Further, the increase in the levels of

monitoring of the process that happened in the 90s to reduce fraud does not seem to have lowered the capacity of the incumbent to obtain electoral rewards. At the local government level, there is no evidence that the PER increased the mayors' probability of re-election in local elections and neither there is evidence of a reverse coattails effect by which presidential candidates had an electoral advantage in municipalities where the mayor represents their party. This suggests two feasible explanations: the role of mayors is that of mere intermediaries who deliver jobs; and/or the only benefit from the entire program which voters take into consideration when casting their vote was the unemployment subsidy obtained thanks to the PER.

In terms of policy implications, considering the findings of Chapter 3, a logic question that arises is whether the program should be suppressed. The answer is not straightforward. The main drawback of the program is the high degree of discretion that local politicians have to allocate PER jobs. The agrarian subsidy *per se* is not the main issue of concern. All in all, the policy has a combination of factors that, somehow, ends up distributing welfare benefits to low-income households with the main criterion being the politician's decision.

As far as demographics concerns, Jofre-Monseny (2012) shows that the PER caused a reduction in the flows of migration leaving rural municipalities in Andalusia and Extremadura (essentially due to lower out-migration rates) and increased unemployment rates by 15% in the affected municipalities. A question that remains open is the consequences of the PER on the economic growth of these two regions. Although at first sight the detrimental impact of the program seems obvious, it would be interesting to quantify to which extent the effect is driven by the PER. However, the main limitation to undertake such analysis is the lack of income data in the pre-treatment period, disaggregated at the municipality level.

Finally, the question evaluated in Chapter 4 is "Does partisan alignment between different layers of government have electoral and material returns for co-partisans?" The results found in this chapter can be summarized as follows. In close races, municipalities aligned with the regional government

obtain on average 83% more per capita transfers and their incumbents gain 11% more votes at the local elections. The effect on transfers is very large, compared with previous RDD results in other countries, and further light should be shed on why Spain behaves differently.

This study also evaluates the possibility that the partisan effect is not homogeneous across municipalities. To test for this possibility, the analysis focuses on three important issues that may potentially impact either the allocation of transfers or the electoral results: the timing of the elections at the different layers of government (i.e. whether they are concurrent or alternating); the competitiveness of regional elections; and the funds available to regional governments. The findings suggest that the effect of alignment is stronger when regional and local elections are held on the same day, in regions with less competitive regional elections, and in regions with more budget resources.

The effect of partisan alignment has also been estimated considering other layers of government. In the case of upper-local governments, the results show a statistically significant effect, while no effect is found in the case of central government transfers. The last result may reflect the fact that central governments lack of specific knowledge about the political situation of each municipality. This would be consistent with the decentralization theory, according to which lower-level governments have the greatest amount of information. Also, the study examines the effect of alignment on current transfers received by municipalities from upper-level governments. In this case, no statistically significant effect has been found, as expected, provided that current transfers are mainly allocated using formulas.

A good process of fiscal decentralization has to ensure not only the provision of resources to meet the expenditure responsibilities devolved to sub-central governments but also that such provision guarantees economic efficiency and equity amongst the members of the federation. If the normative approach is omitted and tactical policies are in place, the benefits of decentralization (a better matching of preferences and increased accountability) can be undermined as shown along chapter 4. The inexistence of a relationship between current transfers and partisan alignment found in this fourth chapter suggests that formula-based grants

are more effective in avoiding political interferences and, therefore, its use is preferable (although not fully exempt of political interference).

A complex issue that is not tackled in this last study is the quantification of the aggregate over-spending due to the misallocation of funds to co-partisan governments in municipalities with close elections. To do that, one would need to calculate the efficient level of public goods.

Finally, there are questions related to these three studies that are left for further research. First, chapter 3 has focused on public spending as a political tool to be used as a "stick and carrot" to limit a growing opposition, however, no mention has been made to the revenue side, i.e. the source of funding of such investment. This could have also been subject to political manipulation to extract rents from opponents of the Regime. Although nowadays public investment in Spain is funded through resources that come mainly from a common pool and the burden of taxation is borne by a large number of individuals, the tax scheme in the 19th century was not too sophisticated. For instance, the "*cédulas personales*" (introduced in 1874) were a tax that had to be paid by most of the citizens over 14 but was dependent on the approval of the mayors (Portillo Navarro, 1997).

A second topic of interest that could be explored is related to chapter 4. Considering the large number of corruption cases currently arising in Spain, and the perception that corrupt politicians are not sufficiently punished in elections[1], it would be interesting to see the role that public spending and partisan alignment play. Up until now, it has been proven that the availability of information affects the vote loss of the corrupt incumbent (Costas-Pérez et al. 2012). But, in addition, it could also be the case that if aligned governments are perceived as efficient officials more capable to

[1] Despite facing a major corruption scandal in the region of Valencia, the People's Party obtained a majority of seats in the 2011 regional election. As quoted in the website of the national media: "*El PP de Camps mejora su mayoría en Valencia a pesar de Gürtel y el PSOE se hunde*" (Camps's People's Party enlarges its majority in Valencia despite Gürtel and the PSOE sinks). Source: http://www.rtve.es/noticias/20110524/pp-gana-valencia-mejora-resultados-pesar-del-caso-gurtel-61-escrutado/434048.shtml

attract resources to their municipalities, this could deflect attention from corruption scandals. In this case the issue to be analysed would be whether corrupt incumbents have lower vote losses if they are aligned with the upper-level government, and thus have received larger transfers to invest.

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