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CESIFO WORKING PAPER NO. 5534
CATEGORY 1: PUBLIC FINANCE
SEPTEMBER 2015

ISSN 2364-1428

CESifo
Center for Economic Studies & Ifo Institute

CESifo *Working Paper No. 5534*

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Abstract

Pork barrel spending is typically attributed to the strategic behavior of political elites hoping to be electorally rewarded by voters residing in their districts. Such behavior is expected to depend on the incentives imposed by the electoral system. We estimate the causal effect of local representation in a closed list proportional representation system where individual candidates have no clear electoral incentive to favor their hometown. Using data from Norwegian regional governments, we still find a hometown bias. We document that municipalities with a representative on the regional council from the same party as the governor tend to obtain more funding for local investments. In an extension we show that citizens also tend to vote more often for parties with a governor candidate from their own hometown, consistent with an expectation of particularistic benefits. Both effects are driven by municipalities with below median population size.

JEL-Code: D720, H720, H770.

Keywords: distributive politics, voting behavior, regression discontinuity design.

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September, 2015

We are grateful to Ascension Andina-Diaz, Ben Geys, Jo Thori Lind, Linna Martén, Luca Repetto, Rune Sørensen, Dan Smith, Janne Tukiainen, and the participants at several universities and conferences for helpful comments and suggestions. We thank Elisabet Paulsen for excellent research assistance. This paper is part of the research activities at the center of Equality, Social Organization, and Performance (ESOP) at the Department of Economics at the University of Oslo. ESOP is supported by the Research Council of Norway through its Centres of Excellence funding scheme, project number 179552.

1 Introduction

Does geographic representation affect policy outcomes in proportional representation (PR) systems? Theories of legislative decision making emphasize that elected representatives are trading off the virtues of public goods against the attractiveness of spending the money on particularistic goods ('pork') benefitting voters in their home districts (Weingast, Shepsle, and Johnsen, 1981; Baron and Ferejohn, 1989; Volden and Wiseman, 2007; Fréchette, Kagel, and Morelli, 2012). This reasoning fits well with existing evidence from countries using plurality rule, notably the United States.[1] While some scholars argue that geography matters for representation in PR (e.g., Latner and McGann, 2005, Nemoto and Shugart, 2013), the impact on public policy is unclear in this electoral setting.

In this paper we investigate whether politicians are able to obtain public spending benefitting their hometowns within a PR system using at-large districts. We use data from the intermediate level of government in Norway for the period 1976-2011. In this setting, candidates' electoral incentives to cater to their hometowns are muted, since incumbents' electoral fortunes are determined by vote counts (and party list nominations) at the district level (Lancaster, 1986; Carey and Shugart, 1995).

To quantify the extent of local favoritism, we use data on refunds for local investments financed by the regional government and investigate whether the hometowns of council members from the party of the regional governor receive more investment refunds.[2] The governor is elected by the regional council. To overcome potential endogeneity issues related to representation and public policy, we use a simulation based regression discontinuity (RD) design innovated by Fiva, Folke, and Sørensen (2013).[3] We exploit that in

[1]Seminal empirical contributions include Ferejohn (1974) and Mayhew (1974). More recently, Ansolabehere, Gerber, and Snyder (2002) show that counties which lost seats due to redistricting received less state funds than they did before. Elis, Malhotra, and Meredith (2009) find similar effects of reapportionment in the U.S. House. Knight (2008) finds that U.S. states which are over-represented in the Senate receive relatively higher spending from this chamber.

[2]Like Berry, Burden, and Howell (2010) and Albouy (2013), we hence focus on political alignment *within* the same level of government. A related strand of literature have emphasized political alignment *across* government tiers (e.g., Solé-Ollé and Sorribas-Navarro (2008); Brollo and Nannicini (2012); Fouirnaies and Mutlu-Eren (2015).

[3]Pettersson-Lidbom (2008) was the first to implement an RD design for PR elections. See Folke (2014); Freier and Odendahl (2012); Hyytinen, Meriläinen, Saarimaa, Toivanen, and Tukiainen (2014);

close elections it is as good as random which political bloc gets a seat majority, and that this in turn strongly determines which party gets the governorship.

We find evidence of a considerable hometown bias. Our results show that investment refunds received by a local government increase when their representatives on the council are politically aligned with the governor. This indicates that local favoritism induces particularistic policies also under an at-large PR system, either because council members share the interests of people from their hometowns or are more sensitive to their demands.

The hometown bias is driven by municipalities with below median population sizes. This finding is consistent with cornerstone models of distributive politics. In the model of Weingast, Shepsle, and Johnsen (1981), a legislature of representatives from different districts decide autonomously on geographically targeted policies to be financed by joint taxation ('universalism'). The incentive to exploit the common pool is stronger if districts are smaller. In the non-cooperative bargaining setting of Baron and Ferejohn (1989) model, districts constituting the majority coalition receive a larger share of spending. If districts are unequal in size but are equally represented (like states in the U.S. Senate), smaller districts are more likely to be part of the majority (Persson and Tabellini, 2000, p. 165).[4]

In an extension we investigate whether voters respond to information about governor candidates' hometowns. To account for unobserved time-varying changes in party support, we control for voting behavior at the simultaneously held local government elections. Again, we document a strong hometown bias driven by municipalities with a below median population size. It appears that voters use hometown status as a cue to politicians' perceptions of local needs and likely behavior once elected (Shugart, Valdini, and Suominen, 2005).

The remainder of this paper is structured as follows. First, we explain the institutional

Kotakorpi, Poutvaara, and Terviö (2015); Solé-Ollé and Viladecans-Marsal (2013) for subsequent applications and method contributions.

[4]While these models involve a tradeoff between local public spending and private consumption, a similar logic applies when a fixed budget is divided among particularistic and collective goods (Volden and Wiseman, 2007).

setting of Norwegian regional politics (Section 2) and present the data (Section 3). We then analyze distributive politics (Section 4) and voter behavior (Section 5). Section 6 concludes.

2 Institutional setting

Norway is a unitary state with three governmental tiers. The two sub-central tiers, the local and regional governments (*kommuner* and *fylkeskommuner*), are important entities within the Norwegian welfare state.[5] Together, they employ about 19 percent of the labor force and their revenues correspond to about 18 percent of mainland GDP (2011).

In this paper we focus on the regional level of government. Regional governments are responsible for providing upper secondary education, regional roads, local public transportation (since 1981), cultural services like museums and libraries, and dental care (since 1984). Until 2002 they also had the responsibility for specialist health care, which includes all public hospitals.[6] Regional governments have no tax discretion. They receive their revenues through a fixed proportion of the national income tax and grants from the central government.

Apart from the capital, Oslo, there are 18 regions in Norway.[7] The median sized region has about 216,000 inhabitants, covers about 15,000 square kilometers - approximately the size of Connecticut - and has 22 municipalities.

Each regional government is run by a council with 35 to 85 members. Decisions are based on simple majority rule. At the beginning of each electoral period, the council elects a governor (*fylkesordfører*) and an executive board (*fylkesutvalg*). The governors are the key players in the elected bodies. They chair the meetings of both the council and

[5]We use the terms 'local government' and 'regional government' in reference to the political institutions at these two levels. When we refer to the geographical entities, we use 'municipality' and 'region', respectively.

[6]Local governments are responsible for delivering services in the field of compulsory schooling, child and elderly care, primary health care, culture and infrastructure.

[7]Oslo has no regional government, but the local government is responsible for both local and regional public services.

the executive board.[8] The elected governor is almost always the top ranked candidate from one of the party lists.[9]

Elections for both local and regional governments are held every fourth year in September.[10] In the regional election, each region constitutes a single electoral district, and seats are distributed using the Modified Sainte-Laguë method. This method almost achieves a completely proportional seat allocation (Fiva and Folke, forthcoming). From 1975 to 1999, a closed list system was in place.[11] Hence, voters could only affect the election outcome by choosing candidates from different party lists. Since 2003, voters have also had the possibility to cast personal votes. To overrule the party ranking of candidates, 8 percent of voters must give a candidate a personal vote. In practice, the switch to a "flexible list" system (Marsh, 1985) appears to have had negligible effect. In the 2003 election, 98.8 percent of the elected candidates would have been elected even if the personal votes had been disregarded (Christensen, Midtbø, Ringkjøb, Svåsand, and Aars, 2004).

3 Data

To investigate the effects of local representation on regional distributional politics, we employ a rich data set with information on geographical representation and distributional policies for the period 1976-2011. We first describe the policy outcome data before we proceed to the data on elections and representation.

[8] Four regions have since 1999 implemented parliamentary models. We exclude these observations from our analysis.

[9] The only exceptions from this empirical regularity are found for the 1975 election.

[10] National elections do not coincide with the local elections, but these also follow a fixed four-year election cycle.

[11] Candidates were assigned seats according to the ranking made by the respective parties, but with one modification: 1/6 of the seats were reserved for candidates from municipalities which did not occupy any seats once the other 5/6 of the seats had been assigned. These candidates were hence effectively moved higher up on the ranking, and the result was than most municipalities would have at least one representative in the regional council. The motivation for this institutional arrangement was to ensure diverse representation. Note that while this electoral rule made the electoral system *malapportioned* (Samuels and Snyder, 2001) in the sense that less populated municipalities would occupy a disproportional share of seats, it did not affect the degree of proportionality in terms of party representation. In 2003, the seat quota was abolished.

3.1 Policy outcomes

To study distributive politics we need to quantify resources spent locally by the regional government. To this end, we mainly rely on local government account data capturing investment refunds from the regional government.[12] A local government receives a refund whenever it invests in public goods that fall partly or fully within the remit of the regional government's responsibilities.

Investment refunds can be granted for various reasons. One is when the regional government reserves funds for specified purposes and local governments apply for that funding, for instance for sports facilities. Another is when regional government delegates responsibility a specified task, like road maintenance, to the local government.[13] A third is when the local government initiates a project at the local level which involves public buildings or infrastructure for which the regional government is responsible, and asks the regional authorities to approve the necessary development plans and share the financial burden.

Table 1 presents descriptive statistics. The average local government receives investment refunds of NOK 409 per capita (about USD 60 per capita) over a four-year election period. This is a fairly moderate amount.[14] The distribution of this variable is, however, highly skewed, with some local governments receiving much larger refunds. The two dummy variables reported in the table show that 10 percent of the local governments receive refunds of at least NOK 1,000 per capita and 51 percent receives at least NOK 100 per capita.

The advantage of the refund variable is that it captures investment spending on all sectors and varies considerably over time for each municipality. In Appendix B, we present

[12] Aggregate regional government account data is not useful for our purpose, since they do not capture within region variation in public policy.

[13] The regional governments do not build or maintain roads themselves and must therefore buy such services either from the regional office of the National Public Roads Administration or from the relevant local government.

[14] A few local governments have reported small negative transfers. This should not occur, since transfers *from* the local *to* the regional level are recorded in a different cell in the accounting sheets. We regard these local governments as having received zero transfers.

alternative measures of regional public spending.

Table 1: Descriptive statistics: Investment refunds to the municipality from the regional government

Variable	Mean	Std. Dev.	Min.	Max.
Refunds per capita (NOK 2011)	409.27	1068.09	0	23241.15
Refunds at least 1000 NOK per cap.	0.1	0.3	0	1
Refunds at least 100 NOK per cap.	0.51	0.5	0	1
N		3665		

Note: The data is from the municipal accounting sheets which are collected by Statistics Norway (SSB) and made available by the Norwegian Social Science Data Services (NSD). The refunds are adjusted for inflation and summed for each 4-year electoral period (1976-1979, 1980-1983, ..., 2008-2011).

3.2 Electoral variables

Both local, regional and national elections in Norway are dominated by seven political parties. Following previous studies, they can be classified as either belonging to the leftwing socialist camp or the rightwing conservative camp (see, for example, Fiva, Folke, and Sørensen (2013)). The Socialist Left Party (SV) and Labor Party (DNA) belong to the leftwing bloc. The Liberal Party (V), Centre Party (SP), Christian Democrats (KRF), Conservatives (H), and Progress Party (FRP) belong to the rightwing bloc.

The Labor Party is the dominant leftwing party. When the leftwing bloc holds a majority (which happens in about 26 percent of the cases), the governor is always affiliated with the Labor Party. The rightwing bloc is more fragmented. When the rightwing wins the majority, the governor comes either from the Conservatives, the Centre Party, the Christian Democratic Party, or in some cases from the Labor Party. Appendix Table A.1 provides descriptive statistics by party lists.

4 Analysis of Distributive Politics

As discussed in the introduction, we argue that politicians' *electoral* incentives to cater to their hometowns are weak in at-large PR. This does not, however, imply that politicians

do not wish to provide particularistic benefits to local groups. Such *local favoritism* could occur because politicians share interests with the people living there, or because they have a better understanding of local needs.

In this section we investigate whether council representatives from the party of the governor (*aligned representatives*) are able to use their position to obtain more regional public investments in their home municipalities.[15] How can we proceed to pin down this effect? For ease of exposition, consider a situation where only two parties exist, *left* and *right*. Municipalities could then be classified into four groups: (i) municipalities without any representatives in the council, (ii) municipalities with leftwing representative(s) only, (iii) municipalities with rightwing representative(s) only, and (iv) municipalities with representatives from both parties. How would a switch from a leftwing to a rightwing governor impact local public investments in these four groups of municipalities? In general, there will be two types of effects.

The first type of effects is *independent* of local representation and could arise, if, for example, the two parties have different preferences for the composition of the public sector. If one party has a stronger preference for public investments in general, or for spending on sectors which are more capital intensive, refunds for investments could increase when this party holds power. This type of effect would have a similar impact on all four groups of municipalities.

The second type of effect *depends on local representation* and is the effect we are interested in. If politically alignment is important in our context, then a switch from leftwing to a rightwing governor will be bad news for municipalities with only leftwing representative(s) (group (ii)) and good news for municipalities with only rightwing representative(s) (group (iii)). Since municipalities without any representatives are never politically aligned, this type of effect does not apply to group (i), nor to municipalities in group (iv), which are always politically aligned.

With these two types of effects in mind, we start our empirical investigation by clas-

[15] A home municipality here refers to the municipality in which the council member is living at the time of election.

Table 2: Classification of municipalities based on representation in the regional council (N=No representatives, Y=At least one representative)

	Right N	**Right Y**
Left N	No representatives from DNA or SP/KRF/H (14 percent of observations)	Rep(s). from SP/KRF/H, but not from DNA (26 percent of observations)
Left Y	Rep(s). from DNA, but not from SP/KRF/H (28 percent of observations)	Rep(s). from both DNA and SP/KRF/H (32 percent of observations)

Note: The table shows the fraction of municipalities with a local representative on the regional council from parties that ever gets the governorship (the Labor Party (DNA), Centre Party (SP), Christian Democrats (KRF) or Conservatives (H)). Representatives from other parties are not included.

sifying municipalities into four groups based on the political *bloc* their representative belongs. Since we are interested in political alignment, we only classify representatives belonging to one of the parties that ever wins the governorship (DNA, SP, KRF or H) as part of the left or right bloc. Table 2 shows that the number of observations are quite evenly distributed across group (ii), (iii) and (iv), while only 14 percent of our observations belong to group (i) (no representatives from the parties that ever wins the governorship).

The challenge is that in general, which party is in power is not exogenous to policy outcomes. It could depend on previous policies, policy promises and unobserved factors correlated with policies. For causal inference, we therefore exploit that in close elections it is *as good as random* which political bloc wins a seat majority, which then strongly determines which party gets the governorship, and thereby political alignment. The next section explains how we proceed.

4.1 Close Elections for Causal Inference

Electoral rules govern how votes translate into seats. A consequence is that political representation changes discontinuously at particular thresholds. This makes the regression discontinuity (RD) design ideal for electoral settings; close elections allow researchers to

plausible identify causal effects of political representation (Lee (2008), Pettersson-Lidbom (2008)).

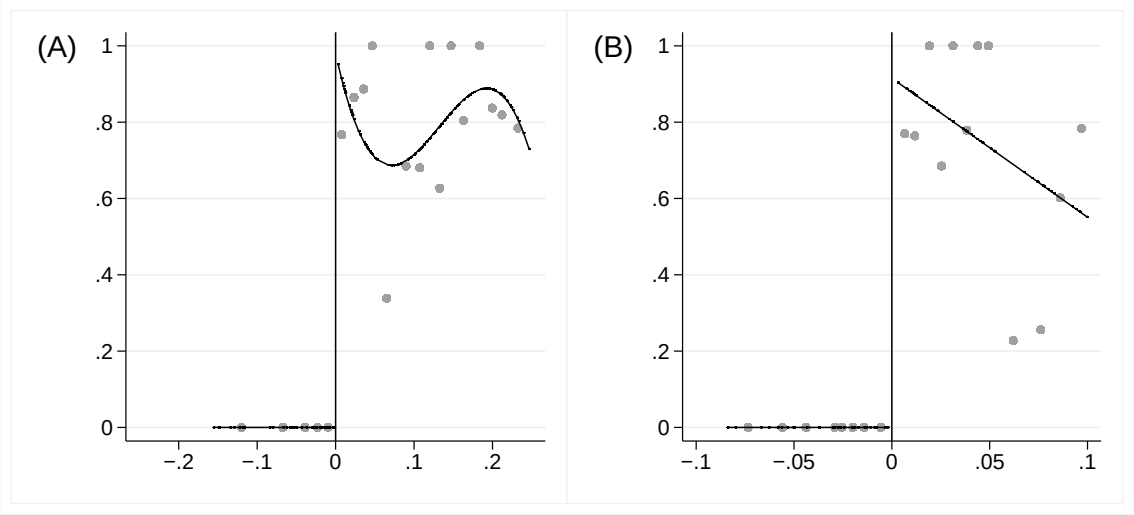
In majoritarian elections with two parties, it is straightforward to measure the closeness of an election, and implement an RD design (cf. Lee and Lemieux (2010)). In PR systems, it is more complicated, since the number of seats a party wins depends on the vote counts of *all* parties. To deal with this issue we rely on the simulation procedure innovated by Fiva, Folke, and Sørensen (2013). This methodology allows us to quantify how close the rightwing bloc was from losing (winning) the seat majority, *rightwing win margin* in the following.

More specifically, this distance measure pins down the vote change (in percentage points) across blocs sufficient to change the seat majority with 50 percent probability (i.e. in half the simulations). After having constructed this forcing variable, we can proceed as in the case of majoritarian elections and two parties, the standard RD setting.

The validity of the RD design hinges on the assumption that parties cannot sort *exactly* around the threshold for a seat change. In multi-member PR elections this seems plausible, since parties cannot predict *ex ante* where the seat thresholds are going to be (Fiva, Folke, and Sørensen, 2013). However, it is reassuring that density plots split by the four groups of municipalities from Table 2 shows no evidence of bunching at the threshold for the seat majority change (Appendix Figure A.1).

Figure 1 shows that the probability of having a governor from the rightwing bloc increases with 90-95 percentage points at the cut-off where the seat majority changes from the left to right. The jump in probability is approximately the same whether we use the full bandwidth and a qubic control function (panel A) or zoom in to a plus minus 10 percentage point bandwidth and use a linear control function (panel B). To the left of the cut-off, where the leftwing bloc holds the seat majority, the governor is always from the leftwing bloc. However, to the right of the cut-off, where the rightwing bloc holds the seat majority, the governor is sometimes from the leftwing bloc. I.e., there is "imperfect compliance", which leads us to a fuzzy RD set-up (see Lee and Lemieux (2010)).

Figure 1: Probability of a rightwing governor by win margin of the righwing bloc

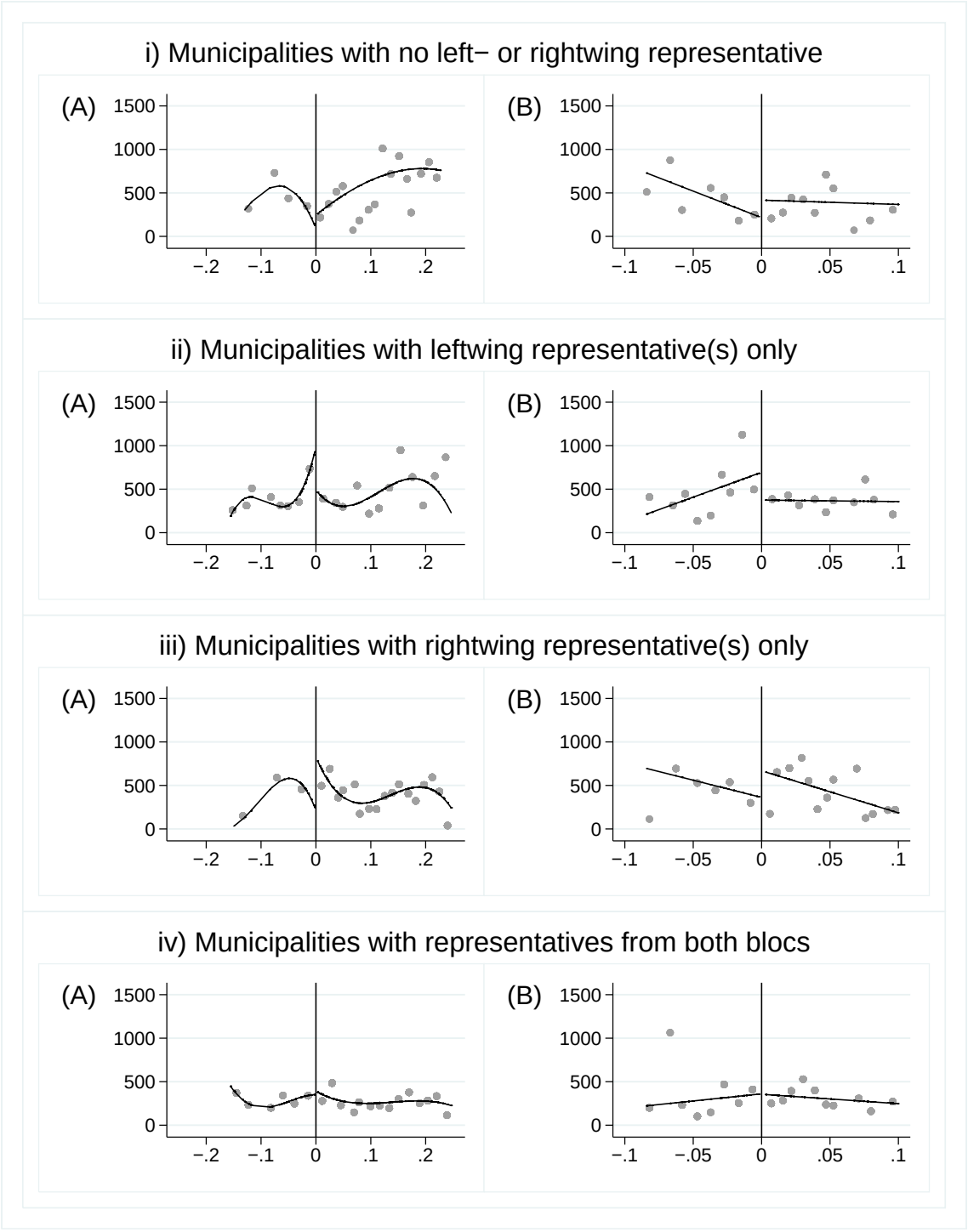


Note: The figure shows the relation between the party identity of the governor and the win margin of the rightwing bloc in the regional election. The governor is considered rightwing if representing the Center Party (SP), Conservatives (H) or Christian Democrats (KRF), and leftwing if representing the Labour Party (DNA). The 20 bins contain approximately the same number of observations. Separate linear regression lines are estimated below and above the discontinuity using the underlying data (n=3665). The figure is produced with the -rdplot- module in STATA.

Before we introduce the fuzzy RD design, we present standard RD plots capturing *Intention To Treat* effects of a switch in the bloc holding the governorship. As explained above, we expect the effect of a change in the bloc holding the governorship to be asymmetric for the two intermediate groups of municipalities from Table 2. Figure 2 provides graphical evidence that this is the case. When crossing the cutoff where the bloc majority changes from leftwing to rightwing, per capita investment refunds appear to jump down for municipalities with leftwing representatives only (group ii) and up for municipalities with rightwing representatives only (group iii). For the two other groups ((i) and (iv)), the jumps at the cut-off are close to zero, suggesting that the effect of a bloc switch on general investments is small. Therefore it seems plausible that the jumps at the cut-off for the intermediate groups are due to political alignment.

The changes in investment refunds to groups (ii) and (iii) when crossing the cut-off are -467 NOK and +482 NOK per capita, respectively, using the full bandwidth polyno-

Figure 2: Refunds to local governments by rightwing win margin in the regional election, split by local representation in the regional council



Note: The figure shows the relation between per capita investment refunds from the regional to the local government (in NOK per election period) and the win margin of the rightwing bloc in the regional election. The figure is split by four categories describing how a municipality is represented on the regional council. The 20 bins in each plot contain approximately the same number of observations. Separate regression lines are estimated to the left and right of the discontinuity using the actual observations (n=3665). The figure is produced with the -rdplot- module in STATA.

mial specifications (A) of Figure 2 without any additional control variables. We cannot, however, draw firm conclusions about the consequences of political alignment based on this pattern. None of the jumps at the cut-off are statistically significant at conventional levels.[16] We therefore proceed with an RD design that aggregates information across all four groups of municipalities, which results in more statistical precision.

4.2 Fuzzy Regression Discontinuity Design

As in the previous subsection, we rely on close races for the bloc majority for causal inference. However, we now estimate the effects that a bloc switch has on municipalities with leftwing and rightwing representatives jointly in one specification. In addition, we exploit that the probability of becoming *aligned* depends on the *party identity* of the municipalities' representative(s). For example, when the bloc majority switches from left to right, a municipality with representative from each of the three rightwing parties is more likely to become aligned, than a municipality with only representative(s) from one of the three parties. Formally, we instrument for political alignment using interactions between regional government bloc majority and the party identity of the representative(s) from each the municipality. Since the probability of receiving treatment changes discontinuously at the cutoff for a seat majority change, this is a fuzzy regression discontinuity design (Lee and Lemieux, 2010).

The first stage is given by:

$$Align_{rit} = \lambda_{ri} + \iota_t + \mu_0 MajLeft_{rt} + \sum_P \mu_P rep^P_{rit} + \sum_P \alpha_P MajLeft_{rt} \cdot rep^P_{rit} + \psi_0(WinMargin_{rt}) + \sum_P rep^P_{rit} \cdot \psi_P(WinMargin_{rt}) + \varepsilon_{rit}, \quad (1)$$

where $Align_{rit}$ is an indicator variable capturing whether municipality i has any representative in regional council r belonging to the same party as the governor at election

[16] The p-value of the effect on municipalities with a leftwing representative only is 0.40, using the wild bootstrap procedure of Cameron, Gelbach, and Miller (2008) to account for within-region correlation. The p-value of the effect on municipalities with a rightwing representative only is 0.11.

period t. $MajLeft_{rt}$ is an indicator variable describing whether or not the left has a seat majority in regional council r at election period t. $rep^P_{rit}, P \in \{DNA, H, KRF, SP\}$ are indicator variables describing whether the municipality has any representative in the regional council belonging to each of these parties. The last interaction terms in the first line of this equation are the excluded instruments. The α^P's capture changes in the probability that the municipality has any representative aligned with the governor as we cross the threshold for a seat majority.

We use observations both "close to" and "far away" from the threshold in our baseline analysis. A low order polynomial of the win margin on each side of the discontinuity, $\psi(WinMargin_{rt})$ ensures, however, that we isolate variation in alignment driven by close elections. The polynomial is interacted with rep^P_{rit} for each party P. The equation also includes municipality fixed effects, γ_{ri}, and election period fixed effects, ι_t.

In our main specifications we control for a polynomial of second or third order. We also show results both with and without municipality fixed effects. In sensitivity analysis we check the stability of our estimates when using different bandwidths (i.e. excluding observations "far away" from the threshold).

Table 3 provides the first stage estimates. As expected, we find that the probability of being aligned with the governor changes dramatically as we cross the threshold for a seat majority change. For municipalities having a representative from the Labor Party in the regional council, the increase is almost 100 percentage points. For municipalities with representatives from the rightwing parties the effect, naturally, is smaller, goes in the opposite direction and also differs between the three parties. The first stage is similar across all specifications (second or third order polynomial, with or without municipality fixed effects). A graphical representation is shown in Appendix Figure A.2.

Table 3: First Stage

	(1)	(2)	(3)	(4)
Left Majority × DNA	0.84***	0.79***	1.04***	0.95***
	(0.05)	(0.05)	(0.07)	(0.07)
Left Majority × SP	-0.46***	-0.49***	-0.48***	-0.53***
	(0.07)	(0.07)	(0.08)	(0.09)
Left Majority × KRF	-0.17**	-0.15**	-0.14	-0.09
	(0.07)	(0.07)	(0.09)	(0.10)
Left Majority × H	-0.31***	-0.37***	-0.47***	-0.55***
	(0.06)	(0.06)	(0.08)	(0.08)
Left Majority	-0.03	0.02	-0.09*	-0.04
	(0.04)	(0.05)	(0.05)	(0.06)
Rep. from DNA	0.16***	0.20***	-0.03	0.02
	(0.05)	(0.05)	(0.07)	(0.06)
Rep. from SP	0.46***	0.39***	0.47***	0.40***
	(0.07)	(0.07)	(0.08)	(0.08)
Rep. from KRF	0.17***	0.23***	0.14	0.21**
	(0.07)	(0.07)	(0.09)	(0.09)
Rep. from H	0.31***	0.34***	0.48***	0.50***
	(0.06)	(0.06)	(0.08)	(0.08)
F-stat., excluded instr.	93.52	76.69	67.65	55.57
Observations	3665	3665	3665	3665
Mean of outcome var.	0.49	0.49	0.49	0.49
Municipality fixed effects	No	Yes	No	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Polynomial order	2	2	3	3

Note: The dependent variable is an indicator variable capturing whether the municipality has any representative in the regional council belonging to the same party as the governor (Align$_{it}$). Standard errors clustered at the municipality level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The second stage is given by:

$$Y_{rit} = \gamma_{ri} + \nu_t + \delta \hat{Align}_{rit} + \beta_0 MajLeft_{rt} + \sum_P \beta_P rep^P_{rit} + \\ + \phi_0(WinMargin_{rt}) + \sum_P rep^P_{rit} \cdot \phi_P(WinMargin_{rt}) + \xi_{rit}, \quad (2)$$

where Y_{rit} is regional government investments in municipality i in region r at time t. Two Stage Least Squares (2SLS) estimates are provided in columns 1-4 of Table 4. Across all specficiations, we find a statistically significant positive effect of having a local representative from the governor's party on the total per capita refunds a municipality receives.[17] The point estimate of about NOK 600 (USD 90), corresponds to about 0.56 of a standard deviation. The results do not change much across specifications. When controlling for a third-order polynomial, the results are almost identical with and without municipality fixed effects (columns 3 and 4).[18]

As a comparison to our 2SLS estimates, we also show Ordinary Least Squares (OLS) estimates where we do *not* rely on close elections for inference. In this specification (column 5 of Table 4) we do not instrument for $Align_{rit}$, but do control for $\sum_P rep^P_{rit}$, as well as dummies for which party has the governorship. The estimated effect of $Align_{rit}$ in this model is about 1/8 the size of the effect in the RD analysis and not statistically significant.

[17] In all specifications we report standard errors clustered at the municipality level (464 clusters). If we cluster the standard errors at the regional level (18 clusters) precision increases. However, with only 18 clusters inference may not be reliable. As a supplement to our municipality clustered standard errors, we therefore follow Cameron, Gelbach, and Miller (2008) and apply (wild) bootstrap resampling methods when clustering at the regional level. With a second order polynomial, the effect of being politically aligned is statistically significant at the 5 percent level both without and with municipality fixed effects (p = 0.03 and p = 0.04, respectively). With a third order polynomial, the effect is statistically significant at the 10 percent level without municipality fixed effects (p = 0.09), but not statistically significant at conventional levels (p = 0.11) when municipality fixed effects are included.

[18] Since we do not have a source of exogenous variation in whether the municipality is represented in the council and through with party or parties, we do not give the parameter estimates for having a representatives for DNA, SP, H and KRF causal interpretations.

Table 4: Second Stage: The Effect of Political Alignment on Refunds per Capita

	(1) 2SLS	(2) 2SLS	(3) 2SLS	(4) 2SLS	(5) OLS
Aligned representative	587.05**	646.24**	626.62**	622.90**	77.83
	(290.47)	(290.71)	(316.87)	(288.35)	(50.17)
Left Majority	-106.27	-185.88*	-173.14	-289.43*	
	(101.66)	(110.11)	(145.45)	(150.50)	
Rep. from DNA	-200.94	-186.35	-141.63	-108.74	4.57
	(146.21)	(139.69)	(152.88)	(147.30)	(40.07)
Rep. from SP	-251.09	-67.96	-350.32*	-140.07	12.76
	(153.93)	(106.87)	(179.51)	(122.97)	(35.50)
Rep. from KRF	-137.66	-69.67	-155.15	-9.22	-20.24
	(122.30)	(126.08)	(156.99)	(149.13)	(40.80)
Rep. from H	-26.74	13.75	-106.09	-90.68	-13.34
	(133.50)	(117.17)	(178.57)	(145.65)	(46.23)
Observations	3665	3665	3665	3665	3665
Mean of outcome var.	409.27	409.27	409.27	409.27	409.27
Municipality fixed effects	No	Yes	No	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Governor party dummies	No	No	No	No	Yes
Polynomial order	2	2	3	3	-

Note: The dependent variable is per capita refunds (in NOK per election period). Standard errors clustered at the municipality level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.3 Extensions and Sensitivity Checks

Given that the per capita refunds variable is highly skewed, we also provide results when replacing our main dependent variable with dummies indicating whether the local government receives at least NOK 100 or NOK 1000 per capita, respectively. We report these results only for the specification with a third-order polynomial and municipality fixed effects in column 2 and 3 of Table 5. Using the NOK 1000 cutoff, the effect is positive and statistically significant. Using the NOK 100 cutoff, it is smaller and statistically insignificant. It appears that large investment projects drive our baseline results.

In columns 3-6 of table 5 we show separate results for municipalities with above and below median population sizes (measured in 1995), using the same specification. For the sub-sample of large municipalities, the effect of being politically aligned is small and statistically insignificant. For the sub-sample of small municipalities, the point estimates are somewhat larger than for the full sample and statistically significant. This indicates that it is the small municipalities that drive the baseline results. We cannot, however, reject that the effects of being politically aligned are of the same size in the small and large municipalities.

All observations were included in the analysis presented above regardless of the win margin. Controlling for a smooth function of the win margin ensures that the inference is drawn at the threshold where the majority bloc changes. To check the stability of our results, we investigate to what extent they change when we exclude observations far from the threshold where the majority bloc changes. Figure 3 shows the results of this exercise using both the continuous outcome variable (upper panel) and the dummy for refunds above 1000 NOK per capita (lower panel). The figure provides point estimates and corresponding 95 % confidence intervals across bandwidths from 1 to 25 percentage points for the specification with a second order polynomial and no municipality fixed effects. Since all observations fall within a 25 percentage point bandwidth, the rightmost estimate reported in the upper panel of Figure 3 corresponds to specification (1) in Table 4.

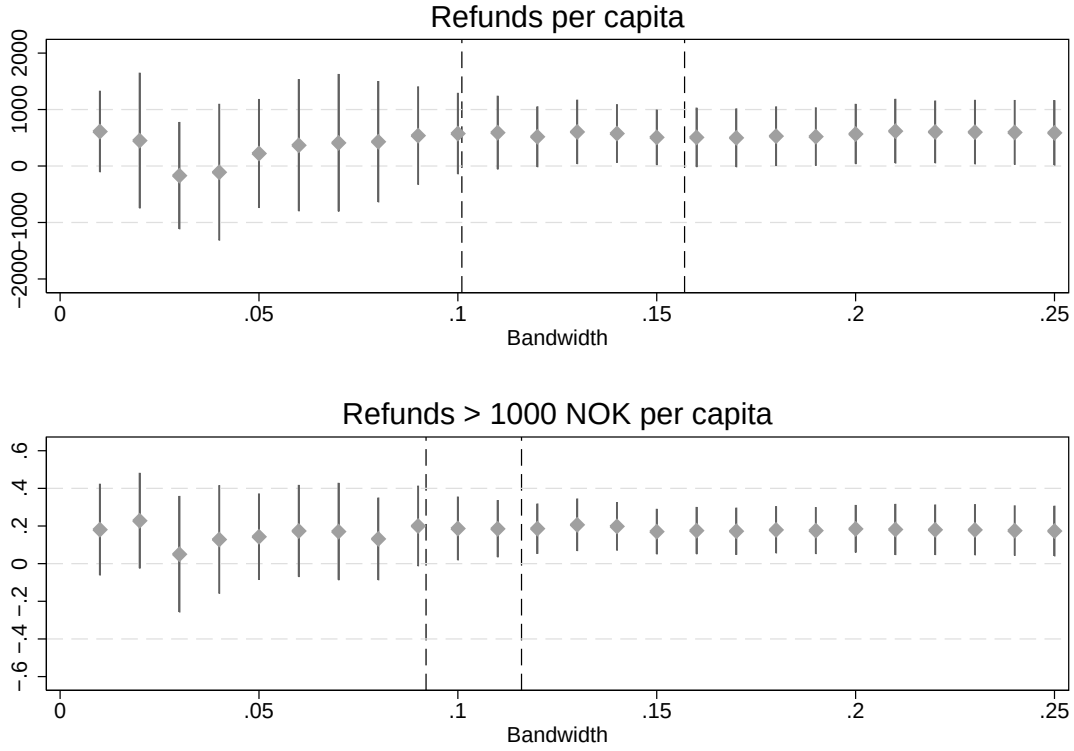
Table 5: Second Stage: Alternative dependent variables and split on municipality size

	All municipalities			Large mun.		Small mun.	
	Refunds	Ref100	Ref1000	Refunds	Ref1000	Refunds	Ref1000
Aligned representative	622.90**	0.11	0.24***	52.84	0.10	793.31**	0.28***
	(288.35)	(0.12)	(0.08)	(266.68)	(0.13)	(396.63)	(0.09)
Left Majority	-289.43*	-0.18**	-0.17***	0.90	-0.07	-538.23**	-0.27***
	(150.50)	(0.08)	(0.05)	(210.95)	(0.08)	(226.20)	(0.06)
Rep. from DNA	-108.74	-0.02	-0.09*	-316.64**	-0.17*	140.40	-0.03
	(147.30)	(0.07)	(0.05)	(153.21)	(0.10)	(202.89)	(0.06)
Rep. from SP	-140.07	0.10	-0.03	62.37	-0.01	-322.93	-0.06
	(122.97)	(0.07)	(0.05)	(101.15)	(0.05)	(218.48)	(0.09)
Rep. from KRF	-9.22	0.06	0.01	74.06	0.02	-130.09	-0.04
	(149.13)	(0.10)	(0.05)	(170.38)	(0.06)	(250.25)	(0.10)
Rep. from H	-90.68	-0.04	-0.09*	-16.10	-0.03	53.01	-0.12
	(145.65)	(0.08)	(0.05)	(118.37)	(0.05)	(284.31)	(0.08)
Observations	3665	3665	3665	1908	1908	1757	1757
Mean of outcome var.	409.27	0.51	0.10	271.35	0.07	559.05	0.14
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Polynomial order	3	3	3	3	3	3	3

Note: The dependent variables are per capita refunds (in NOK per election period) and dummy variables indicating whether the local government received refunds of more than 100 or 1000 NOK per capita. The sample is split by median population size in 1995. Standard errors clustered at the municipality level in parentheses. * $p < 0.10$,** $p < 0.05$, *** $p < 0.01$.

The results are similar for all bandwidths larger or equal to plus/minus 9 percentage points. For narrower bandwidths the estimates are less stable and have larger confidence intervals, but are mostly positive.[19] The sharp RD design shown in Figure 2 in section 4.1 gives a Imbens and Kalyanaraman (2011) optimal bandwidth of 0.101 for group (ii) and 0.157 for group (iii).

Figure 3: Changing the Bandwidth, Specification with Quadratic Polynomial



Note: The dependent variable in the upper panel is per capita refunds (in NOK per election period). The dependent variable in the lower panel is an indicator variable turned on if per capita refunds (in NOK per election period) is larger than 1000. Bars represent 95 percent confidence intervals. The vertical dashed lines represent the Imbens and Kalyanaraman (2011) optimal bandwidths based on the sharp regression discontinuity designs in section 4.1. The leftmost line is based on the sample of municipalities with leftwing representative(s) only. The rightmost line is based on the sample of municipalities with rightwing representative(s) only. Standard errors are clustered by municipality.

[19]The lack of precision for narrower bandwidths could be due to the fact that the specification with a second order polynomial and interactions is relatively demanding. When only including a linear polynomial, we get similar results also for narrower bandwidths (plus/minus 4-8 percentage points). As seen in Appendix Figure A.3, the results from this specification are however less stable when we extend the bandwidth.

While the investment refunds constitute a considerable resources spent locally by the regional government, there are several regional government policies with distributional implications the investment refunds do not capture. We have therefore added data on localization of upper secondary schools, localization of maternity wards, and major transportation investments (like tunnels and bridges). In Appendix B we show results when using these alternative dependent variables. Since only a small fraction of municipalities each year are affected by such major projects, this analysis suffers from low precision. In all specifications we find estimated effects consistent with our refund analysis, but none are statistically significant.

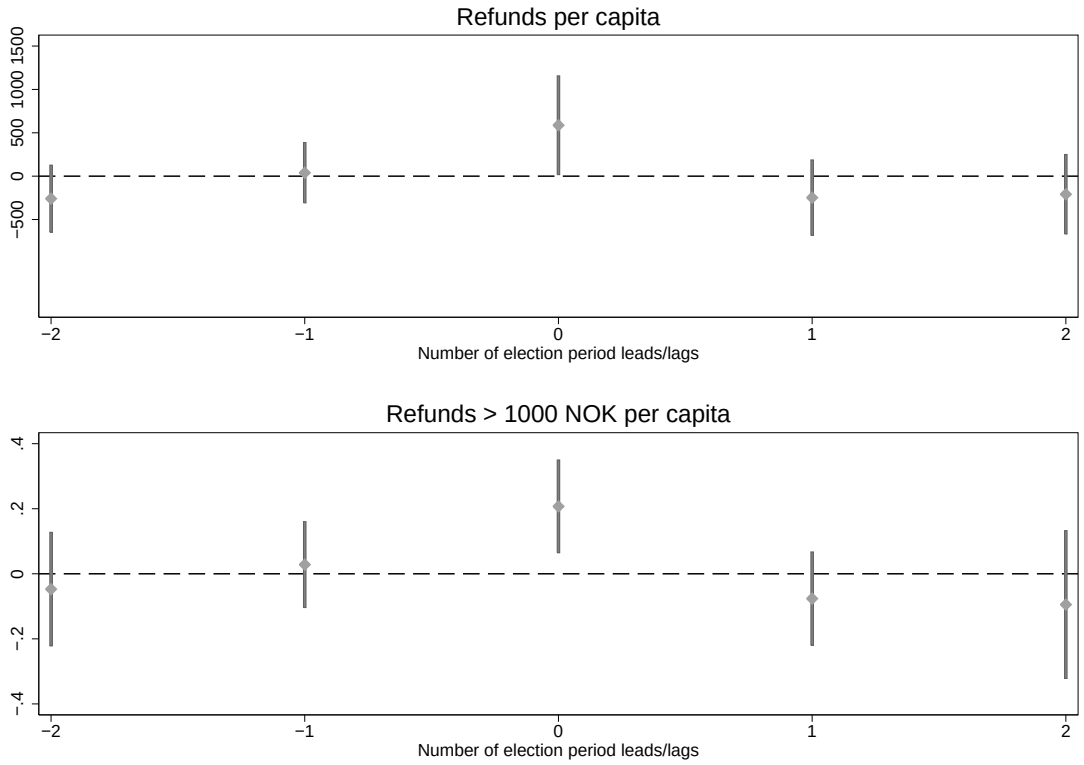
To empirically assess the validity of our identification strategy, we conduct a falsification test. We re-estimate equation (3) where Y_{it} is replaced with Y_{it+k} for $k = -2, -1, 0, 1, 2$ and contrast placebo estimates for $\delta^{j,k}$ for $k = -2, -1, 1, 2$ to the actual estimate $\delta^{j,k}$ when $k = 0$. In Figure 4 we report the estimated coefficients of these regressions and 95 percent confidence intervals. If the placebo analysis produces similar results as our baseline analysis it would cast doubts on the research design used in this paper. We do not find this to be the case. For $k = -2, -1$, the point estimates are quite small and not statistically different from zero. This is also the case for the subsequent periods ($k = 1, 2$), indicating that there are no delayed effects.

4.4 Summary of Main Results

Overall, our results show that individual representatives from the ruling party are able to obtain higher public investments in their local communities. Our results are particularly strong for the smaller municipalities. This is consistent with theoretical predictions saying that small areas care relatively less about the common good (Weingast, Shepsle, and Johnsen, 1981) or are less costly to include in the majority in a legislative bargaining framework (Persson and Tabellini, 2000, p. 165). These models do not, however, consider the role of political parties in distributive politics.

In light of the conventional wisdom about party-centered systems, where "voters vote

Figure 4: Falsification Test



Note: The dependent variable in the upper panel is per capita refunds (in NOK per election period). The dependent variable in the lower panel is an indicator variable turned on if per capita refunds (in NOK per election period) is larger than 1000. Reported are estimates for $\delta^{j,k}$ *from equation (3) where* Y_{it} *is replaced with* Y_{it+k} *for* $k = -2, -1, 0, 1, 2$*. Municipality fixed effects not included. Bars represent 95 percent confidence intervals. Standard errors are clustered by municipality.*

on the basis of broad policy options rather than on the basis of promised particularistic benefits" (Carey and Shugart, 1995, p. 433), our results are striking: It appears that even in a party-centered closed list PR system, politicians, once elected, tend to cater to their hometowns. A natural question to ask is whether voters also exhibit a hometown bias in this electoral setting. This is the topic of the next section.

5 Analysis of Voter Behavior

Key (1949) coined the term "friends-and-neighbors" voting to describe the phenomenon of voters disproportionately supporting candidates with some local attachment. Such voting behavior could be purely instrumental: voters expect to receive distributional benefits of local representation and vote accordingly (Key, 1949; Lewis-Beck and Rice, 1983). Such behavior might also have a less instrumental explanation. Lewis-Beck and Rice (1983) argue, for example, that voters may experience psychological satisfaction from voting for someone who shares a common trait with them. Even though numerous studies have documented the occurrence of "friends-and-neighbors" voting, little is known about why (Meredith, 2013b).

5.1 Empirical Approach

To investigate voter's hometown bias in our setting, we collect data on first placed candidates' hometowns (i.e., governor candidates' hometowns) and relate this to voting behavior.[20] We estimate the following equation:

$$VoteRegional_{it}^{y} = \gamma_t + \nu_i + \sum_{P} \mu_P No1_{it}^{P} + \lambda VoteLocal_{it}^{y} + \epsilon_{it}, \tag{3}$$

where $VoteRegional_{it}^{y}$ is the fraction of the electorate casting a vote for y, $y \in \{DNA, H, KRF, SP, Other, Abstain\}$, at the regional government election in municipality i at time t. $No1_{it}^{P}, P \in \{DNA, H, KRF, SP\}$ is an indicator variable representing

[20]Because of data availability, we do not test for similar effects for lower ranked candidates.

whether the first placed candidate at the regional election from party P at time t is from municipality i.[21]

To control for unobserved time-varying changes in party support, we exploit the coincidence in time and space of local and regional government elections, as in Andersen, Fiva, and Natvik (2014), and Fiva and Folke (forthcoming). Hence, $VoteLocal_{it}^{y}$ is the fraction of the electorate casting a vote for y, $y \in \{DNA, H, KRF, SP, Other, Abstain\}$, at the local government election in municipality i at time t.

μ_P captures the causal effect of having a first placed candidate on $VoteRegional_{it}^{y}$ as long as $Cov\left(No1_{it}^{P}, \epsilon_{i,c}\right) = 0$. The identifying assumption is that after conditioning on $VoteLocal_{it}^{y}$ there are no time varying factors (correlated with $No1_{it}^{P}$) that have an independent impact on $VoteRegional_{it}^{y}$.

There is a strong degree of overlap in the voting patterns across the local and regional government elections (cf. Appendix Figure A.4). This indicates that $VoteLocal_{it}^{y}$ is a highly relevant control variable which allows us to net out, for example, party y's tendency to choose first placed candidates from a party stronghold.[22] A potential problem, however, is that simultaneously held elections may introduce interaction or contamination effects (Kern and Hainmueller, 2006; Bafumi, Erikson, and Wlezien, 2010). For example, having a first placed local candidate at the regional election from DNA, may lead some voters to vote for DNA at the local level as well. Such lack of independence across elections is likely to bias our tests against finding any effect of having a first placed candidate (Cox, Rosenbluth, and Thies, 2000; Fiva and Folke, forthcoming). We therefore report results both with and without the local control variable.

[21] Information on name, year of birth and hometown (municipality) is given on all candidates listed on the ballot paper. Some parties also list the candidate's occupation.

[22] Under the nationwide closed list PR systems of Israel and the Netherlands major parties tend to nominate candidates from the regions where they are strong, but not where they are very dominant (Latner and McGann, 2005).

5.2 Results

The results reported in Table 6 indicate that voters, on average, exhibit a considerable hometown bias. Having a local gubernatorial candidate increases the fraction of the electorate voting for the respective party with about 1.5 to 3 percentage points (cf. the diagonal elements in Table 6). These effects are statistically significant at the 1 percent level for all four parties.

In Table 7 we provide results when local election control variables are included. They are arguably the most credible estimates of voters' hometown bias since municipality specific changes in political support common across both offices are netted out. As anticipated, the control variables are highly relevant. Depending on the specification, the R^2 increases by 7 to 22 percentage points when they are included. The point estimates of interest are, however, essentially unaltered.

The increase in electoral support for a party with a local candidate can be split into two components. First, through shifts in the distribution of votes for the citizens that would turn out to vote anyway. Second, through the mobilization of supporters who otherwise would abstain (Rice and Macht, 1987). In our setting, both mechanisms appear to matter. The reduction in abstainers (cf. column 6 in Table 7), however, only amounts to a small fraction of the total effect for all parties.[23] Fiva and Smith (2015) document a similar hometown bias in Norway's historic two-round parliamentary elections.

Our results are also similar to those documented in U.S. gubernatorial races. Meredith (2013a,b) finds that when a gubernatorial candidate was born or resides in a county, their vote share increases by about 3 percentage points. Like Lewis-Beck and Rice (1983) and Rice and Macht (1987), he finds that less populated areas demonstrate more "friends-and-neighbors" voting. In Tables 8 and 9 we split the sample into municipalities with below and above median population sizes (measured in 1995), respectively. As in the analysis of distributive politics, the small municipalities drive the baseline results. In

[23]For KRF we cannot reject that the entire effect is due to voters who generally support opposing parties convert to support the candidate with local attachments.

Table 6: Electoral Support and First-placed Candidates' Hometown

	(1) DNA	(2) SP	(3) KRF	(4) H	(5) OTH	(6) Abstain
Local top cand., DNA	0.026***	-0.001	-0.002	-0.006**	-0.003	-0.014***
	(0.007)	(0.003)	(0.002)	(0.003)	(0.003)	(0.005)
Local top cand., SP	-0.011**	0.035***	-0.006***	-0.001	-0.010**	-0.007
	(0.005)	(0.006)	(0.002)	(0.003)	(0.004)	(0.005)
Local top cand., KRF	-0.001	-0.006	0.015***	-0.002	-0.003	-0.003
	(0.005)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Local top cand., H	-0.007*	-0.002	-0.003	0.023***	-0.006	-0.005
	(0.004)	(0.004)	(0.002)	(0.005)	(0.004)	(0.004)
R-squared	0.57	0.37	0.53	0.59	0.45	0.75
Observations	3277	3277	3277	3277	3277	3277
Mean of outcome var.	0.21	0.11	0.07	0.10	0.14	0.37
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	All	All	All	All	All

Note: For specification (1) to (5), the dependent variable is the electoral support of the relevant party given in the Table heading. For specification (6), the dependent variable is the fraction of abstainers. Standard errors clustered at the local government level in parentheses. * $p < 0.10$,** $p < 0.05$, *** $p < 0.01$.

Table 7: Local Election Control Variables Included

	(1) DNA	(2) SP	(3) KRF	(4) H	(5) OTH	(6) Abstain
Local top cand., DNA	0.021***	-0.000	-0.003**	-0.005**	-0.004	-0.006***
	(0.006)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)
Local top cand., SP	-0.009***	0.034***	-0.006***	-0.004*	-0.008**	-0.007***
	(0.003)	(0.005)	(0.002)	(0.002)	(0.004)	(0.002)
Local top cand., KRF	-0.002	-0.006**	0.014***	-0.003*	-0.002	-0.001
	(0.002)	(0.003)	(0.003)	(0.002)	(0.004)	(0.002)
Local top cand., H	-0.005**	-0.003	-0.003	0.022***	-0.006*	-0.004**
	(0.002)	(0.004)	(0.002)	(0.005)	(0.003)	(0.002)
Support, local election	0.578***	0.329***	0.346***	0.388***	0.162***	0.889***
	(0.023)	(0.025)	(0.045)	(0.022)	(0.016)	(0.020)
R-squared	0.79	0.52	0.61	0.71	0.51	0.94
Observations	3276	3276	3276	3276	3276	3276
Mean of outcome var.	0.21	0.11	0.07	0.10	0.14	0.37
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	All	All	All	All	All

Note: For specification (1) to (5), the dependent variable is the electoral support of the relevant party given in the Table heading. For specification (6), the dependent variable is the fraction of abstainers. Standard errors clustered at the local government level in parentheses. * $p < 0.10$,** $p < 0.05$, *** $p < 0.01$.

Table 8: Analysis of Municipalities With Below Median Population Size

	(1) DNA	(2) SP	(3) KRF	(4) H	(5) OTH	(6) Abstain
Local top cand., DNA	0.073***	-0.004	-0.008**	-0.007	-0.022***	-0.012**
	(0.019)	(0.010)	(0.004)	(0.004)	(0.007)	(0.005)
Local top cand., SP	-0.025***	0.056***	-0.009**	-0.010**	-0.004	-0.010***
	(0.006)	(0.010)	(0.004)	(0.004)	(0.005)	(0.003)
Local top cand., KRF	-0.006	-0.013*	0.030***	-0.005	-0.001	-0.006
	(0.006)	(0.007)	(0.006)	(0.004)	(0.009)	(0.004)
Local top cand., H	-0.014	-0.005	-0.003	0.045***	-0.028**	-0.005
	(0.012)	(0.005)	(0.009)	(0.010)	(0.011)	(0.005)
Support, local election	0.482***	0.300***	0.293***	0.290***	0.106***	0.881***
	(0.028)	(0.028)	(0.053)	(0.025)	(0.015)	(0.030)
R-squared	0.70	0.55	0.57	0.66	0.53	0.92
Observations	1646	1646	1646	1646	1646	1646
Mean of outcome var.	0.21	0.14	0.08	0.09	0.12	0.36
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Note: For specification (1) to (5), the dependent variable is the electoral support of the relevant party given in the table heading. For specification (6), the dependent variable is the fraction of abstainers. Municipalities with below median population sizes in 1995 are included. Standard errors clustered at the local government level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

municipalities with below median population sizes (Table 8) the hometown bias is about twice as large as in the municipalities with above median population sizes (Table 9).[24]

A plausible interpretation of these results is that voters use hometown status as a cue to politicians' understanding of local needs and likely behavior once elected (Shugart, Valdini, and Suominen, 2005). In other words, hometown status works similarly to "party cues" (Snyder and Ting, 2002; Geys and Vermeir, 2014). If candidates campaign more effectively in their hometowns, this may also contribute to these results.

[24]Inspired by Meredith (2013b) we calculate residuals from Equation (4) excluding $\sum_P \mu_P No1_{it}^P$. In Appendix Figure A.5 we plot these residuals as a function of the municipalities' share of the regional population. Like Meredith (2013b), we find that the tendency to vote for hometown candidates falls with the municipality's share of the regional population.

Table 9: Analysis of Municipalities With Above Median Population Size

	(1) DNA	(2) SP	(3) KRF	(4) H	(5) OTH	(6) Abstain
Local top cand., DNA	0.010***	-0.000	-0.002	-0.004**	0.001	-0.004**
	(0.003)	(0.001)	(0.001)	(0.002)	(0.003)	(0.002)
Local top cand., SP	-0.000	0.020***	-0.003**	-0.001	-0.010**	-0.005**
	(0.003)	(0.005)	(0.002)	(0.002)	(0.004)	(0.002)
Local top cand., KRF	-0.002	-0.004*	0.009***	-0.004*	-0.001	-0.001
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Local top cand., H	-0.004	-0.002	-0.002*	0.018***	-0.003	-0.004**
	(0.002)	(0.004)	(0.001)	(0.005)	(0.003)	(0.002)
Support, local election	0.719***	0.427***	0.538***	0.514***	0.314***	0.948***
	(0.022)	(0.053)	(0.044)	(0.036)	(0.038)	(0.023)
R-squared	0.91	0.56	0.72	0.77	0.55	0.96
Observations	1630	1630	1630	1630	1630	1630
Mean of outcome var.	0.21	0.08	0.07	0.12	0.15	0.37
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Note: For specification (1) to (5), the dependent variable is the electoral support of the relevant party given in the Table heading. For specification (6), the dependent variable is the fraction of abstainers. Municipalities with above median population sizes in 1995 are included. Standard errors clustered at the local government level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

6 Conclusion

In this paper we provide two complementary pieces of evidence suggesting that pork-barrel politics occurs even in electoral systems based on at-large proportional representation. Using data on the investment policies of the intermediate governmental tier in Norway, we first document that politicians tend to favor their hometowns when they are in a position to do so. Investment refunds are higher in municipality which have a council member from the party of the governor. We interpret this as local favoritism, where elected officials favor their hometown because they share interests with the people living there, or because they have a better understanding of local needs. Political career concerns could potentially also play a role (Carozzi and Repetto, 2014). Second, we show that voters act as if their hometown candidate had promised them particularistic benefits. We find that a party receives a substantial increase in their vote share if the first placed candidate lives in the municipality. It appears that voters use hometown status as a cue to politicians' understanding of local needs and likely behavior once elected.

All our results are driven by municipalities with below median population size. We argue that two types of mechanisms are likely to contribute to this pattern. First, a politician from a small municipality is likely to be better informed of different local needs, which could imply both more targeted spending and more votes for local candidates in such municipalities (Shugart, Valdini, and Suominen, 2005). If voters in a small municipality are more likely to know the local candidate, this could also contribute to the hometown bias in voting behavior. Second, council members from small municipalities may be more likely to favor spending on local investments because the opportunity cost is lower. The pork-barrel logic implies that elected representatives will tend to support spending that benefits their home district, and that this effect is decreasing in the size of the district (Weingast, Shepsle, and Johnsen, 1981). To investigate how these complementary forces interact is an important topic for future research.

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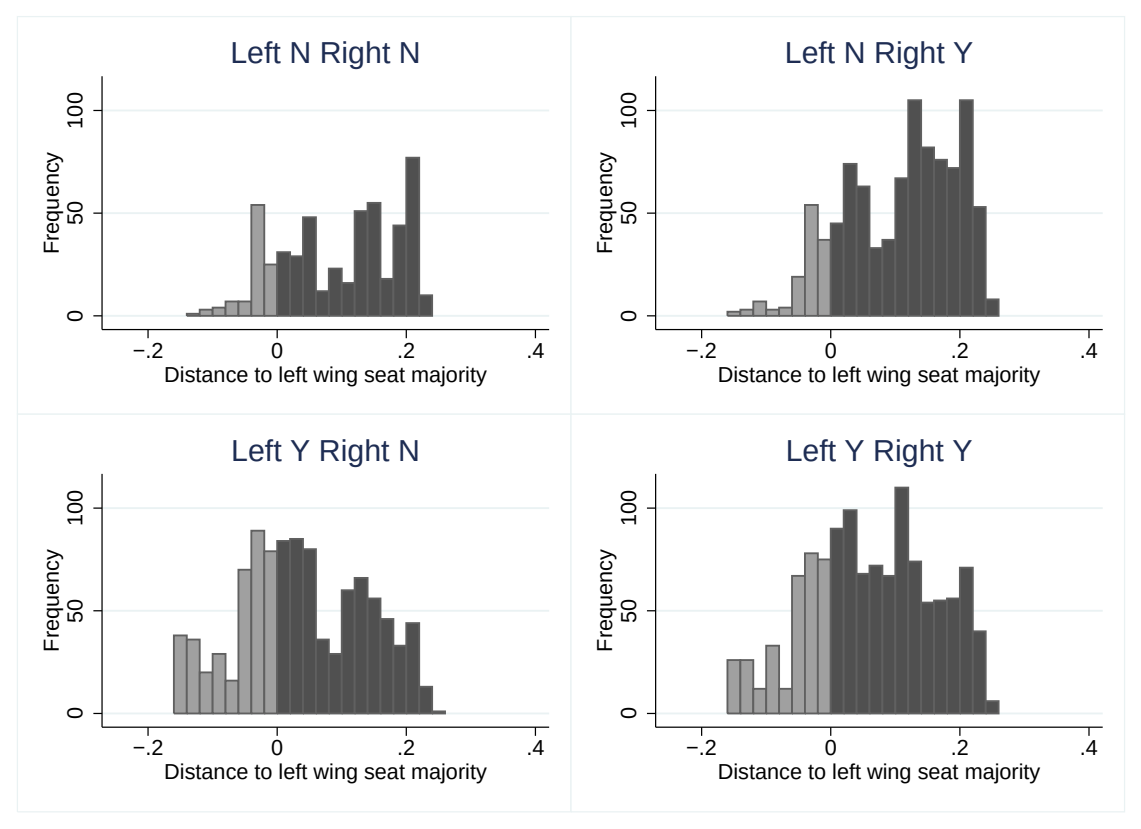
Appendix A: Supplementary Tables and Figures

Table A.1: Descriptive Statistics by Party List

	Region level		Local level	
Party List	*Seatshare*	*Mayor*	*Council Rep.*	*Voteshare*
Socialist Left Party (SV)	0.071	0.000	0.139	0.061
Labor Party (DNA)	0.346	0.404	0.600	0.334
Liberal Party (V)	0.048	0.000	0.098	0.047
Centre Party (SP)	0.116	0.202	0.227	0.170
Christian Democratic Party (KrF)	0.100	0.131	0.200	0.112
Conservative Party (H)	0.201	0.263	0.353	0.166
Progress Party (FrP)	0.085	0.000	0.155	0.072
Various Lists Left	0.008	0.000	0.016	0.011
Various Lists Right	0.013	0.000	0.028	0.013
Various List Other	0.012	0.000	0.018	0.012

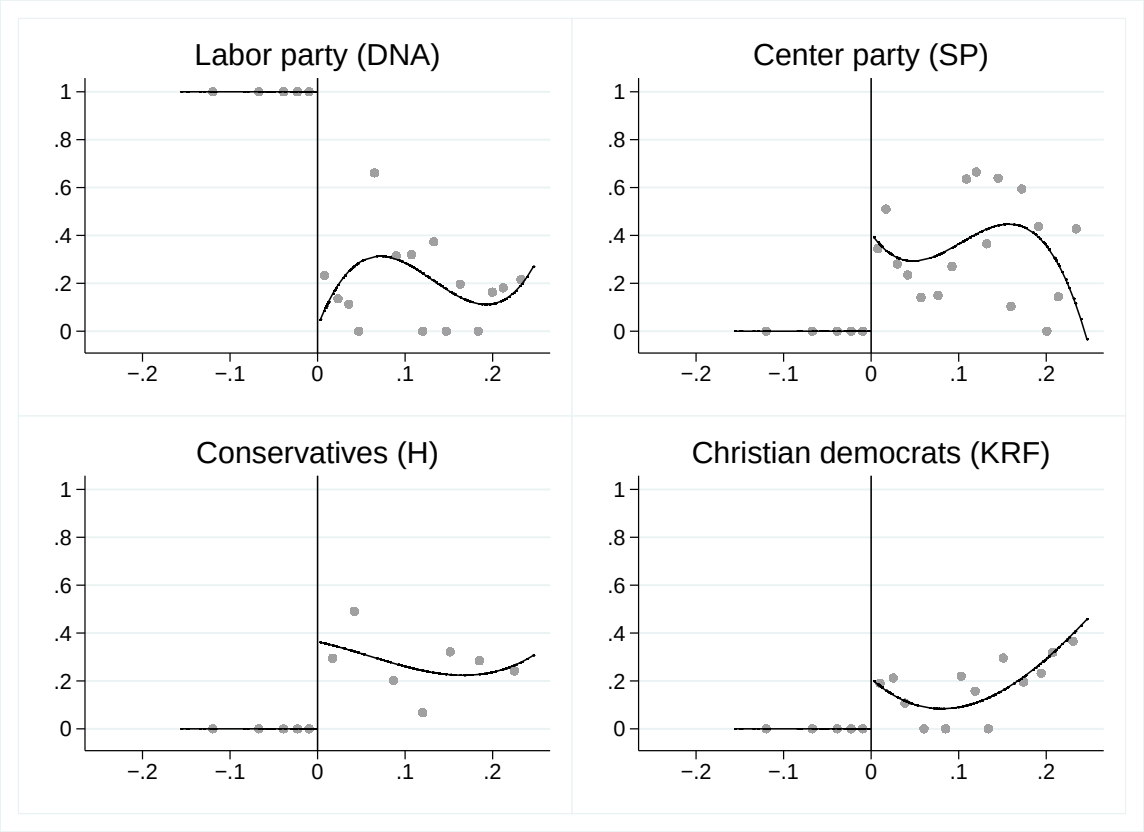
Note: Descriptives based on election data from 1975-2007.

Figure A.1: Frequency of observations by win margin of the righwing bloc, split by local representation in the regional council (N=No representatives, Y=At least one representative)



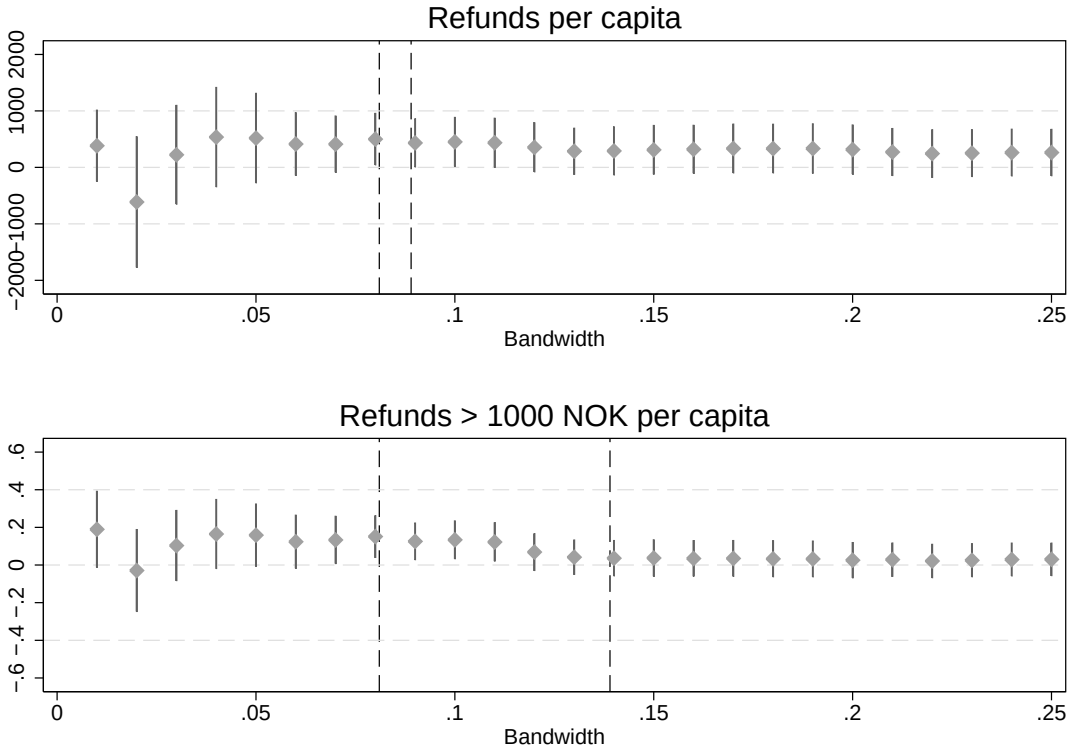
Note: The figure shows the frequency of observations by the win margin of the rightwing bloc in the regional election. The figure is split by four categories describing if and how a municipality is represented in the regional council (n=3665). The width of the intervals are two percentage points.

Figure A.2: Governor's party by distance to seat majority change



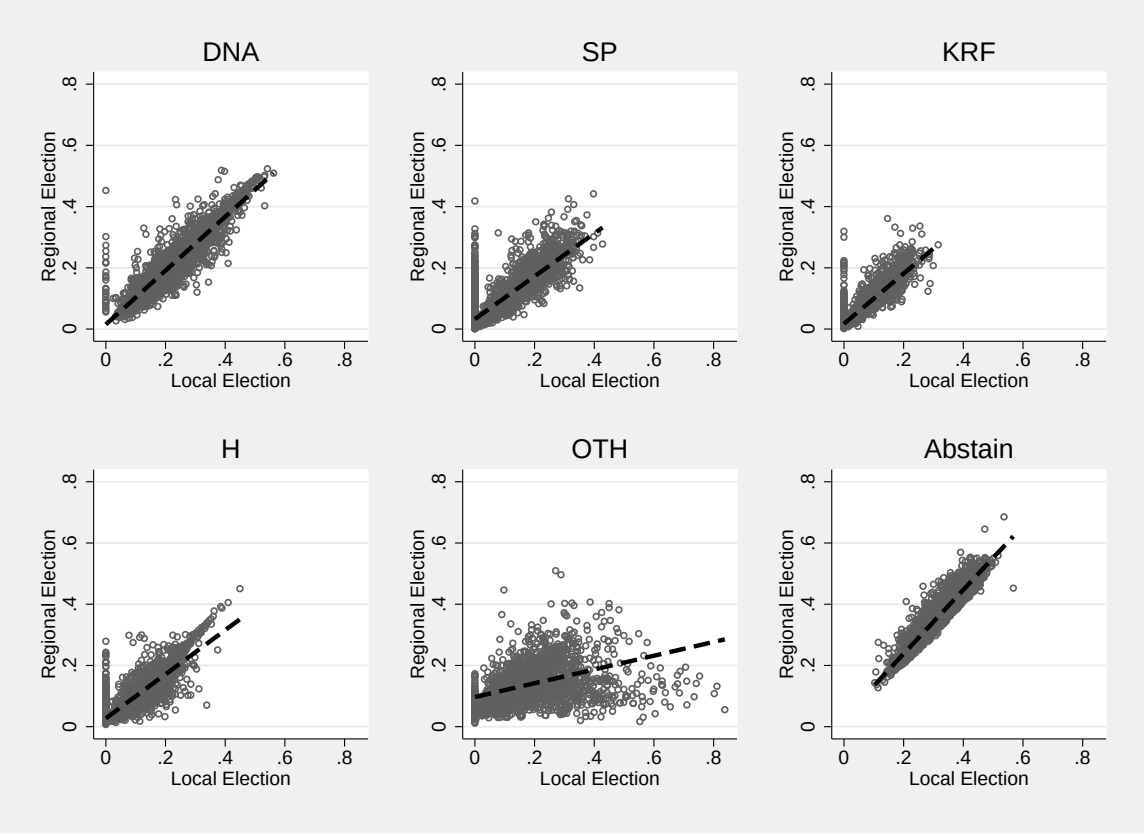
Note: The figure shows the relation between the party identity of the governor by the distance to the seat majority change. The figure gives the fraction of observations within bins with a governor from the Labor Party (DNA, upper left corner), Center Party (SP, upper right corner), Conservatives (H, bottom left corner), and Christian Democrats (KRF, bottom right corner). Each bin of scatter points contains roughly the same number of observations. Separate linear regression lines are estimated below and above the discontinuity using the underlying data (n=3665). The figure is produced with the -rdplot- module in STATA.

Figure A.3: Changing the Bandwidth, Specification with Linear Polynomial



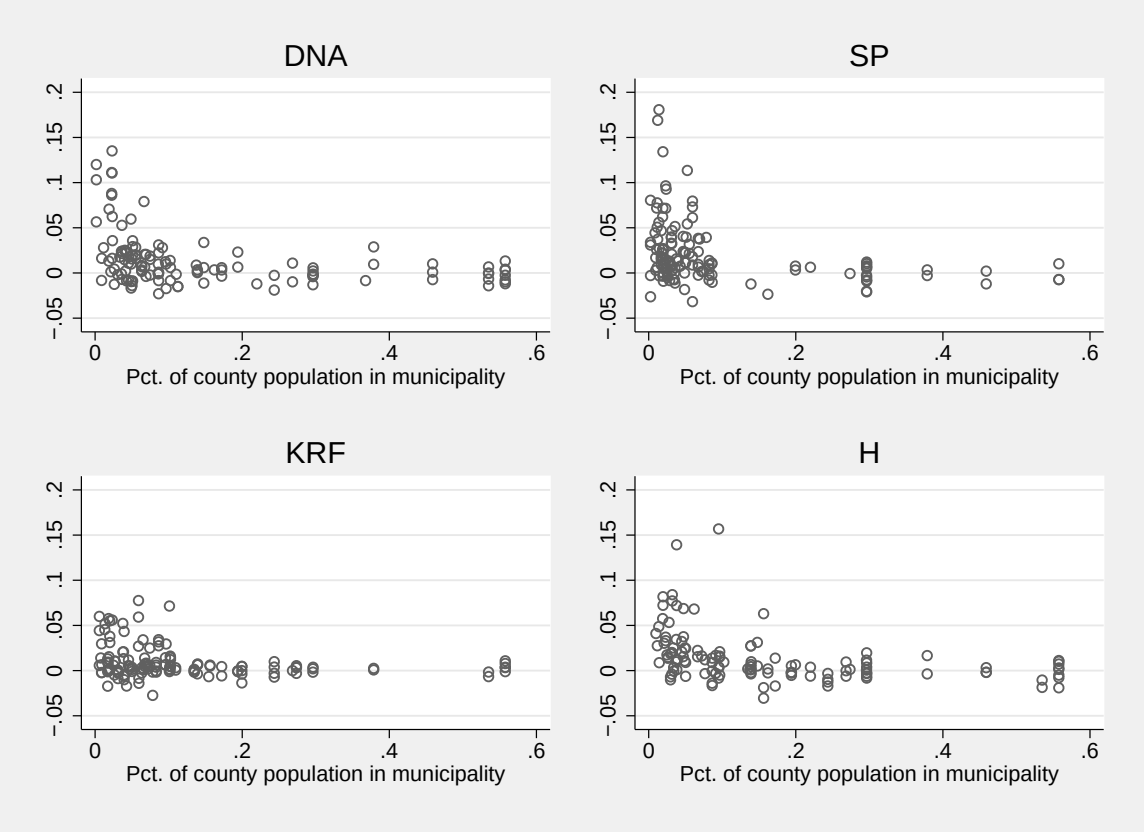
Note: The dependent variable in the upper panel is per capita refunds (in NOK per election period). The dependent variable in the lower panel is an indicator variable turned on if per capita refunds (in NOK per election period) is larger than 1000. Bars represent 95 percent confidence intervals. The vertical dashed lines represent the Imbens and Kalyanaraman (2011) optimal bandwidths based on the sharp regression discontinuity designs in section 4.1. The leftmost line is based on the sample of municipalities with rightwing representative(s) only. The rightmost line is based on the sample of municipalities with leftwing representative(s) only. Standard errors are clustered by municipality.

Figure A.4: Parties' share of votes at local and regional elections



Note: The figures show electoral support for party y at the regional election against electoral support for party y at the local election, where $y \in \{DNA, H, KRF, SP, Other, Abstain\}$. Party acronyms are explained in Table 2. The dotted lines are based on linear regressions.

Figure A.5: Tendency to Vote for Hometown Candidate by Population Size



Note: The figures show residuals in candidates' hometowns as a function of municipalities' share of the regional population. The residuals are based on Equation (4) when $\sum_P \mu_P No1_{it}^P$ *is excluded. Party acronyms are explained in Table 2.*

Appendix B: Alternative Dependent Variables

In Table B.1 we provide descriptive statistics for some alternative dependent variables. For variables representing new investments (a new school, tunnel or bridge), we lead the variable by one period to account for the fact that it is likely to take some time from the decision is made to the facility is opened. For variables representing a closing of an existing facility (schools and maternity wards) we use the contemporaneous election period.[25] As documented in Table B.1, the vast majority of municipalities do not experience any school opening, school or maternity ward closure or building of a tunnel or bridge during an election period.

Table B.2 provides estimates of the effect of political alignment on the alternative dependent variables, using the main model specification from section 4.2. New tunnels and bridges are captured by a single dummy.[26] All of the estimated effects have the expected sign, but none of the estimates are statistically significant. Precision is generally low, reflecting that with these measures of public spending the RD design have weak statistical power.

Table B.1: Descriptive statistics: Policy outcomes

Variable	Mean	Std. Dev.	Min.	Max.	N
New upper sec. school next period	0.02	0.15	0	1	3350
Upper sec. school closed	0.02	0.15	0	1	3658
Maternity ward closed	0.02	0.13	0	1	2626
New tunnel next period	0.02	0.14	0	1	2342
New bridge next period	0.01	0.09	0	1	2342

[25]We only consider closing of maternity wards in the period 1976-1999, because the responsibility for specialist health care was transferred to the central government in the following election period. In the 1976-1999 period, no new maternity wards opened up.

[26]When analyzing the decision to build tunnels and bridges (column 4) we exclude local governments belonging to the six counties in the southeastern part of the country. This part of the country has a topography where major tunnels and bridges are rarely needed.

Table B.2: Second Stage: The Effect of Political Alignment on Other Outcome Variables

	(1) New school $(t+1)$	(2) School closed	(3) Ward closed	(4) New road $(t+1)$
Align	0.02	-0.04	-0.01	0.04
	(0.03)	(0.04)	(0.03)	(0.06)
MajLeft	0.01	0.03	0.00	-0.00
	(0.02)	(0.02)	(0.03)	(0.03)
DNA	0.01	0.04*	-0.03	0.01
	(0.02)	(0.02)	(0.03)	(0.04)
SP	0.01	0.01	-0.01	-0.02
	(0.02)	(0.03)	(0.03)	(0.03)
KRF	0.01	0.00	-0.02	-0.04
	(0.02)	(0.02)	(0.03)	(0.03)
H	-0.04	0.00	0.02	-0.04
	(0.02)	(0.02)	(0.02)	(0.02)
N. of obs.	3350	3658	2625	2342
Mean of Y	0.02	0.02	0.02	0.03
MunFE	Yes	Yes	Yes	Yes
TimeFE	Yes	Yes	Yes	Yes
PolyDegree	3	3	3	3

Note: In column 3, the sample is limited to the years 1976-1998. In column 4, the sample is limited to the year 1976-2007 and regions where the dependent variable is relevant and not always zero. Standard errors clustered at the municipality level in parentheses. $^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.