Do Re-election Probabilities Influence Public Investment?

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Abstract

We identify exogenous variation in incumbent policymakers' re-election probabilities and explore empirically how this variation affects the incumbents' investment in physical capital. Our results indicate that a higher re-election probability leads to higher investments, particularly in the purposes preferred more strongly by the incumbents. This aligns with a theoretical framework where political parties disagree about which public goods to produce using labor and predetermined public capital. Key for the consistency between data and theory is to account for complementarity between physical capital and flow variables in government production.

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1 Introduction

This paper explores whether and how strategic considerations influence the accumulation of physical capital in the public sector. The analysis is motivated by the fact that the stock and composition of physical capital at any point in time is determined by decisions made in the past. Hence, when deciding how much and in which projects to invest in the current period, an incumbent policymaker should consider how these decisions will influence policy in the future. In particular, incumbents may consider their perceived re-election probability when they make investment decisions. We therefore test if variation in incumbents' re-election probability affects the overall amount and composition of their investments in physical capital.

Investigating public capital accumulation is interesting because it can provide insight into what motivates policymakers' decisions. In cornerstone studies Persson and Svensson (1989) and Tabellini and Alesina (1990) show that how much a government chooses to save in financial capital will be affected by its probability of remaining in office in the future.[1] These outcomes are generally referred to as strategic debt accumulation, and are theoretically well understood as potential determinants of actual policies.[2]

However, financial capital is not the only instrument for storing public wealth. An alternative is physical capital, and as emphasized in Natvik (2009) the availability of this policy instrument may dampen and even remove the incentive for strategic debt accumulation, as physical capital is used to influence future policy instead. We therefore empirically assess the key prediction in Natvik (2009) that incumbents' re-election probability influence how much they choose to invest. In addition, we provide theoret-

[1] Persson and Svensson (1989) show that the risk of being replaced motivates politicians who favor a relatively small public sector to run excessively high deficits, while it motivates politicians who favor a relatively large public sector to run excessively high surpluses. Tabellini and Alesina (1990) argue that when voters disagree over the composition of government spending, any policymaker who expects to be replaced by someone with different preferences has an incentive for excess debt accumulation.

[2] These theories are often given considerable attention both in general macroeconomic textbooks, such as Romer (2001), and in specialized textbooks on political economics, such as Persson and Tabellini (2000). The empirical support for these theories is however mixed. Cross country studies (e.g. Grilli, Masciandaro, and Tabellini (1991)) tend not to find any support for these theories, while some studies of lower levels of government do (e.g. Crain and Tollison (1993), Petterson-Lidbom (2001)).

ical predictions on how the *composition* of public investments will respond to variation in re-election probabilities, and explore these empirically. We contrast the responses of investment with those of current expenditure.

In our analysis we use a panel data set of Norwegian local governments observed over a period of 28 years, where elections are held simultaneously every fourth year. Norwegian local governments are well-suited for our purpose as they operate within the same institutional environment, facilitating comparison in the cross-section and over time, and because they have large discretion in investment policy, in comparison to other OECD countries (Rattsø, 2003).

We exploit a unique feature of the Norwegian institutional setting to obtain exogenous variation in re-election probabilities: National elections are held exactly in the middle of the local election term, and contain information about local incumbents' popularity.[3] These national elections provide information on the incumbents' popularity in each municipality separately, and we are free to choose the level of aggregation at which we use this information. This allows us to address the reverse causality problem inherent in any approach to analyze how popularity influences policy: We instrument the result of the national election held in each municipality i by the result from the same election held in all other municipalities of the county to which i belongs. In this manner we capture regional swings in voters' ideological sentiment. The identifying assumption is that the county-wide result from the national election does not influence local policy except through its impact on perceived re-election probabilities.

Empirical studies on strategic debt accumulation have primarily relied on historical measures of political stability to proxy for re-election probabilities (e.g. Grilli, Masciandaro, and Tabellini (1991), Crain and Tollison (1993), Petterson-Lidbom (2001)).[4]

[3] The ability of the incumbent government to call an early election is a common feature of most political systems. Among the OECD countries, only Norway, Sweden, Switzerland and the United States have exogenous election terms at the national level. In other OECD countries early elections can be held if the incumbent government wishes to do so and the occurrence of an early election is quite prevalent (Heckelman and Berument, 1998). Norway is, as far as we know, the only OECD country that also has regularly scheduled elections at the local level that differs from the national election cycle.

[4] An exception is Lambertini (2004) that relies on opinion polls.

Similarly, Darby, Li, and Muscatelli (2004), rely on electoral volatility at the previous election in their study of political uncertainty and public investments in a panel of European countries. The validity of these identification strategies hinges on the assumption that (historically) instable units are similar to stable units in all other respects relevant for politics (given control variables). Our approach, based on changes in re-election within election periods, does not rely upon this strong assumption.

Our main finding is that public investments do respond to changes in re-election probabilities. We find that incumbents raise total investment when the re-election probability increases. We also find qualitative differences between incumbents of different party affiliation, as left-wing incumbents increase investments in child-care only, while right-wing incumbents tend to raise investment in education and elderly care when the re-election probability goes up. In light of the existing evidence on party-preferences in Scandinavia (Sørensen (1995), Svaleryd (2009))), our analysis indicates that when re-election becomes more likely, incumbents increase investment in the purposes they prefer more strongly than their competitors for office.

Importantly, these findings allow us to distinguish between existing theories on public sector capital accumulation. Frameworks where public capital is equivalent to a durable version of a public good, as in Glazer (1989) and Beetsma and van der Ploeg (2007), predict that incumbents will increase total investment and tilt the composition of investment toward their most preferred purposes if re-election becomes less likely. Our findings are the opposite. A framework where capital is an input that must be combined with flow variables (i.e. labor) in order to produce public goods, as in Natvik (2009), yields predictions that are consistent with both the level and composition effects we find in the data. When capital is complementary to flow variables in government production, the expectation of losing influence in the future makes an incumbent hold back on investment since the capital he purchases will be inefficiently combined with complementary inputs in the future.[5]

[5] While we focus on theories where public capital is heterogenous, and where the political agents do not agree about the relative value of different capital types, several recent studies have analyzed public

The rest of this paper is organized as follows. Section 2 lays out a theoretical framework based on Natvik (2009) to motivate the empirical analysis. Section 3 presents the data and the institutional setting. In section 4 we present our empirical strategy. Section 5 presents the main results. Section 6 explores the robustness of our results along various dimensions and examines the validity of our identifying assumption. Section 7 discusses our findings in relation to the theory presented in Section 2. Section 8 concludes.

2 Theory

Using the framework proposed in Natvik (2009), we here provide a theoretical argument why re-election probabilities may influence public investment.[6] We recap the prediction of Natvik (2009) regarding how anticipated turnover influences the aggregate level of public investment, and in addition describe how re-election probabilities affect the composition of investment.

2.1 The Model

There are two periods, $t = \{1, 2\}$, and two parties, $J = \{R, L\}$. Each period a party J is in office and decides how to spend one unit of income in order to produce two goods f and g with the production functions

$$h_t = h(n_t^h, k_t^h) = \left(\gamma n_t^{h\,\frac{\varepsilon-1}{\varepsilon}} + (1-\gamma)\, k_t^{h\,\frac{\varepsilon-1}{\varepsilon}}\right)^{\frac{\varepsilon}{\varepsilon-1}}, \tag{1}$$

investment in capital that is homogenous. Besley and Coate (1998) and Azzimonti (2009) both consider public capital as an input in private production, which makes current investments influence future tax revenues. Bassetto and Sargent (2006) study the incentives for public investments in goods that benefit not only today's voters, but also individuals who are not old enough to vote. Battaglini and Coate (2007, 2008) consider investment as providing a public good that benefits all citizens, and contrast it to pork-barrel projects targeted at specific groups. Our analysis is not constructed to test these studies directly, but our results do support the general idea that public investments are influenced by strategic considerations.

[6] This model is an extension of that in Tabellini and Alesina (1990) and Alesina and Tabellini (1990), where political agents disagree over which goods and services government should provide. The extension is that these goods cannot simply be purchased at fixed prices, but must be produced using labor and publicly owned capital.

where n_t^h and k_t^h are labor and capital used in period t to produce good h, $h = g, f$. ε is the elasticity of substitution between the two input factors in production. The supplies of capital and labor to the public sector are infinitely elastic at the unit cost 1. While the amount of labor employed is freely chosen each period, capital is chosen one period in advance and specific to the production of each public good. Hence k_2^h is set in period 1.

In the first period the public sector's budget constraint is

$$n_1^g + n_1^f + k_2^g + k_2^f = (1-\delta)\left(k_1^g + k_1^f\right) + 1 + b, \tag{2}$$

where δ is the depreciation rate of public capital and b is debt accumulated in that period. In period 2, no investments are undertaken and the budget constraint is

$$n_2^g + n_2^f = 1 - b. \tag{3}$$

The gross interest rate on bonds is exogenous and equal to 1, which also is the inverse of politicians' discount factor.[7] Obviously, (3) builds on the assumption that debt is always honored, and implies that $b \in [-1, 1]$. This budget constraint also implies that public capital is irreversible for the period 2 decision-maker as he cannot liquidate it.

In period 1 the empowered party chooses $\left\{n_1^g, n_1^f, k_2^g, k_2^f, b\right\}$. The party in office in period 2 sets $\left\{n_2^g, n_2^f\right\}$. Party J's preferences are given by $W^J = E\sum_{t=1}^{2} u\left(g_t, f_t|\alpha^J\right)$, where

$$u\left(g_t, f_t|\alpha^J\right) = \frac{\left[\left(\alpha^J g_t^{\frac{\phi-1}{\phi}} + \left(1-\alpha^J\right) f_t^{\frac{\phi-1}{\phi}}\right)^{\frac{\phi}{\phi-1}}\right]^{1-1/\sigma}}{1-1/\sigma}. \tag{4}$$

Here σ is the intertemporal elasticity of substitution for efficiency units of public goods, while ϕ is the intratemporal elasticity of substitution between goods g and f.[8] Hence, ϕ

[7] We can think of the interest rate on b as determined on the world market.

[8] An efficiency unit of public goods is $\left(\alpha^J g_t^{\frac{\phi-1}{\phi}} + \left(1-\alpha^J\right) f_t^{\frac{\phi-1}{\phi}}\right)^{\frac{\phi}{\phi-1}}$.

indicates the willingness of politicians to alter the composition of public goods in response to changes in their relative production costs. $E(\cdot)$ is the expectations operator, reflecting that there is uncertainty about who is in charge next period. Before period 2 an election is held over which party is to be in office in that period. With probability p_R party R wins, with probability $1-p_R$ party L wins.

2.2 Political Equilibrium

The equilibrium objects of this economy are $\left\{n_1^g, n_1^f, k_2^g, k_2^f, b\right\}$ and $\left\{n_2^g, n_2^f\right\}$. Since first period choices are contingent on second period reactions, the model is solved by backward induction.

2.2.1 The Second Period

In period 2 the office holder, identified by α_2^J, allocates labor to production of each good. This party's problem is

$$\max_{n_2^g, n_2^f} u\left(g_t, f_t | \alpha_2^J\right)$$

subject to (1), and (3). Ignoring the specific functional forms in (1) and (4) to preserve space, we may write the first-order condition as

$$u_g\left(g_2, f_2|\alpha_2^J\right) g_n\left(n_2^g, k_2^g\right) = u_f\left(g_2, f_2|\alpha_2^J\right) f_n(n_2^f, k_2^f) \tag{5}$$

Together with the budget constraint (3), this equation implicitly defines the equilibrium choices n_2^{g*} and n_2^{f*} as functions of α_2^J, b, k_2^g and k_2^f. Define these functions as

$$n_2^{g*} = G\left(\alpha_2^J, b, k_2^g, k_2^f\right) \tag{6}$$

$$n_2^{f*} = F\left(\alpha_2^J, b, k_2^g, k_2^f\right). \tag{7}$$

Under mild restrictions, discussed in Natvik (2009), these reaction functions have the intuitive properties $G_{\alpha_2^J} = -F_{\alpha_2^J} > 0$ and $G_b = -1 - F_b \; \epsilon \; \langle 0, 1\rangle$. However, the labor

response to capital is ambiguous. With the specific functions in (1) and (4), second period labor choices depend on capital in the following way:

$$G_{k_2^g} = -F_{k_2^g} \gtreqless 0 \Leftrightarrow \varepsilon \gtreqless \phi \tag{8}$$

and equivalently for $F_{k_2^f} = -G_{k_2^f}$. The intuition here is that an extra unit of capital has two opposing effects on second period labor demand. On the one hand, an extra unit of k_2^g tends to increase the marginal productivity of labor in producing g_2, and more strongly so the higher is the complementarity (the lower is ε) between the two input factors in production. All else equal, this motivates the second period policymaker to increase employment in the g-sector. On the other hand, an extra unit of k_2^g will raise the provision of g-goods relative to f-goods, all else equal. When the policymaker views the two goods as imperfect substitutes ($\phi < \infty$) this motivates a shift of labor from g-production to f-production. Hence, the use of labor in g-production increases with the amount of capital installed for that purpose if and only if the degree to which k_2^g substitutes for n_2^g in production (ε) is lower than the degree to which g_2 substitutes for f_2 in consumption (ϕ).

2.2.2 The First Period

The first-period policymaker, identified by α_1^J, solves the following problem:

$$\max_{n_1^g, n_1^f, k_2^g, k_2^f, b} E \sum_{t=1}^{2} u\left(g_t, f_t | \alpha_1^J\right)$$

subject to the production technology summarized by (1), the budget constraint (2) and the reaction functions (6) and (7). Thus, the office holder in period 1 internalizes how its investment choices will influence outcomes in period 2. The first-order conditions for the solution to this problem are given in the appendix.

2.2.3 Model Solution and Parametrization

Because the model does not have a general closed-form solution, we solve it numerically. Our procedure is to find the values of $\left\{n_1^g, n_1^f, n_2^g, n_2^f, k_2^g, k_2^f, b\right\}$ that satisfy the first-order conditions (5) and (13)-(16) (in the appendix) and the budget constraints.[9] As a benchmark, we set the parameter values as displayed in Table 1.

[Table 1 about here.]

The choice of $\varepsilon = 0.7$ is motivated by evidence from estimated macro production functions, such as Klump, McAdam, and Willman (2007) and Antràs (2004). We set σ equal to 1, which is a standard value for households' intertemporal elasticity of substitution for private consumption in the macroeconomic literature (King and Rebelo (1999)) and in line with recent estimates in finance (Vissing-Jørgensen and Attanasio (2003)). For the intratemporal elasticity of substitution we have no evidence to guide us, and we set ϕ to 0.5. Imposing such a low value of ϕ amounts to assuming that politicians are relatively "stubborn", in the sense that they have low willingness to let the composition of public goods respond to production costs rather than what their utility weights α^J dictate.

Importantly, σ, ϕ and ε are the parameters that determine the model's qualitative predictions which we will explore empirically. We therefore explain the role of these parameters below. The remaining parameters matter only quantitatively. For further discussion of the parametrization, see Natvik (2009).[10]

[9] In order to solve the model, initial capital stocks $\left\{k_1^g, k_1^f\right\}$ must be specified. We set $\left\{k_1^g, k_1^f\right\}$ so that if $p_R = 1$ it is optimal to choose $k_2^h = k_1^h$ for $h = g, f$. As shown in Natvik (2009), these initial conditions for capital do not influence how anticipated turnover affects policy.

[10] γ is set to 0.7, implying a labor share of about 65 percent if the government were cost minimizing. This has approximately been the labor share of government production in the US since World War II (Cavallo (2005)). The depreciation rate per election term, δ, is set to 0.2, implying a yearly depreciation rate slightly below 5 percent, which is consistent with what Kamps (2004) argues is empirically reasonable for public capital.

2.3 Key Implications

The key questions that we wish to explore empirically regard the following: How does the probability that an incumbent party is re-elected affect its spending on current expenditure and investment?

We display the model's answers to these questions in Figure 1. The figures are plotted for an incumbent of type R. Since we study the case where party R is in office in period 1, the probability of re-election is p_R. In this numerical example the incumbent party prefers goods of type g more strongly than its competitor ($\alpha^R = 0.6$ while $\alpha^L = 0.4$). The plots display the respective variables' percentage point deviation from the value they take when $p_R = 0$.

[Figure 1 about here.]

The figure gives us the following main predictions for how the re-election probability affects first period policies.

2.3.1 Investment

1. When the probability of re-election increases, an incumbent increases total investments.

   Intuition: The incumbent party (R in the example) understands that if it is ousted from office, less labor will be employed to produce the good it prefers relatively strongly (good g in the example). Thus, when capital and labor complement each other, the return to investment in the incumbent's most preferred purpose is reduced by political turnover. The effect on capital returns in the other purpose (f in the example) will of course go in the opposite direction, but since the incumbent derives relatively low utility from this good, that effect will not outweigh the first. Hence, the more likely an incumbent is to remain in office, the higher will it value future public capital, and the more will it invest. We will later refer to this effect as the "aversion to inefficient capital utilization". The lower left plot of Figure 1 illustrates

that the essential assumption behind this prediction is sufficient complementarity between capital and labor, i.e. that ε is small.

2. When the probability of re-election increases, an incumbent party raises investment in its most preferred purpose relative to its less preferred purpose. (I^g/I^f increases with p_R, where $I^h \equiv k_2^h - (1-\delta)\, k_1^h$)

   Intuition: When ε is low, capital returns are highly sensitive to how labor is allocated in the future, and it will therefore be important for the incumbent how the capital it builds is combined with labor after the election. Hence, the prospect of losing influence motivates the incumbent to invest more in the project preferred strongly by its successor, as this is where capital will be complemented by most labor. On the other hand, the impact of turnover on the future labor allocation also implies that relatively less will be produced of the incumbent's preferred good. To compensate for this effect, the incumbent may tilt the investment composition toward its own favorite projects as re-election becomes less likely. Finally there is a third mechanism: The incumbent's composition of investment affects the successors' allocation of labor. From expression (8) we know that when $\phi < \varepsilon$, it follows that $dn_2^f/dk_2^f = -dn_2^g/dk_2^f < 0$ and $dn_2^f/dk_2^g = -dn_2^g/dk_2^g > 0$. Hence, when $\phi < \varepsilon$ the incumbent has an additional incentive to tilt the investment composition *away from* its own most-preferred purpose as re-election becomes *less* likely. This is what occurs in the upper left plot of Figure 1. On the other hand, if $\phi > \varepsilon$ the investment composition is tilted toward good f when p_R increases, as we see in the upper right plot of Figure 1. [11]

We have here deliberately focused on the model's predictions when capital and labor are complements. The reason is that this both seems empirically relevant, for instance due to the macro evidence mentioned above, and because allowing for this aspect is

[11] It is only when there is substantial complementarity between capital and labor that the composition effect is qualitatively pinned down by whether ϕ is greater or smaller than ε. When capital and labor are relatively easily substitutable (i.e. when ε is relatively high), the composition effect is no longer determined only by whether $\phi < \varepsilon$ or $\phi > \varepsilon$.

what makes our model substantially different from alternative existing theories, primarily Glazer (1989) and Beetsma and van der Ploeg (2007). These two studies analyze investment when public capital is equivalent to a durable version of a public consumption good. This is analogous to assuming full substitutability between capital and labor, which illuminates why these studies conclude that anticipated turnover motivates *higher* total investment. They also imply a composition effect where investment is tilted toward the incumbent's most preferred purpose if turnover becomes more likely. Thus, the two predictions above allow us to evaluate the empirical relevance of our framework relative to the most closely related alternatives.

2.3.2 Wage Expenditure ("Current Expenditure")

1. The composition of wage expenditure across the two purposes is unaffected by the probability of re-election.

   Intuition: The employment composition (n_1^g/n_1^f) is determined by the initial capital stocks, as is evident from the first-order condition (13) in the appendix. Because these are beyond an incumbent's control, and because wages are exogenous, it follows that the composition of wage spending is not influenced by re-election probabilities.

As shown in the lower right panel of Figure 1, an incumbent may also adjust the total level of wage spending to variation in the re-election probability. Wage expenditure increases with the re-election probability when $\sigma > 1$, decreases when $\sigma < 1$, and is unaffected when $\sigma = 1$.[12] However, because the Norwegian municipalities we explore must balance current expenditure against income, as explained below, we do not believe

[12] On the one hand, turnover implies a "substitution effect": The incumbent will wish to shift labor expenditure from the second period to the first period, as this allows it to spend more on the purpose it prefers more strongly. On the other hand turnover implies an "income effect": Politicians want to smooth the instantaneous utility flow from publicly provided goods over time. Because turnover implies that in period 2 relatively little labor is allocated to the purpose that the incumbent derives most utility from, the way to smooth the utility flow is to cut labor expenditure in period 1 in favor of period 2. This income effect dominates the substitution effect if $\sigma < 1$, while the substitution effect dominates if $\sigma > 1$. If $\sigma = 1$, the two effects cancel out.

that this dimension of the model can be explored with our data.

In this theoretical model the key difference between capital and labor is that the latter is freely determined each period, while the former is not. Empirically we distinguish between capital and current expenditures. Current expenditures are dominated by wage expenditures. We believe that although these inputs may not be completely flexible each period, they are considerably more flexible than physical capital.

3 The Institutional Setting and Data

To investigate the empirical relevance of the theoretical framework laid out in the previous section we utilize data from Norwegian local governments.

Norwegian local governments constitute a substantial part of the Norwegian economy. Together with the regional level of government in Norway, the counties, they account for about 15 to 20 percent of mainland GDP. Their main responsibilities include child care, primary education and care for the elderly. In addition they have the responsibility for some other services, such as culture and infrastructure. The local governments face some regulations concerning coverage and standards of welfare services, but have considerable discretion concerning the composition of expenditures. On the revenue side they are more restricted. The local public sector is largely financed by bloc grants and regulated income taxation. In addition local governments have some discretion with respect to user fees and property taxation. Rattsø (2003) offers an excellent description of this system characterized by vertical fiscal imbalance.

An important feature of the Norwegian system is that local governments are free to deficit finance investment, as long as current spending inclusive interest payments do not exceed revenues. The punishment for violating this requirement is to be set under administration by the central government, but this happens extremely rarely. Budgets and borrowing must however be approved by the regional commissioner (*fylkesmannen*), the central government's representative in the county. If the balanced budget requirement

is broken, the regional commissioner will act to restore economic balance (Borge (2005)).

3.1 Data from Local Government Accounts

In this analysis we utilize rich data from the local governments' accounts that allow us to distinguish between current expenditures and investment for different purposes. Our data set covers 7 electoral periods, from 1972 to 1999. We do not use data after 1999 because of a reform in the organization of the account data in the following election term. In the period we study, the number of local governments fluctuated between 434 and 454.

We focus on the main welfare services that local governments are responsible for: education, elderly care and child care.[13] On average, spending on these three purposes together constitutes about 45 percent of total municipal spending. Local governments are the main providers of these services. The public sector faces little competition from the private sector, in particular for educational services. Almost all pupils are enrolled in public primary schools.

Investment is defined as maintenance and spending on new buildings and structures (including wage expenditure etc. in relation to these) minus sales of buildings and structures. On average, maintenance accounts for about 50 percent of investment, while sales amount to about 2.5 percent of investment. Current expenditure is the sum of wages, equipment, external transfers and "other current expenditures". Table 2 displays spending per capita for the different purposes based on two-year averages. The descriptive statistics are based on the final data set that we utilize in our empirical analysis.

[Table 2 about here.]

In our sample, the average local governments spend about NOK 11500 (approx. USD 2000) per capita on the production of education services, elderly care and child care each year. Current expenditures account for about 90 percent. The coefficients of variation

[13] In preliminary investigations we also analyzed the impact of changes in re-election probabilities on other sectors, namely central administration, culture and infrastructure. We did not find any impact of re-election probabilities on these expenditure types. This aligns with the theory in section 2, since only spending on the purposes that parties disagree about should be influenced by re-election probabilities.

for investments on education, elderly care and child care are 1.25, 2.29 and 2.28, which reflect that investments in welfare services are lumpy. The corresponding coefficients of variation for current expenditures are 0.25, 0.80 and 0.99.

3.2 Political System

Each local government is ruled by a locally elected council, based on proportional representation. Representatives represent either political parties or local lists formed outside the party structure. Most representatives represent one of the 7 major parties that are dominant at both the local and the national arena.

The mayor is the key player in the local council. The mayor is elected by the local council at the beginning of each election term. Under the New Local Government Act, implemented in 1992, the mayor cannot be removed within an election term. Before 1992 some local governments had a practice where the mayor and the deputy mayor changed positions after two years (Gravdahl (1998)).

The Norwegian policy space is well represented by a single left-right dimension (Strøm and Leipart (1993)). The main political divide goes between the left-wing socialist and the right-wing liberal camp and the political system is dominated by these two blocs. The left bloc is strongly dominated by the Labor Party, while the right bloc is more fragmented.[14] The same parties are dominant at both the national and the local level. At the local level parties sometimes form joint lists, which are always from the same bloc in our data. In the average local council, 41 percent represent one of the parties in the left bloc, or joint lists of left bloc parties, 52 percent represent right bloc parties, or joint lists of right bloc parties, and 7 percent represent local lists that cannot immediately be categorized as belonging to the left or right bloc.

We exclude local governments with one or more representatives from local lists. We also exclude local governments before 1992 where the mayor and deputy mayor are from

[14]We classify representatives that belong to the Socialist Left Party, the Labor Party, Red Electoral Alliance and the Communist Party as belonging to the left-wing bloc.

different blocs.[15]

County and local government elections are held in September every fourth year. National elections are also held every fourth year in September, but the electoral cycle differs from the local elections with two years, i.e. national elections are held exactly in the middle of two local elections. We will use this institutional feature in our empirical strategy.

The system of representation into the national parliament largely mirrors the system at the local level. Although local lists are sometimes formed at the national election, their electoral support is in most cases negligible. Between 1973 and 1997 only two representatives got elected from local lists. We exclude local governments from these counties in the relevant election periods.[16]

Table 3 provides descriptive statistics on political variables in our final sample. These are dummies for the mayors' bloc (MayorLeft and MayorRight), share of representatives from each bloc (ShareLeft and ShareRight), support for the incumbent mayor at the local (SupportLocalElection) and national elections (SupportNationalElection), a dummy capturing whether the bloc of the incumbent is in power also the next election period (ReElect), and finally the change in support for the bloc of the incumbent from the local election to the national election, measured both at the local ($\Delta Support$) and county-wide levels ($\Delta Support^{County}$). $\Delta Support^{County}$ is key in our empirical strategy, and we elaborate on this in Section 4.

[Table 3 about here.]

In order for us to investigate the theory laid out in Section 2, it will be instructive to know whether politicians belonging to the left and right blocs politicians have divergent

[15] The total number of available observations is 2933. 1093 observations are excluded because the local council has at least one representative from local lists. In sensitivity analysis we re-enter these observations in our sample.

[16] We exclude local governments involved in mergers, secessions or borderchanges during an electoral period, local governments that do not have proportional election systems and the capital, Oslo, which has a different institutional structure than other local governments. We also exclude local governments with less than 1000 inhabitants. Finally, we lose a limited amount of observations due to missing data from the local government accounts.

preferences over the composition of welfare services. However, to distinguish between party politics, inhabitants' preferences and other local characteristics is not straightforward. This is clearly pointed out by Lee, Moretti, and Butler (2004), Ferreira and Gyourko (2009) and Petterson-Lidbom (2008), who rely on regression discontinuity (RD) designs to distinguish between them. While Petterson-Lidbom (2008) finds that parties care about the size of government in Swedish municipalities, Ferreira and Gyourko (2009) find no evidence of such partisan politics in U.S. cities (although traditional OLS estimates point strongly in that direction). [17]

An alternative approach to reveal politicians' preferences is to ask them how they would like to spend marginal revenues if they could choose freely. Sørensen (1995) does this for the Norwegian municipalities that we study, asking representatives in municipality councils in the election period from 1987 to 1991. His findings are that left-wing representatives want to increase the supply of child care services and cut back on education relative to what right-wing representatives want. Right-wing representatives, want to expand both education and elderly care at the expense of child care. Svaleryd (2009) documents a similar pattern based on survey data of elected representatives in Swedish local councils from 1980 and 1993. In contrast to right-wing politicians, left-wing politicians rank child care as the most important spending category. Since disagreement is most pronounced for child care and education, we would expect the strongest effects of re-election probabilities on these expenditure components.

4 Empirical Strategy

To pin down how re-election probabilities affect policy-making we face three econometric challenges. First, we are interested in estimating the impact of a variable, the (perceived) re-election probability, which is inherently unobservable. Second, this variable may be

[17] A potential problem with RD design arises if parties are adjusting their policies to compete for swing voters. If this is the case and both political groups try to attract the same voters, their implemented policies may converge even though their preferences differ. It is exactly close to the discontinuity of 50 percent support by voters that this competition will be at its fiercest.

correlated with other local government characteristics that influence political outcomes (omitted variable problem). And third, the (perceived) re-election probability may be a result, and not a cause, of political decisions (reverse causality problem).

Our empirical strategy is based on the following conjecture: The share of votes an incumbent bloc received when it was elected into office through the local election in year t contains information about how likely that bloc is to be re-elected through the local election at time $t+4$. Similarly, the share of votes an incumbent bloc receives in the national election in year $t+2$ also contains information about how likely re-election is. Denote these two vote shares as $S_{i,t}$ and $S_{i,t+2}$, respectively. If our conjecture is correct, then a change in support within election period T, $\Delta S_{i,T} \equiv S_{i,t+2} - S_{i,t}$, indicates that an incumbent's probability of being re-elected has changed. Hence, we consider the results from the national election as a "grand opinion poll" that captures ideological preferences of the electorate, while leaving the composition of the local council unaffected. The national election is a particularly useful tool as it contains information from each municipality separately and we can choose the level of aggregation at which we use this information. The empirical relevance of this idea is evaluated in the next section.

With the above logic in mind, we wish to estimate the following relationship:

$$\Delta Y_{i,T}^{h} = \psi \Delta S_{i,T} + \tau_T + \varepsilon_{i,T}, \tag{9}$$

where Δ is the first-difference operator, and $\Delta Y_{i,T}^{h}$ is the change in spending on purpose h from the two first years in election period T to the two last years in that election period. We include election period fixed effects, τ_T, in order to allow for election cycles unrelated to changes in re-election probabilities. These take out national swings in partisan sentiment and other time effects.[18] The key parameter of our interest is ψ.

Note that with the specification in (9) our inference is based on changes in policy-

[18] Several studies have documented an election cycle in public policy, e.g. Drazen and Eslava (2005), Veiga and Veiga (2007) and Dahlberg and Mörk (2008), using data from Columbian, Portuguese and Swedish local governments respectively.

making within election periods, and hence for given policymakers. A strength of this approach is that all time-invariant factors are netted out. Unobserved characteristics of the incumbents will not influence our results. However, an OLS regression run directly on (9) is likely to suffer from an endogeneity problem: Parliamentary election results may depend on preceding local political decisions, i.e. $Cov\left(\Delta S_{i,T}, \varepsilon_{i,T}\right) \neq 0$. For instance, if a mayor is perceived sa having done a good job during his first two years in office, voters may be more inclined to support his bloc at the national election. This generates an endogeneity problem if spending is correlated with voters' perception of incumbents' performance. More generally, omitted variables that influence both local priorities and voting will bias OLS estimation of (9).

To address the endogeneity problem we use an instrumental variable approach. Our instrument is the population-weighted average of the support for the incumbent's bloc in all other municipalities in the county to which municipality i belongs. This county-level information, denoted $S_{i,T}^{county}$, is calculated as follows:

$$\Delta S_{i,T}^{county} = \frac{\sum_{j \neq i}^{C_i} pop_{j,t} \Delta S_{j,T}}{\sum_{j \neq i}^{C_i} pop_{j,t}},$$

where C^i denotes the number of other municipalities in the county to which municipality i belongs and $pop_{j,t}$ is the population size of municipality j in year t.

Our first stage equation is given by

$$\Delta S_{i,T} = \zeta \Delta S_{i,T}^{county} + \tau_T + \epsilon_{i,T}, \tag{10}$$

The idea behind this equation is that the change in support from the local election result at the county level ($S_{i,t}^{county}$) to the national election result at the county level ($S_{i,t+2}^{county}$) two years later captures regional swings in partisan sentiment, which can be treated as independent of local decisions. Our identifying assumption is that a change in support for the incumbent's bloc at the county level does not influence the change in local decision making, except through its impact on perceived local re-election probabilities.

In sensitivity analyses this assumption will be closely investigated.

We will estimate all equations separately for mayors from each of the two blocs. Hence, changes in the composition of the national parliament cannot be driving any results, as long as all incumbents from the same bloc are similarly affected.

5 Results

5.1 The National Election and Re-election Probabilities

The central element in our empirical strategy is that we consider the regional results of the national election for parliament as signals to local incumbents about their likelihood of being re-elected. A key question is then: Does the national election provide relevant information about the local incumbents' re-election probability? To answer this question, we run the following probit regressions that relate actual local election outcomes in $t+4$, denoted by $R_{i,t+4}$, to the incumbent blocs' support at the elections in t and $t+2$:

$$R_{i,t+4} = \nu_1 + \omega_1 S_{i,t} + \eta_{1,i} \tag{11}$$

and

$$R_{i,t+4} = \nu_2 + \omega_2 S_{i,t} + \theta S_{i,t+2} + \eta_{2,i}. \tag{12}$$

Here $R_{i,t+4} = 1$ if the incumbent bloc is re-elected, while $R_{i,t+4} = 0$ if the incumbent bloc is not re-elected. If θ in (12) is different from zero, then the parliamentary election brings new information to the incumbents about their support among the voters.

The results from regressions on (11) and (12) are provided in Table 4. The table shows that the estimates of ω_1 and θ are large and highly statistically significant, while ω_2 is not. Hence, while $S_{i,t}$ is a significant predictor of future re-election before $S_{i,t+2}$ is known, this is no longer the case once $S_{i,t+2}$ is included in the information set; the impact of $S_{i,t}$ is close to zero and statistically insignificant when we control for $S_{i,t+2}$. These results imply that a change in support from the local to the national election, $\Delta S_{i,t}$, indicates a

change in incumbents' re-election probability.

[Table 4 about here.]

Predicted values from the probit specifications are shown graphically in Figures 2 and 3. As is evident, there is far from complete correspondence between predicted values at time t, and predicted values at time $t+2$.

[Figures 2 and 3 about here.]

5.2 The Effects of Changes in Re-election Probabilities

The results from the first stage regression, as specified in (10), are reported in Table (5). The excluded instrument, $\Delta S_{i,t}^{county}$, is a strong predictor of $\Delta S_{i,t}$. The F-statistics take values of 52 and 69 for the right and left blocs, respectively, indicating that the instrument is relevant. A one percentage point increase in the support for the bloc of the incumbent at the county level, translates into roughly 0.5 and 0.6 percentage points higher support for the right and left bloc incumbents at the local level, respectively.

[Table 5 about here.]

Our results for investment are presented in Table 6 and for current expenditure in Table 7. The results are obtained from separate regressions for each category of public expenditure (education, elderly care and child care), as well as the aggregates (i.e. the sum over the three categories). Each table presents results for right-bloc incumbents in the upper panel (specification 1 to 4), and results for the left-bloc incumbents in the lower panel (specification 5 to 8). In order to facilitate interpretation, all spending variables are standardized by their standard deviation.

[Tables 6 and 7 about here.]

Table 6 shows that public investment varies with changes in incumbents' support. For the right bloc, there is a positive aggregate effect that is statistically significant at the five

percent level. This seems to be driven by investment responses in education and elderly care, although neither of these components' responses are significant at the five percent level when considered separately. Incumbents from the left bloc, on the other hand, tend to raise investment in child care when their re-election probability increases. This effect is statistically significant at the one percent level. Because these incumbents do not adjust spending on elderly care or education, which together dominate total spending, the aggregate investment effect is not significantly different from zero.

Quantitatively, the results show that a 5 percentage point increase in the support of a right bloc incumbent raises aggregate investment by 0.7 standard deviations. Similarly, a 5 percentage points increase in the support of an incumbent from the left bloc increases investment in child care by 0.8 standard deviations.

A related study to ours is Darby, Li, and Muscatelli (2004). They document a negative association between political instability and public investment in a panel of European countries. While interesting, their approach cannot say much about causality. Our analysis however, corroborates their hypothesis that the direction of causality runs from political instability to public investment.

From the theoretical studies of Glazer (1989) and Beetsma and van der Ploeg (2007), a central prediction is that the less likely incumbents are to be re-elected, the more will they invest. Our finding that investments tend to increase with incumbents' support contradicts this prediction. On the other hand, this finding is more consistent with the theoretical predictions emphasized in Natvik (2009), and displayed in the lower left plot of Figure 1. The essential mechanism in this framework is that incumbents are averse to the inefficient capital utilization that will follow if they lose influence to someone with different preferences for public goods.

In light of the evidence in Sørensen (1995) on party-preferences, our results suggest that both left- and right-wing incumbents tend to tilt the composition of investment toward their most preferred welfare service when their re-election probabilities increase. This tendency is strong for left bloc incumbents, who raise child care investments, while

it is somewhat weaker for incumbents from the right bloc who more strongly prefer education and elderly care. Cast against theory, these findings are the opposite of what Glazer (1989) and Beetsma and van der Ploeg (2007) predict. They are more consistent with the theoretical prediction displayed in the upper left panel of Figure 1, which is obtained under the restriction that the elasticity of substitution between public goods in utility (ϕ) is lower than the elasticity of substitution between capital and labor in production (ε).

In contrast to the investment effects, current expenditures do not respond to variation in incumbents' support, as shown in Table 7. For all spending categories considered the estimated effects are far from significant. As shown in the lower right panel of Figure 1, this finding is consistent with the theoretical framework in Section 2 if politicians' intertemporal elasticity of substitution (σ) equals unity. However, due to the balanced budget requirement facing the policymakers we study, we do not place much emphasis on this result.

6 Sensitivity Checks

The results reported in the previous section capture the (average) causal effect of changes in re-election probabilities on local decision making as long as the instrument we apply is valid. To investigate our benchmark results we conduct a number of sensitivity checks. First, we include potentially relevant control variables. Second, we investigate whether yardstick competition threatens the validity of our exclusion restriction. Third, we vary the threshold size for municipalities to be included in our sample. Finally, rather than excluding observations with council members from local lists, we consider a different approach to handle these observations.

6.1 Control Variables

Our inference is based on changes in policymaking within election periods. As argued before, this nets out all time-invariant factors. There may however be time-varying factors that affect policymaking and should be included in our model.

Table (8) and (9) report results from specifications including changes in local economic conditions (the local unemployment rate, $\Delta Unemp$) and the demographic composition of the population. The demographic variables consists of changes in the number of inhabitants (ΔPop), the share of children (0-6 years) ($\Delta Children$), the share of young (7-15)($\Delta Young$) and the share of elderly (67 years and older)($\Delta Elderly$). These variables are not included in our baseline specification because they may be endogenous due to Tiebout sorting.

The demographic variables mainly have the expected signs. We find that an increased number of inhabitants in a particular age group is associated with an increase in current expenditures in the relevant sector. For instance, when the share of the population in school age increases, spending on schooling increases. Changes in demographics are less important for investment. Importantly, our key results on the impact of re-election probabilities are essentially unaltered when we include control variables.

[Tables (8) and (9) about here.]

6.2 Yardstick Competition

Policymakers do not act in isolation. A large empirical literature, initiated by Case, Rosen, and James R. Hines (1993), documents that local policymakers respond strategically to other localities´ fiscal policies. Such fiscal competition is also found to be relevant in Norway (e.g. Fiva and Rattsø (2007)). Strategic interaction in spending and tax decisions may be driven by different mechanisms, notably expenditure spillovers, competition for mobile tax bases and yardstick competition, and it is empirically challenging to separate these from each other (as discussed by Revelli (2005)). Yardstick competition implies

that voters make use of information about political decisions in neighboring local governments. The decisions of neighbors carry an information externality, as they provide information against which to evaluate the performance of one's own government (Salmon (1987), Besley and Case (1995)).

In the current setting, yardstick competition is a potential problem. If voters in local government i condition their voting at the national election on the performance of their own local incumbent relative to the incumbent in local government j, then the county-wide ideological sentiment (where votes in i are excluded) may be endogenous to local decision making in i. This implies that the exclusion restriction we impose, namely that the county-level change in support for an incumbent does not affect his spending decisions except through the local re-election probability, may not hold.

To investigate whether yardstick competition biases our IV estimates, we would like to exclude all local governments that voters in local government i are likely to use as a yardsticks. Empirically, it is not obvious how this should be operationalized. The existing literature estimating spatial reaction functions offers relatively little guidance. The most commonly applied criteria of 'neighborhood' is based on geographic distance, in particular border-sharing, but more distant local governments that share demographic and economic characteristics, may also be relevant yardsticks.

We take two different approaches to investigate the importance of yardstick competition. First, we exclude local governments where the county administration is located. These "county capitals" are considerably larger than the average local government and consequently get substantial weight when we generate our (population-weighted) instrument.[19] In addition, these local governments may be problematic to include if the county population pays attention to the politics of the "county capital" (due to e.g. more media coverage). In Tables (10) and (11) we report results where "county capitals" are excluded. The results are basically unaltered.

[Tables (10) and (11) about here.]

[19] The average population size of the "county capitals" is 56.000.

Our second approach is to rely on information on local labor market regions. The labor market regions, 90 in total, are defined by Statistics Norway on the basis of commuting flows across local government borders.

In Tables (12) and (13), we present results where the instrument is based on changes in the regional partisan sentiment, excluding election results from local governments belonging to the same labor market region.

[Tables (12) and (13) about here.]

As expected, the instruments become slightly weaker with the alternative instrument. The aggregate investment effect for right-wing incumbents and the child care effect for left-wing incumbents is still statistically significant at the five percent level.

Because results change little when we exclude local governments based on two plausible definitions of "neighborhood", we conclude that it is unlikely that our main findings are severely biased by yardstick competition.

6.3 Population Size

In our baseline estimates we exclude local governments with less than 1000 inhabitants. The reason is two-fold. First, the political decision making process is likely to be more consensus oriented in very small municipalities. Second, the lack of volume in budgets of very small local governments limits the scope for strategic use of public capital, and is likely to introduce substantial noise to our estimation since investment in these municipalities will be dominated by single projects.

In this subsection we present results where we vary the threshold size for municipalities to be included in our sample. In Tables (14) and (15) we show results where all local governments are included. In Tables (16) and (17) we exclude local governments with below 2500 inhabitants (approximately 20 percent of the sample). Finally in Tables (18) and (19) we exclude local governments with below 4000 inhabitants (approximately 40 percent of the sample). As expected, we find more precise estimates of strategic

investment when small local governments are excluded. The point estimates do not change much across these samples.

[Tables (14) to (19) about here.]

6.4 Local Lists

7 percent of all representatives in the local councils of our sample belong to local lists that do not participate in the national elections. Hence, for our key explanatory variable, $\Delta Support$, to correctly capture the change in bloc support from the local to the national election, we need to know whether these local lists belong to either the left or the right bloc. However, information that allows such a categorization is not readily available. We therefore excluded municipalities with such council members from the sample used in our analysis above. The cost of this conservative approach was that we excluded a substantial number of observations from our analysis. In order to assess the importance of these exclusions for our results, we here deal with the local lists in an alternative way.

The aim of the procedure we pursue is to avoid excluding observations with mayors who represent parties that we know which bloc belongs to.[20] In order to measure change in support at the local level for the incumbent in municipality i, $\Delta S_{i,T}$, we characterize all local lists as part of the right bloc. However, the instrument, county-wide change in support $\Delta S_{i,T}^{county}$, is constructed without municipalities with council members from local lists, just as before. The idea is that while the ad hoc categorization of local lists introduces noise in our measurement of change in support at the local level, $\Delta S_{i,T}$, our instrument $\Delta S_{i,T}^{county}$ remains unaffected by this source of measurement error. We thereafter conduct a similar analysis with all local lists categorized as members of the left bloc.

Tables 20 and 21 display the results when local lists are included in the right wing bloc. Tables 22 and 23 display the results when local lists are included in the left wing bloc.

[20] We still exclude all observations with mayor from a local list, 4 percent of our observations.

As expected the instrument becomes weaker when support for local lists are included in either of the two blocs. However, the main results from the previous analysis remain unchanged. For the right bloc the aggregate effect remains highly significant, and still seems to be driven by elderly care and schooling, while for the left bloc the effect on child care remains.

[Tables (20) and (21) about here.]

7 Discussion: Theory and the Results

The predictions from our theoretical model, taken from Natvik (2009), were determined by the specific parameter values for the production functions of the public sector and utility function of the political parties competing for office. The way to evaluate our theory is therefore to ask if there exist reasonable parameter values under which its predictions are consistent with our empirical analysis. At this point, the most important finding is that incumbents tend to invest more when re-election becomes more likely, which is consistent with the model under the assumption that capital and labor are complements, i.e. when ε in the model is low. Based on the existing evidence on macro production functions (see f.ex. Klump, McAdam, and Willman (2007) and Antràs (2004)) such a degree of complementarity is reasonable.

In terms of investment composition, our theory is consistent with the empirical findings only if the political parties have a low intratemporal elasticity of substitution (ϕ). For this parameter, we have no empirical evidence to lean on, and hence our finding that higher re-election probabilities make incumbents tilt the composition toward the purposes they prefer more strongly poses no strict test of our model. However, cast against the predictions from Glazer (1989) and Beetsma and van der Ploeg (2007), the composition effect in the data does point toward our framework where capital and labor are complementary inputs to government production.

While the empirical analysis was designed to explore the predictions from our simple

theory, our findings may also be used to evaluate alternative models. In particular, a possible force behind strategic investments could be that incumbents attempt to influence their own re-election probability. Two recent studies that emphasize this mechanism are Aidt, Veiga, and Veiga (2007) and Drazen and Eslava (2005). Both assume that public investments are particularly visible types of public expenditure. Office-seeking incumbents will therefore invest more when they need to boost their re-election probability, i.e. when electoral competition is perceived as high. Our evidence does not support this prediction because a higher support in the national election indicates a higher re-election probability, and thus less competition in the upcoming election (see Figures 2 and 3).[21] Of course, this does not rule out that incumbents attempt to influence their re-election probabilities when choosing how to invest. But, to the best of our knowledge, existing frameworks cannot explain our findings as driven by endogenous voting.[22]

8 Conclusion

By studying highly comparable entities, municipalities in Norway, and utilizing the overlapping regularity of local and national election terms that characterizes this institutional setting, we have found that incumbent policymakers adjust their investment policies in response to exogenous shifts in their support among voters. Incumbents who experience increased popularity raise investment in the purposes they prefer more strongly than their competitors for office.

This result is interesting for two broad reasons. First, it provides a finding against which we can evaluate politico-economic hypotheses of public investment. We have fo-

[21] The positive relationship we find between investment and support is therefore the opposite of what both Aidt, Veiga, and Veiga (2007) and Drazen and Eslava (2005) predict.

[22] An alternative model of endogenous voting and public investment is that of Robinson and Torvik (2005), where incumbents may choose to invest in socially inefficient projects ("white elephants") targeted to their core voters so as to raise their own re-election probability. While this theory may well be relevant for developing countries (which is what the authors allude to), we do not view our findings from Norway as consistent with it. The reason is that this theory would predict incumbents to invest more in their most-preferred projects when electoral competition is expected to be tough, which under the premise that a low re-election probability signals tougher competition is the opposite of what we find.

cused on theoretical frameworks where re-election probabilities are exogenous, and argued that our evidence rejects theories where the returns to public capital are independent of other policy choices, as in Glazer (1989) and Beetsma and van der Ploeg (2007). On the other hand, our evidence is consistent with a framework where the returns to investment in public capital depend on the other inputs that such capital must be combined with in order to produce public goods, as in Natvik (2009). Hence, our results indicate that it is important to account for complementarity between public capital and other inputs to public good provision when analyzing public investment in a political equilibrium. Furthermore, while we have not placed much emphasis on theories where incumbents choose the composition of investment so as to influence future voting, it may well be that such considerations are important. We believe that our study motivates theoretical investigation into how politicians may choose investment strategies to boost their likelihood of being re-elected.

Second, our results are important for normative considerations as well. A feature of democracies is that whoever is in government at a point in time faces the risk of losing influence in the future. It is important to know whether and how this feature affects which policies are actually implemented, since such knowledge provides guidance as to whether democratically elected governments should face restrictions on the set of policies they may implement. On this issue the literature has traditionally emphasized deficit restrictions, as in Persson and Svensson (1989) and Tabellini and Alesina (1990). For investment, emphasis has been on the aggregate level of capital accumulation, with a central prescription being the "golden rule", which states that investment in physical capital should be exempted from deficit restrictions (see f. ex. Bassetto and Sargent (2006)). The institutional setting in which Norwegian municipalities operate is very similar to such a 'golden rule'. Hence, our results show that such a rule is not sufficient to prevent politicians from varying the capital stock in response to altered prospects of re-election. Understanding the welfare consequences of such investment behavior seems an important subject for future research.

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A Appendix

A.1 First Period Choices

For notational convenience, and without loss of generality, assume that the incumbent is of type R. Let h_2^J and $n_2^{h,J}$ denote the quantities of good h and labor use for producing good h when party J is in office in period 2, and G^J denote the reaction function of party J. The incumbent's choices of $\left\{n_1^g, n_1^f, k_2^g, k_2^f, b\right\}$ must satisfy the first-order conditions

$$u_g\left(g_1, f_1|\alpha^R\right) g_n\left(n_1^g, k_1^g\right) = u_f\left(g_1, f_1|\alpha^R\right) f_n(n_1^f, k_1^f) \tag{13}$$

$$\left\{\begin{array}{c} u_g\left(g_1, f_1|\alpha^R\right) g_n\left(n_1^g, k_1^g\right) \\ -p_R\left[u_g\left(g_2^R, f_2^R|\alpha^R\right) g_n\left(n_2^{g,R}, k_2^g\right)\right] \\ +(1-p_R)\left[\begin{array}{c} u_g\left(g_2^L, f_2^L|\alpha^R\right) g_n(n_2^{g,L}, k_2^{g,L}) G_b^L \\ +u_f\left(g_2^L, f_2^L|\alpha^R\right) f_n(n_2^{f,L}, k_2^{f,L}) F_b^L \end{array}\right] \end{array}\right\} = 0 \tag{14}$$

$$\left\{\begin{array}{c} -u_g\left(g_1, f_1|\alpha^R\right) g_n\left(n_1^g, k_1^g\right) \\ +p_R\left[u_g\left(g_2^R, f_2^R|\alpha^R\right) g_k(n_2^{g,R}, k_2^g)\right] \\ +(1-p_R)\left[\begin{array}{c} u_g\left(g_2^L, f_2^L|\alpha^R\right) g_n(n_2^{g,L}, k_2^g) G_{k_2^g}^L \\ +u_f\left(g_2^L, f_2^L|\alpha^R\right) f_n(n_2^{f,L}, k_2^f) F_{k_2^g}^L \\ +u_g\left(g_2^L, f_2^L|\alpha^R\right) g_k(n_2^{g,L}, k_2^g) \end{array}\right] \end{array}\right\} = 0 \tag{15}$$

$$\left\{\begin{array}{c} -u_g\left(g_1, f_1|\alpha^R\right) g_n\left(n_1^g, k_1^g\right) \\ +p_R\left[u_f\left(g_2^R, f_2^R|\alpha^R\right) f_k(n_2^{f,R}, k_2^f)\right] \\ (1-p_R)\left[\begin{array}{c} u_g\left(g_2^L, f_2^L|\alpha^R\right) g_n(n_2^{g,L}, k_2^g) G_{k_2^f}^L \\ +u_f\left(g_2^L, f_2^L|\alpha^R\right) f_n(n_2^{f,L}, k_2^f) F_{k_2^f}^L \\ +u_f\left(g_2^L, f_2^L|\alpha^R\right) f_k(n_2^{f,L}, k_2^f) \end{array}\right] \end{array}\right\} = 0 \tag{16}$$

in addition to the budget constraint (2). These are the first-order conditions for labor hiring, debt accumulation, investment in purpose g and investment in purpose f.

Table 1: Parametrization

Parameter	Value	Parameter	Value	Parameter	Value
δ	0.2	ϕ	0.5	α^R	0.6
ε	0.7	σ	1	α^L	0.4
γ	0.7				

Notes: δ is the depreciation rate of public capital during an election term. ε is the elasticity of substitution between capital and labor in the production of public goods. γ is the share parameter of labor in the production function. ϕ is the intratemporal elasticity of substitution between goods g and f, and σ is the intertemporal elasticity of substitution in the utility function. α^R and α^L are party R and party L's utility weights on good g.

Table 2: Descriptive Statistics: Investment and Current Expenditures

Variable	Mean	Std. Dev.	Min.	Max.
Investment Aggregate	1.138	1.242	-15.632	12.247
Investment Education	0.663	0.820	-5.198	9.017
Investment Elderly Care	0.396	0.901	-16.11	10.986
Investment Child Care	0.08	0.183	-1.409	3.2
Current Expenditures Aggregate	10.635	4.925	3.498	48.125
Current Expenditures Education	5.822	1.462	2.551	16.267
Current Expenditures Elderly Care	3.95	3.181	0.106	34.124
Current Expenditures Child Care	0.864	0.844	0	4.922
N		3446		

Notes: Investment is defined as maintenance and spending on new buildings and structures minus sales of buildings and structures. Current expenditure is the sum of wages, equipment, external transfers and 'other current expenditures'. All figures are measured per capita in NOK 1000 and deflated to 1998 levels. Descriptive statistics are based on two-year averages. The sample is restricted as in baseline estimations below.

Table 3: Descriptive Statistics: Political Variables.

Variable	Mean	Std. Dev.	Min.	Max.	N
Mayor Left	0.456	0.498	0	1	1723
Mayor Right	0.544	0.498	0	1	1723
Voteshare Left	0.449	0.146	0.062	0.832	1723
Voteshare Right	0.55	0.146	0.167	0.938	1723
SupportLocalElection	0.615	0.103	0.235	0.938	1723
SupportNationalElection	0.593	0.096	0.222	0.908	1723
ReElection	0.825	0.38	0	1	1706
$\Delta Support$	-0.018	0.041	-0.243	0.192	1723
$\Delta Support^{County}$	-0.005	0.025	-0.066	0.072	1723

Notes: SupportLocalElection is the incumbent bloc's share of votes in the local election held at the beginning of each local election period. SupportNationalElection is the incumbent bloc's share of votes in the parliamentary election held in the middle of the local election period. ReElection is an indicator variable which equals one if the bloc of the incumbent remains in power the next election period, zero otherwise. $\Delta Support$ is the change in support for the bloc of the incumbent from the local election held in year t (SupportLocalElection) to the national election held in year $t+2$ (SupportNationalElection). $\Delta Support^{County}$ is the population-weighted average of $\Delta Support$ at the county level, excluding the local government under study. The sample is restricted as in baseline estimations below.

Table 4: Information from Parliamentary Election

	(1) reelection	(2) reelection	(3) reelection	(4) reelection
SupportLocalElection	4.61***	6.71***	0.14	-0.23
	(0.99)	(1.63)	(0.03)	(-0.05)
SupportNationalElection			5.31***	7.84***
			(1.11)	(1.81)
Constant	-1.89***	-2.83***	-2.24***	-3.23***
N	929	777	929	777
pseudo R^2	0.077	0.156	0.093	0.199
Estimation Method	Probit	Probit	Probit	Probit
Block of Mayor	Right	Left	Right	Left

Notes: SupportLocalElection is the incumbent bloc's share of votes in the local election held at the beginning of each local election period. SupportNationalElection is the incumbent bloc's share of votes in the parliamentary election held in the middle of the local election period. The dependent variable is an indicator variable which equals one if the bloc of the incumbent remains in power the next election period, zero otherwise. Regressions are run separately for mayors from each bloc. The sample is restricted as in baseline estimations below. Marginal effects in parentheses. * $p < 0.10$,** $p < 0.05$,*** $p < 0.01$

Table 5: First Stage Regressions

	(1) Right	(2) Left
$\Delta Support^{County}$	0.48***	0.60***
	(7.24)	(8.29)
N	937	786
R^2	0.179	0.292
Estimation Method	OLS	OLS

Notes: The dependent variable, $\Delta Support$, is the change in support for the bloc of the incumbent from the local election held in year t to the national election held in year $t+2$. $\Delta Support^{County}$ is the population-weighted average of $\Delta Support$ at the county level, excluding the local government under study. Regressions are run separately for mayors from each bloc. Election period fixed effects included in all specifications. t statistics in parentheses, * $p < 0.10$,** $p < 0.05$, *** $p < 0.01$.

Table 6: Effects of Increased Support for the Bloc of the Incumbent on Investment

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	13.90***	9.59*	9.16*	2.85
	(2.61)	(1.81)	(1.73)	(0.54)
N	937	937	937	937
Block of Mayor	Right	Right	Right	Right
Est. Method	IV	IV	IV	IV
F-statistic from 1st.	52.45	52.45	52.45	52.45

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	5.86	1.22	3.45	16.58***
	(1.37)	(0.32)	(0.76)	(3.53)
N	786	786	786	786
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	68.75	68.75	68.75	68.75

Notes: Each cell represents coefficients from IV regressions for each category of public expenditure on changes in support for the bloc of the incumbent. The dependent variable is the change in yearly spending from the two first years in each election period to the two last years in each election period, scaled by the relevant standard deviation (from Table 2). The parameter estimates measure spending responses if support were to increase from zero to 100 percent. The instrument for $\Delta Support$ is the population-weighted average of the change in support for the incumbent's bloc at the county level, excluding the local government under study ($\Delta Support^{County}$). Regressions are run separately for mayors from each bloc. The upper panel shows results for right-wing mayors, the lower panel shows results for left-wing mayors. Election period fixed effects included in all specifications. t statistics in parentheses, * $p < 0.10$,** $p < 0.05$, *** $p < 0.01$.

Table 7: Effects of Increased Support for the Bloc of the Incumbent on Current Expenditures

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.44	0.56	0.25	0.57
	(0.66)	(0.56)	(0.30)	(0.67)
N	937	937	937	937
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	52.45	52.45	52.45	52.45

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.07	-0.03	0.40	-1.06
	(0.11)	(-0.04)	(0.48)	(-1.63)
N	786	786	786	786
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	68.75	68.75	68.75	68.75

Notes: For explanatory details, see Table 6

Table 8: Investment. Control Variables Included

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	13.71**	9.25*	9.14*	3.18
	(2.57)	(1.75)	(1.71)	(0.60)
ΔPop	-0.12	-0.02	-0.12	-0.05
	(-0.80)	(-0.16)	(-0.80)	(-0.34)
$\Delta Children$	4.58	10.41	-5.63	6.96
	(0.43)	(0.98)	(-0.53)	(0.65)
$\Delta Young$	9.80	28.89***	-11.37	-12.20
	(1.00)	(2.96)	(-1.16)	(-1.24)
$\Delta Elderly$	-9.71	6.38	-14.75	-17.56
	(-0.88)	(0.58)	(-1.34)	(-1.59)
$\Delta Unemp$	-4.38	-10.44	3.62	-1.95
	(-0.50)	(-1.20)	(0.41)	(-0.22)
N	937	937	937	937
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	51.95	51.95	51.95	51.95

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	5.79	1.40	3.22	16.37***
	(1.36)	(0.37)	(0.72)	(3.50)
ΔPop	0.05	0.01	0.03	-0.02
	(0.28)	(0.07)	(0.14)	(-0.11)
$\Delta Children$	0.58	11.39	-9.23	-0.82
	(0.05)	(1.06)	(-0.72)	(-0.06)
$\Delta Young$	-11.48	-4.53	-8.80	-15.39
	(-1.03)	(-0.45)	(-0.74)	(-1.25)
$\Delta Elderly$	21.56*	10.93	17.19	7.40
	(1.71)	(0.97)	(1.29)	(0.54)
$\Delta Unemp$	8.77	-1.55	13.30	2.13
	(1.13)	(-0.22)	(1.63)	(0.25)
N	786	786	786	786
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	69.14	69.14	69.14	69.14

Notes: For explanatory details, see Table 6

Table 9: Current Expenditures. Control Variables Included

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.32	0.21	0.21	0.63
	(0.49)	(0.21)	(0.26)	(0.74)
ΔPop	-0.05**	-0.03	-0.05**	-0.01
	(-2.57)	(-1.10)	(-2.44)	(-0.43)
$\Delta Children$	-0.20	-5.85***	1.78	2.16
	(-0.15)	(-3.02)	(1.09)	(1.26)
$\Delta Young$	4.50***	7.24***	3.97***	-1.25
	(3.72)	(4.05)	(2.64)	(-0.79)
$\Delta Elderly$	2.08	-2.01	4.88***	-2.55
	(1.54)	(-1.00)	(2.89)	(-1.44)
$\Delta Unemp$	-1.19	-3.74**	0.27	-1.59
	(-1.10)	(-2.34)	(0.20)	(-1.13)
N	937	937	937	937
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	51.95	51.95	51.95	51.95

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.14	0.02	0.50	-1.08*
	(0.24)	(0.03)	(0.60)	(-1.68)
ΔPop	-0.05*	-0.04	-0.05	-0.00
	(-1.76)	(-1.18)	(-1.45)	(-0.09)
$\Delta Children$	-1.51	-4.73**	0.22	-1.51
	(-0.90)	(-2.22)	(0.09)	(-0.83)
$\Delta Young$	2.24	7.30***	0.78	-2.78*
	(1.43)	(3.69)	(0.36)	(-1.65)
$\Delta Elderly$	3.69**	-3.04	6.65***	1.43
	(2.10)	(-1.36)	(2.73)	(0.75)
$\Delta Unemp$	-3.90***	-2.68**	-3.70**	-3.96***
	(-3.62)	(-1.96)	(-2.47)	(-3.40)
N	786	786	786	786
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	69.14	69.14	69.14	69.14

Notes: For explanatory details, see Table 6

Table 10: Investment. County Administration Local Governments Excluded

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	12.29**	9.03*	8.22	-1.62
	(2.33)	(1.70)	(1.56)	(-0.30)
N	891	891	891	891
Block of Mayor	Right	Right	Right	Right
Est. Method	IV	IV	IV	IV
F-statistic from 1st.	53.02	53.02	53.02	53.02

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	4.49	-0.78	3.51	16.15***
	(1.12)	(-0.22)	(0.82)	(3.66)
N	749	749	749	749
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	76.76	76.76	76.76	76.76

Notes: For explanatory details, see Table 6

Table 11: Current Expenditures. County Administration Local Governments Excluded

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.68	0.48	0.51	1.10
	(1.02)	(0.48)	(0.62)	(1.27)
N	891	891	891	891
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	53.02	53.02	53.02	53.02

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.29	-0.12	-0.01	-1.42**
	(-0.51)	(-0.17)	(-0.02)	(-2.31)
N	749	749	749	749
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	76.76	76.76	76.76	76.76

Notes: For explanatory details, see Table 6

Table 12: Investment. Local Governments Belonging to the Same Labor Market Region Excluded from Instrument

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	12.08**	11.30*	5.51	0.39
	(2.00)	(1.83)	(0.92)	(0.06)
N	937	937	937	937
Block of Mayor	Right	Right	Right	Right
Est. Method	IV	IV	IV	IV
F-statistic from 1st.	39.05	39.05	39.05	39.05

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	8.25*	3.04	4.89	16.95***
	(1.69)	(0.71)	(0.96)	(3.21)
N	786	786	786	786
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	53.87	53.87	53.87	53.87

Notes: For explanatory details, see Table 6

Table 13: Current Expenditures. Local Governments Belonging to the Same Labor Market Region Excluded from Instrument

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.53	0.50	0.45	0.48
	(0.70)	(0.44)	(0.48)	(0.49)
N	937	937	937	937
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	39.05	39.05	39.05	39.05

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.21	0.38	0.47	-1.16
	(0.31)	(0.43)	(0.50)	(-1.60)
N	786	786	786	786
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	53.87	53.87	53.87	53.87

Notes: For explanatory details, see Table 6

Table 14: Investment. Local Governments With Population > 0 Included

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	14.65**	9.52	9.80*	5.08
	(2.41)	(1.60)	(1.69)	(0.92)
N	976	976	976	976
Block of Mayor	Right	Right	Right	Right
Est. Method	IV	IV	IV	IV
F-statistic from 1st.	45.01	45.01	45.01	45.01

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	4.58	1.59	1.38	16.20***
	(0.98)	(0.40)	(0.27)	(3.31)
N	798	798	798	798
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	58.38	58.38	58.38	58.38

Notes: For explanatory details, see Table 6

Table 15: Current Expenditures. Local Governments With Population > 0 Included

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.45	0.56	0.09	1.21
	(0.63)	(0.53)	(0.10)	(1.28)
N	976	976	976	976
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	45.01	45.01	45.01	45.01

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.01	0.17	0.27	-1.27*
	(0.01)	(0.21)	(0.31)	(-1.82)
N	798	798	798	798
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	58.38	58.38	58.38	58.38

Notes: For explanatory details, see Table 6

Table 16: Investment. Local Governments With Population > 2500 Included

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	19.79***	13.63**	13.71**	5.34
	(3.15)	(2.28)	(2.26)	(1.08)
N	763	763	763	763
Block of Mayor	Right	Right	Right	Right
Est. Method	IV	IV	IV	IV
F-statistic from 1st.	34.76	34.76	34.76	34.76

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	2.54	2.89	-1.48	9.94***
	(0.61)	(0.73)	(-0.34)	(2.86)
N	669	669	669	669
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	90.01	90.01	90.01	90.01

Notes: For explanatory details, see Table 6

Table 17: Current Expenditures. Local Governments With Population > 2500 Included

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.53	-0.66	-0.71	0.60
	(-0.77)	(-0.56)	(-0.82)	(0.62)
N	763	763	763	763
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	34.76	34.76	34.76	34.76

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.02	0.16	0.29	-1.35**
	(0.04)	(0.22)	(0.37)	(-2.17)
N	669	669	669	669
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	90.01	90.01	90.01	90.01

Notes: For explanatory details, see Table 6

Table 18: Investment. Local Governments With Population > 4000 Included

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	16.92**	11.17	13.16*	-0.21
	(2.13)	(1.45)	(1.70)	(-0.03)
N	513	513	513	513
Block of Mayor	Right	Right	Right	Right
Est. Method	IV	IV	IV	IV
F-statistic from 1st.	18.83	18.83	18.83	18.83

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-1.85	1.14	-5.48	7.62**
	(-0.45)	(0.31)	(-1.22)	(2.08)
N	557	557	557	557
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	89.01	89.01	89.01	89.01

Notes: For explanatory details, see Table 6

Table 19: Current Expenditures. Local Governments With Population > 4000 Included

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	0.06	-1.32	0.18	1.98
	(0.07)	(-0.82)	(0.17)	(1.47)
N	513	513	513	513
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	18.83	18.83	18.83	18.83

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.40	-0.18	-0.22	-1.30**
	(-0.82)	(-0.24)	(-0.36)	(-2.10)
N	557	557	557	557
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	89.01	89.01	89.01	89.01

Notes: For explanatory details, see Table 6

Table 20: Investment. Representatives from Local Lists Included in Right Bloc

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	12.76**	8.28	8.44*	6.03
	(2.46)	(1.63)	(1.82)	(1.29)
N	1422	1422	1422	1422
Block of Mayor	Right	Right	Right	Right
Est. Method	IV	IV	IV	IV
F-statistic from 1st.	45.20	45.20	45.20	45.20

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.40	1.28	-4.75	13.90***
	(-0.09)	(0.30)	(-0.99)	(2.85)
N	1079	1079	1079	1079
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	33.99	33.99	33.99	33.99

Notes: For explanatory details, see Table 6

Table 21: Current Expenditures. Representatives from Local Lists Included in Right Bloc

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.05	0.24	-0.32	0.46
	(-0.09)	(0.29)	(-0.46)	(0.69)
N	1422	1422	1422	1422
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	45.20	45.20	45.20	45.20

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.23	-0.50	0.08	-0.72
	(-0.39)	(-0.61)	(0.10)	(-0.93)
N	1079	1079	1079	1079
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	33.99	33.99	33.99	33.99

Notes: For explanatory details, see Table 6

Table 22: Investment. Representatives from Local Lists Included in Left Bloc

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	19.01*	12.33	12.58	8.98
	(1.89)	(1.42)	(1.55)	(1.18)
N	1422	1422	1422	1422
Block of Mayor	Right	Right	Right	Right
Est. Method	IV	IV	IV	IV
F-statistic from 1st.	6.56	6.56	6.56	6.56

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.26	0.83	-3.10	9.06***
	(-0.09)	(0.29)	(-1.00)	(2.91)
N	1079	1079	1079	1079
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	42.29	42.29	42.29	42.29

Notes: For explanatory details, see Table 6

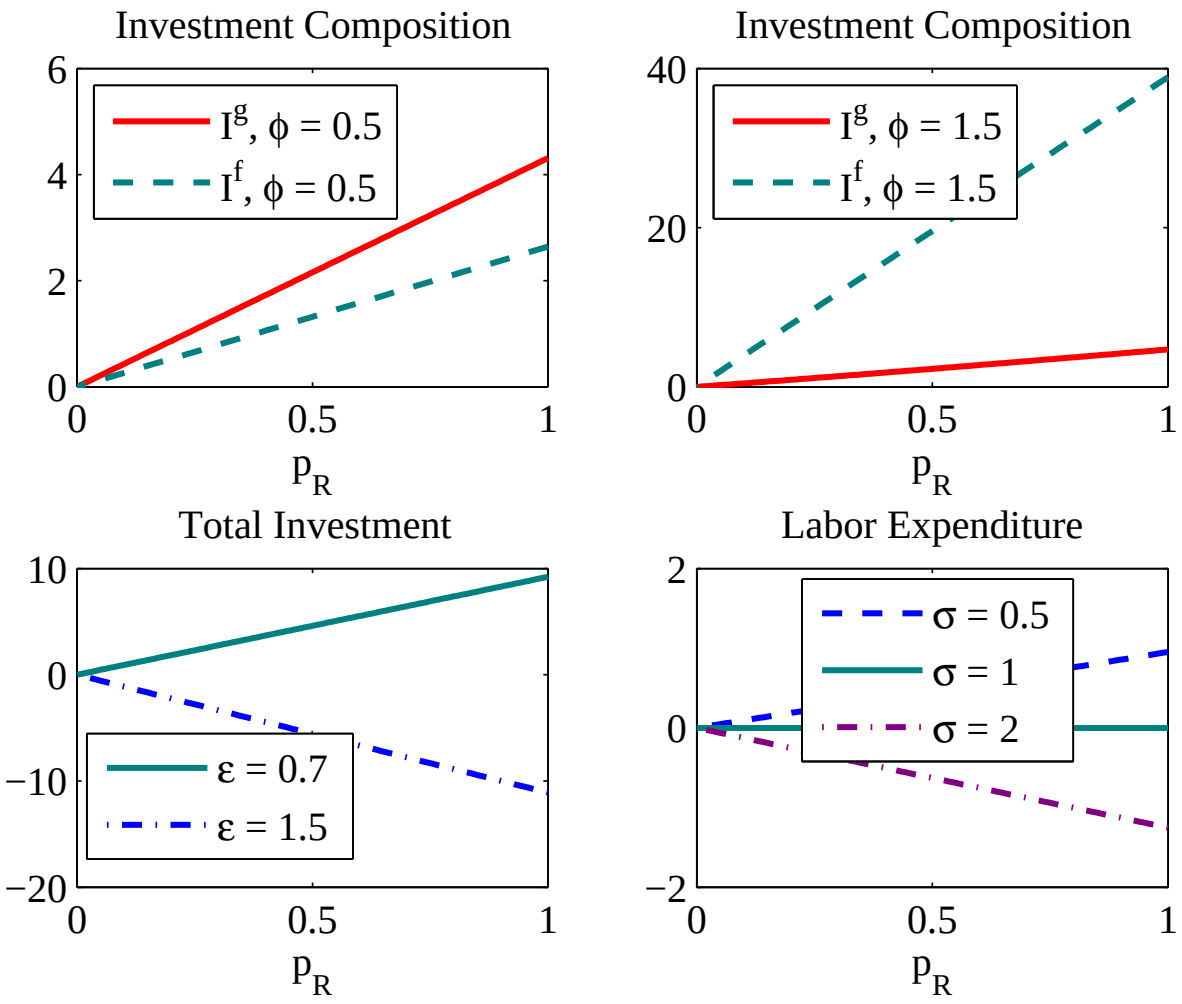
Table 23: Current Expenditures. Representatives from Local Lists Included in Right Bloc

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.07	0.35	-0.47	0.69
	(-0.09)	(0.29)	(-0.45)	(0.66)
N	1422	1422	1422	1422
Block of Mayor	Right	Right	Right	Right
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	6.56	6.56	6.56	6.56

	(1) Aggregate	(2) Education	(3) Elderly Care	(4) Child Care
$\Delta Support$	-0.15	-0.33	0.05	-0.47
	(-0.39)	(-0.61)	(0.10)	(-0.95)
N	1079	1079	1079	1079
Block of Mayor	Left	Left	Left	Left
Estimation Method	IV	IV	IV	IV
F-statistic from 1st.	42.29	42.29	42.29	42.29

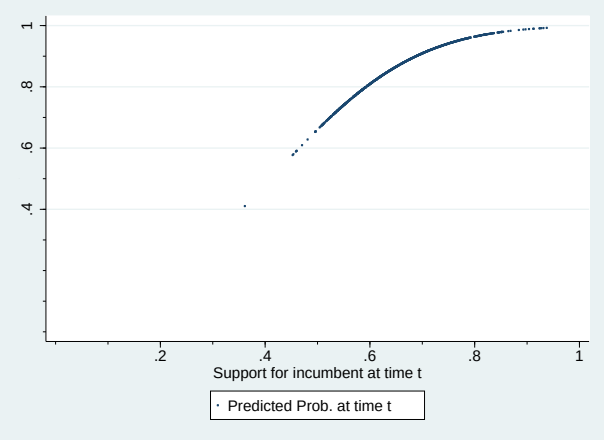
Notes: For explanatory details, see Table 6

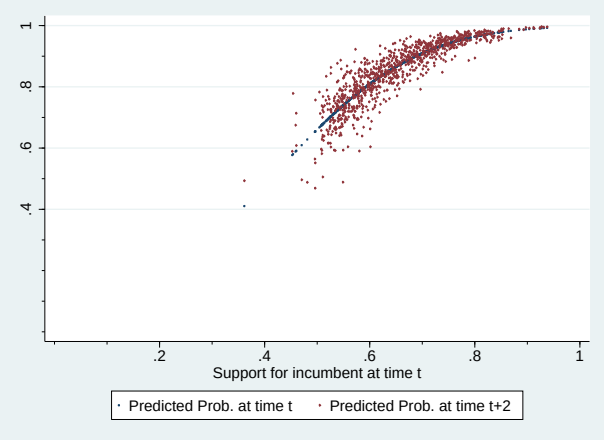
Figure 1: The Effect of Re-election Probability on Policy



Notes: All plots show the percentage point difference from the corresponding outcomes when turnover is certain ($p_R = 0$). I^g and I^f denote investment in production of good g and f. Total investment means investment in both goods summed. Labor expenditure means spending on labor in the production of both goods summed. Unless otherwise noted, parameter values take the values in Table 1.

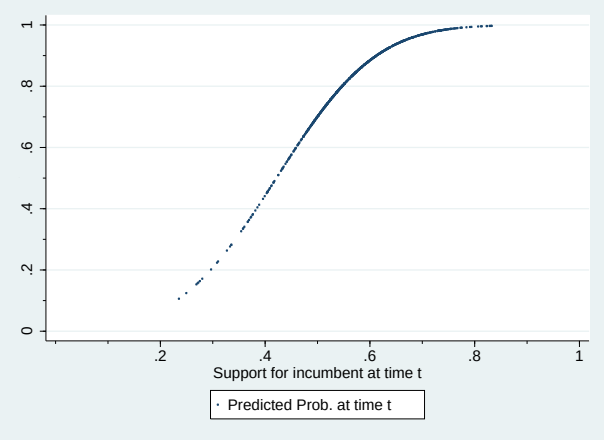
Figure 2: Predicted Re-election Probabilities Based on Previous Election Outcomes, Right Bloc

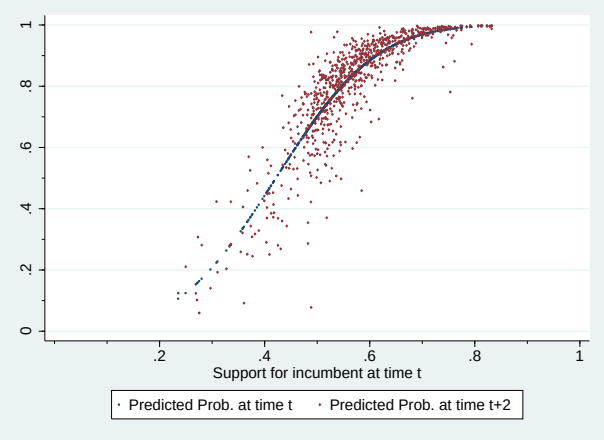




Notes: The horizontal axis indicates the incumbents' support in the last local election. The blue dots indicate the predicted re-election probability from a probit-regression based upon the last local election result only. The red dots indicate the predicted re-election probabilities based upon both the last local and the last national election. All values reflect the predicted values displayed in Table 4.

Figure 3: Predicted Re-election Probabilities Based on Previous Election Outcomes, Left Bloc





Notes: For explanatory details, see Figure 2

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