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Two-round elections, one-round determinants?

Evidence from the French municipal elections[*]

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Abstract

Using a new database of French municipalities that covers 821 towns and 2 elections (2001 and 2008), we examine how the budget structure, degree of electoral competition and the economic context affect the share of votes for the incumbent. We assess the specificities created by the two-round process under French electoral rule (a dual ballot under plurality rule). We show that in the first round of the electoral process, spending on equipment can influence the voter, and that electoral competition has a strong impact on the incumbent's score. In the second round, the incumbent's vote is affected more by national considerations and local budget variables have no effect. We show that the dynamics between the first and the second rounds are intense. The results suggest that the determinants of each round in a two-round electoral process are different.

JEL classification: D72 - H72 - H76

Keywords: Economic voting ; Local elections ; Plurality rule ; Visible expenditures

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1 Introduction

The literature on economic voting has evolved largely from analyses of presidential elections in split political environments, and tends to devote more attention to lower-level elections which reduces the problem of small sample sizes in presidential elections. These studies offer new insights into voters' behavior. There is a growing body of work on subnational elections which shows that politicians have a significant influence on voters (Aidt et al., 2011), if only because the former's greater control over the instruments available at this level. Of particular interest to voters is the way that budgets are split between investments and operating expenditures and the number of civil servants involved. Kneebone and McKenzie (2001) show that the repartitioning of budgets is relevant in Canadian Provinces; they use the term "visible expenditures". For Portugal, Veiga and Veiga (2007) show that increases in investment expenditure and changes in the composition of expenditure to favor highly visible types of spending are associated with higher vote percentages for incumbent mayors seeking reelection. Sakurai and Menezes-Filho (2008) analyze the influence of public spending on the probability of mayors' being reelected in Brazil, and show recording higher levels of expenditure during their term of office increases the probability of their own reelection or that of a successor from the same political party. The first goal of this research is to build on this growing literature and to investigate the influence of the local budget structure on incumbents' results and reelection prospects in France, based on the French local (municipal) elections in 2001 and 2008.[1]

Powell and Whitten (1993) show that the impact of economic conditions on electorates varies among countries. However, how electoral rules influence economic voting across countries has been largely ignored by research. This paper highlights that some elections involve two rounds, a feature that is often not acknowledged but which is raising important theoretical issues, especially in relation to the number of parties and the role of extremist parties (Bordignon et al., 2010). We consider the econometric and economic issues this electoral rule induces. Econometrically, if both rounds in an election are considered as a single election, they should be considered as two separate but intrinsically related electoral processes. In economic terms, we need to ask whether it is the same set of variables that influences voters in each round. The French case is interesting given the electoral rule, the multiparty political arena and the reduced space for strategic maneuvering by politicians. The institutional structure and the fixed election dates are exogenous (from the perspective of the politician).

This paper makes two contributions to the literature. First, it provides an empirical methodology that is designed to take specific account of the specificities of two-round electoral processes, and avoid the biases that might have affected existing estimates (for France and for other countries with similar electoral rules). Relying on a linear model estimated with Ordinary Least Squares (OLS) and Heckman-type procedures, we account for the biases that can arise as a result of selection and endogeneity problems. After the first election round, the incumbent faces three possibilities (reelection, elimination or running again in the second round). For incumbents required to run in the second round, there are two possibilities (as in one-stage elections): reelection or defeat. Considering only the second-round results overlooks the

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[1]In France, there are several layers of local government, regional, departmental and city, each one involving a separate election. In this paper, we focus on city or municipal elections. In the remainder of the paper, "local" refers to "municipal".

political dynamics induced by the electoral rule. The second contribution is the inclusion of three types of data as potential election determinants: budget data, political variables, and an economic context indicator. These indicators are rarely included in the same estimates but they offer a more complete modeling of the voter's decision-making process. This study is the first to provide a comprehensive view of the two-stage electoral process and to propose an empirical strategy aimed at disentangling the determinants of voters' decisions in each round. This paper is more comprehensive than the studies in the literature.

The results of this analysis contribute to the existing literature at various levels. First, we show that the electoral rule matters and that voters are aware of this. More specifically, in the French case (dual ballot under the plurality rule), we reveal that budget variables (in particular, equipment expenditure) only impact on first-round votes, except in safe seats where, by definition, manipulating budget variables is less relevant. Second, the second-round votes are mostly determined by national politics (and notably the "midterm" nature of the election) and by the degree of political competition (number of candidate from the same and other political parties). Third, although there are some determinants that could lead to the two rounds being considered as separate elections, we show that they are strongly related to the dynamics of the first round and strongly impact on the incumbent's score in the second.

The article is organized as follows. Section 2 describes the legal and political contexts to the theoretical framework and background literature presented in Section 3. Section 4 introduces the data, and Section 5 presents the empirical strategy. Section 6 discusses the main empirical results and provides several robustness checks. Section 7 concludes.

2   Legal and political environment

The legal and political realities of French local elections differ from the contexts of existing studies in the field. First, the French political arena is bipartisan. In the sample (described below), there are many different parties, none of which can be considered marginal. For each election considered, voters are required to choose among candidates from more than ten political parties. Simple differentiation between Right and Left is not possible. In the 2001 election, for example, such a differenciation would have combined the National Front (FN, far right party, leader: Jean-Marie Le Pen) with the Rally for the Republic (RPR, moderate right, leader: Jacques Chirac). For voters, these parties are different. Reinforcing this difference, Jacques Chirac rejected any agreement with the FN. In what follows, we consider separately the role of the far right role in the second round, but classify the opposing candidates according to a Left-Right distinction.

The legal context for local elections in France evolved over time but was determined in 1982 (and applied since 1983). Local elections are usually held every six years.[2] They apply to communities of at least 3,500-inhabitants (the voting system is different for smaller towns). As the towns in our samples have populations above this threshold (see below), we describe the relevant system. Polling is organized according to published lists, and comprises (possibly) two rounds. The winning list receives half the seats

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[2]Except between 2001 and 2008, when the election was postponed because in that year, there were presidential and parliamentary elections.

on the town council; the remaining seats are distributed proportionally across all the lists (including the winning list) that received more than 5% of the votes. The first-round winning list is the list that received more than 50% of the votes. If a second round is necessary, the 50% majority threshold no longer holds, and all the lists with more than 10% of the votes can compete. Also, lists with more than 5% of the votes can decide to merge between the two rounds. Merging is a consequence of the multipartisan context, which it reinforces, as electoral law allows lists defeated in the first round to merge with one (or several) of the runners-up in the second round.

These features (the two-round electoral process and its multipartisan context and the possibility of merging) are not accounted for simultaneously in the literature on elections in France or in other countries with comparable systems. This present study is the first to provide a comprehensive view of the two-stage electoral process and to design an empirical strategy aimed at disentangling the determinants of voters' decisions in each round.

3   Theoretical background and related literature

We present a stylized model that encompasses the three features of interest: economic voting, influence of budget on voters, and the impact of the voting rule.

In any jurisdiction i (here, a municipality) the representative voter derives her utility from a local public goods supply, O_i. The local supply of public goods is a combination of spending on equipment, $g_{i,e}$, staff, $g_{i,s}$, and other spending (functioning), $g_{i,f}$:

$$O_i = O\left(g_{i,e}, g_{i,s}, g_{i,f}\right) \tag{1}$$

where the function O is increasing with each factor. Voters trade off their preferred policy against the policy implemented by the elected politician. Assuming that each voter, j, has a quasi-linear utility function, we can write:

$$U_{i,t,1}^{j}(O_i) = V\left(O_{i,t}\right) - \left(O_{i,t,1}^{j} - pO_{i,t,1}^{I} - (1-p)\,O_{i,t,1}^{Q}\right)^2 \tag{2}$$

where the subscripts represent the municipality, i, the election year, t, and if and where applicable, the election round (1 or 2).[3] I and Q, respectively, denote the policy that would be chosen by the incumbent or her electoral competitors should they be elected. The *ex-ante* first-round probability of election is equal to p for the incumbent and $1 - p$ for the competitors. Note that the voters' preferred public goods supply may (at least partially) depend on the economic context. Hence, the utility is an implicit function of the economy, making economic voting a reality. Given the electoral rule, the electoral competition is open to more than one challenger. The model builds on Bordignon et al. (2010) and, as in their paper, for simplicity, we limit the competition to four candidates. Here, we consider the incumbent plus three other candidates, $Q \in \{1, 2\ and\ 3\}$, who are assumed to be keen to take office. But they also have ideological policy preferences from which voters, in deciding on the candidate closest to their preferences, minimize

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[3]This type of modeling is used, e.g. in Drazen and Eslava (2010).

the second part of their utility function. In the empirical test below, this framework allows us to account for political competition. We consider the number of candidates, and differentiate between candidates from the same political side and those of other political leanings.

Given the possibility of merging between the first and (potential) second rounds, we acknowledge that candidates may merge their policy platforms to form what Bordignon et al. (2010) call "electoral cartels" that cannot be dissolved if elected in. Similarly, we assume that cartels contain a maximum of two members and are composed of candidates with close beliefs. Without loss of generality, we assume that the incumbent locates between candidates 1 and 2, meaning that Candidate 2 can merge with either the incumbent or Candidate 3 while Candidate 1 can only form a party with the incumbent. This realistic assumption captures the fact that cartels are more likely among ideologically closer parties and that moderate parties can sometimes join forces, although opposing/extremists cannot because the voters would not support such a merger.

If a second round is necessary, the voter's utility can be written as follows:

$$U_{i,t,2}^{j}(O_i) = V\left(O_{i,t}\right) - \left(O_{i,t,2}^{j} - q'O_{i,t,2}^{I} - q''O_{i,t,2}^{Q} - q'''O_{i,t,2}^{M}\right)^2$$

where $O_{i,t,2}^{j}$ is the voter's reference point, which the voter revises based on the first-round results[4], and the qs indicate the probability of the incumbent running alone and winning (q'), of one of the challengers running alone and winning (q'') or one of the cartels running and winning (q'''). The sum of the three probabilities is 1. Finally, $O_{i,t,2}^{M}$ is the policy platform chosen by a merger should there be one, in which case we have $M \in \{1+I, I+2, 2+3\}$ exploiting the three potential mergers among the politicians running for office. Our empirical strategy is designed to account for the potential implications of a merger between lists for the incumbent's chance of reelection, given the incumbent's budgetary choices.

This study, therefore, brings together three strands in the voting literature: the standard strand on economic voting; the more recent one on how budget structure (and particularly "visible expenditures") impacts on voters' choices; and the literature that examines the effects of the electoral rule on the economics of voting.

The strand on economic voting has its foundations in the contributions of Downs (1957), Key (1966) and Kramer (1971), and assumes that voters take the economic situation into account. It has been shown that voters behave retrospectively: that is, they hold incumbent politicians accountable for past and current (but not prospective) economic outcomes. Alesina and Cukierman's (1990) and Harrington's (1993) models show that, under some uncertainty, voters have to rely on past and current data to form their expectations. Lewis-Beck et al. (2008) confirm the persistence of a strong economic dimension to the vote.

However, for at least two reasons, this does not mean an absence of partisanship (Grynaviski, 2010). First, political parties provide voters with benchmarks, which allow voters to save on the costs of information search. Second, political parties offer politicians a brand, on the basis of which voters form expectations according to their experience, which explains how voters show partisan attachment (Degan

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[4]This acknowledges that voters may revise their expectation of the future policies to be implemented by the winning politician(s), as the political supply may have changed from the first to the second round.

and Merlo, 2009). Partisan voting sometimes leads to a more important motive, the economic one, shown by Ferreira and Gyourko (2009) in the case of American municipalities.

The implications of this field of research for our study are as follows. First, to reflect partisan considerations, our independent variable is the share of votes obtained in the current election by the party's incumbent mayor. If the incumbent does not stand, we consider the candidate from the same party. Second, we include the results of the last (i.e. previous) presidential election and a variable for whether the party of the incumbent mayor belongs to the parliamentary majority to test the relationships that partisan voters can make between different levels of power. Finally, we take account of economic voting by incorporating an economic indicator variable in all the estimates. We include this economic dimension in each round k of the election, reflecting its underlying presence in each round utility function, $U_{i,t,k}^{j}$.

The literature on the impact of taxes and public spending on electoral outcomes is well established at the macro level (see, e.g., Eslava, 2010) and shows that elections have an impact on budget handling (see, e.g., Brender and Drazen, 2008). Work on lower levels of government is emergent but suggests that targeted spending can influence voters' decisions. Brender (2003) shows that capital expenditures favor outgoing mayors in Israel. Similarly, for a panel of Colombian municipalities, Drazen and Eslava (2010), show that investment spending increases before an election, and has a positive impact on the incumbent's reelection prospects. Kneebone and McKenzie (2001) show that capital expenditures and investment are more apparent to the voter than operating expenses and that they influence the prospects of reelection. Veiga and Veiga (2007) confirm this result for municipalities in Portugal. Similarly, Sakurai and Menezes-Filho (2008) analyze the influence of public expenditure on the probability of mayors being reelected in Brazil, showing that mayors who spend more during their term of office increase the probability of their own reelection or that of a successor from the same political party. In a study of local Russian government entities, Akhmedov and Zhuravskaya (2004) find that pre-electoral manipulation of fiscal instruments increases the incumbent's reelection chances.

Based on this literature and the described theoretical setting, we include the municipal budget structure (i.e. the incumbent's budgetary choices, gs) in our estimates. Although the distinction between different operating expenditures and investment spending is not usually available to researchers, our data enables this disaggregation and deeper analysis of the issue at stake.[5]

The third strand of literature is relatively underdeveloped on the empirical side. In a quasi-experimental study, Blais et al. (2011) show that voting systems have many effects on the presence of candidates in constituencies and on the strategic nature of voter behavior (psychological effects). These effects are less influential than the mechanical effects traditionally attributed to the electoral rule relative to the number of parties (e.g., on the larger number of parties taking part in a proportional system). Blais et al. (2010) focus specifically on the effects of one- and two-round polls on voters' strategic behavior (i.e.,

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[5]Vote functions have been studied in the yardstick competition literature which assumes that voters are sensitive to neighbor cities' choices. Tests of this hypothesis, in line with the seminal paper by Besley and Case (1995), rely on the estimation of tax reaction functions, and show its relevance most of the time. For France, Dubois and Paty (2010) show that voters sanction the incumbent if their own local housing tax is high relative to that in close geographical neighbors, but they use first round data only. However, this strand of literature does not consider budget expenditure, and including taxes and expenditures can lead to endogeneity and collinearity problems, especially in the French context. This explains our focus on expenditure.

the tendency to vote sincerely or strategically). The authors show that strategic voting is as frequent in two-round elections as in one-round elections. Bordignon et al. (2010) study the impact of an Italian electoral reform rule to confirm these effects on the number of parties and the power of extremist parties. Finally, the empirical study by Kamakura et al. (2006), to our knowledge, is the only attempt to model a two-round election explicitly. The authors take a different approach to the present study, seeking to predict the outcome of second-round results based on the first round results, whereas we highlight the commonalities and differences in vote determinants in each round.

The existing literature is the motivation for an empirical methodology that accounts explicitly for the existence of two rounds and the relationship between them, as evidenced by the qs in the above framework. It means also that our estimates integrate data on the political context of the election. First, we include variables related to the performance of the party of the incumbent mayor: the score in the last municipal election, and the round in which the incumbent was elected in that previous election. We then consider the impact of the voting rule by integrating the number of candidates in every electoral round, the possibility of a merger occurring between the two rounds, and the potential presence of an extreme right party in the second round. Finally, we consider the electorate's interest by controlling for the number of terms of office of the incumbent.

The literature on French local elections includes the study by Martin (1996), who was among the first to note the fatigue effect of repeated terms and to stress the potentially negative effect of merging lists between the two-rounds of the election.[6] He describes the evolution of vote margins between 1977 and 1995 for the cities with more than 30,000 inhabitants. Jérôme-Speziari and Jérôme (2002) show the economic motives to be present at the municipal level, and insist on the destabilizing impact of the far right, especially for the conservative lists, which it hurts more than the Left. However, they look at whichever is the winning round, for a sample of 236 cities of more than 30,000 inhabitants, for the 1989 and 1995 elections. Gougou (2008) analyzes the political supply in France and the link between the presidential and the municipal elections since 1983, but considers only 235 cities (again with the threshold of 30,000 inhabitants). Foucault et al. (2008) test the existence of interactions related to public expenditures, for the biggest French municipalities (90 cities with over 50,000 inhabitants), using a dynamic panel dataset covering the period 1983 to 2002. Dubois and Paty (2010) consider the tax side of the yardstick hypothesis, showing that voters sanction the incumbent if the local tax rate increases, unless the rate has also increased in neighboring cities. However, their sample is only 104 cities with more than 50,000 inhabitants. Given the focus of these studies on tax and spending interactions, they do not investigate the political landscape or the impact of the voting rule. Hence, although not exhaustive, this brief survey of the literature on French municipal elections shows that there are no studies that provide a wider geographical coverage or a richer set of determinants, especially in relation to budget variables and political competition.

In studies of elections in other countries, disaggregated local expenditures and descriptions of the political context are generally also more limited than ours. Moreover, the specific setting of a two-stage process for some municipal elections is never clearly accounted for. This paper tries to fill some of these

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[6]See Dubois (2007) for a general survey of the literature on vote functions in France. Auberger (2004) focuses on Presidential elections.

gaps.

4 Data and variables

4.1 Sample representativeness

At city level, spending data are available for the period 2000-2009, which includes the 2001 and 2008 elections. For both these years, we consider primarily municipalities with over 10,000-inhabitants. However, in some rural departments[7], the biggest cities in the department are less than 10,000. In these cases, we include the biggest cities in the department, in order to have all metropolitan departments represented in the sample. This is made possible because several French newspapers, at election time, provide information that allows the construction of some important explanatory variables used in this study (especially, incumbent's share of votes in the first round of the previous election and the incumbent party's share of votes in the presidential election, see below).[8]

The final and main sample includes 821 cities covering both the 2001 and 2008 elections, which account for approximately half the French voting population. Our sample represents all French departments (except overseas territories). Overall, our sample is consistent in terms of legal rules, and the time period is sufficiently short to assume that the main determinants of electoral behavior have not varied much over the period (Cautrès, 2004). This makes our sample one of the biggest and the most representative in the voting literature in general, and in studies of French voting in particular[9]. Similar to Ferreira and Gyourko (2009), Table 1 column (1) reports the means and standard deviations (in parentheses) for some key variables for our sample for the year 2007. Because we are interested in our main sample being representative, Table 1 reports analogous information on different samples/sub-samples. Table 1 column (2) presents data on cities with populations of over 10,000 inhabitants. The figures are very similar to those in column (1). More relevant is how representative our sample is of smaller French cities (3,500-10,000 inhabitants, see column (3)) and an expanded sample that includes all cities with more than 3,500 population (column(4)). Given our 10,000 population cut-off, it is not surprising that the cities in our sample are more populous than the average French city. But our final sample is comparable to the sample presented in column (3) in many ways. The shares of reelected incumbents are similar, and the scores of incumbents are also of the same order of magnitude. Even more striking is the similarity in income levels. Whether considering income per capita or median income, they are very similar, and for the income per capita, the difference is not significant.[10] Turning to local budgets, equipment and operating expenditure are also very comparable, only staff spending appears to be significantly higher in the biggest cities, which can be explained by legal constraints (see below). Overall, our sample can be

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[7]In France, department is a geographically defined area which functions as an administrative unit at the provincial level.

[8]For other cities with less than 10,000 inhabitants, it was difficult to retrieve information for 2008, and was impossible for 2001 (some has still not been digitized, and the French Ministry of Internal Affairs does not provide information from paper archives).

[9]E.g., Ferreira and Gyourko (2009) investigate the importance of political parties for a sample of 413 cities; Dubois and Paty (2010) test the existence of yardstick competition for a sample of 104 French cities with more than 50,000 inhabitants; Sakurai and Menezes-Filho (2008) study fiscal policy and reelection in a panel of more than 2,000 Brazilian municipalities. All these studies are based on a sample of all existing municipalities. A nice exception is Martins and Veiga (2011), who analyze economic voting over all 278 mainland Portuguese municipalities.

[10]The null of equality cannot be rejected at the 10% level, t-stat equals 1.49 and p-value equals 0.134

considered representative of the whole population of cities with over 3,500 inhabitants. This is confirmed by the estimations presented in Section 6.

[Table 1 about here]

4.2 Dependent variable

The observed variable is the electoral result of the incumbent mayor's party, that is, the incumbent party's vote share. If the incumbent mayor does not stand for reelection, we consider the candidate of the same party as the incumbent. This captures partisan effects because we want to explain the party result not the individual result. The underlying theory is in line with Hibbs (1977), who hypothesizes that politicians adopt policies that find favor with their supporters. Powell and Whitten (1993) and Swank (1993) also introduce partisan effects into the literature on voter behavior.

Partisan endorsements are the variable of interest here. The underlying rationale is that the endorsements allow investigation of the combined influence of partisanship, incumbency, and economic performance (assessed here based on expenditures) on election results, and without noise from individual characteristics. The continuing attachment of most voters to one or another political party has been noted since Campbell et al. (1960) and has been confirmed empirically and theoretically (see, e.g., Degan and Merlo, 2009). Given the French political and legal systems, we have an opportunity to test the influence of endorsement by political parties on voter behavior. Bartels and Brady (2003) insist on the need to account for this dimension, and Gerber and Hopkins (2011) show its relevance at the municipal level for discretionary spending, bringing a nuance to the conclusion in Ferreira and Gyurko (2009) of the stronger impact of economic voting compared to partisanship effects.

Considering parties' voter shares to account for partisan effects avoids a resort to partisan effect dummies because our dependent variable includes this information. We do not ignore the fact that a charismatic incumbent can help her party, and this effect is accounted for in our empirical strategy. In particular, we consider the candidates biographical data, for example, whether she is a Minister, a Deputy or a Senator, to account for national reputation, and if she was directly elected in the preceding election, to account for personal charisma (see below for the implementation strategy). As stated above, the electoral context is multipartisan, which may dilute the partisan effect. To account for this possibility, the explanatory variables include the number of candidates from the same side of the political spectrum (Left or Right), to deal with multipartisanship (see more detail below).

Given the electoral process, we explicitly examine two shares of votes, one obtained by the incumbent candidate, i, in the first round and one obtained by the incumbent candidate, i, in the second ballot when she must run again in the second round.

4.3 First set of explanatory variables: Budget data

Because politicians can use the budget structure to influence elections, an initial data set includes budget data at city level (similar to Veiga and Veiga, 2007 and Sakurai and Menezes-Filho, 2008). Budget data are available from the French Data Census of the Ministry of Finance for the period 2000-2009. We

consider a set of budget variables, U_i, with four items: staff costs, operating expenditures excluding staff costs, equipment spending and debt. These variables are expressed *per capita*.[11]

Operating expenditures excluding staff costs, and debt should have a negative impact on the dependent variable if perceived as a manifestation of bad government. Conversely, spending on new equipment should have a positive impact on the dependent variable. The significance of the coefficient of staff spending is less clear. High staff spending, similar to other operating costs, can be interpreted as bad government, but more staff spending can also entail more jobs or higher wages, increasing voters' welfare (or simply buying votes). It is interesting to identify empirically which effect dominates, especially as our preferred sample includes large cities, where it might be assumed that the first effect would dominate the second. This would be even more interesting since French municipalities act under relatively strict (national) rules regarding the hiring of civil servants. The ratio of higher-paid to lower-paid staff is determined by the municipality's size; however, municipalities can circumvent the rule by hiring under short-term contracts. Staff costs are an indicator of how the party in power manages under this constraint.

Finally, we use first-lagged values so that the variables remain consistent with the timing of the elections, which take place in March or April. At that time, voters know only about the effectiveness of the budget in the preceding year. The underlying hypothesis of backward-looking behavior among voters is consistent with the literature on economic voting.

4.4 Second set of explanatory variables: Political variables

We include a large set of political variables, which fall into three subgroups. First we consider variables related to the specific situation of the incumbent (Φ_i). For the first round estimations, we include the incumbent party's share of the vote in the last municipal election. Dubois and Paty (2010) show that the previous local vote may be an expression of long-term strength or voter inertia, since many voters vote the same way from one election to the next. As a result, the expected sign for this variable is positive. This variable can also be considered a proxy for sociodemographic determinants (religious practice, age, and occupation). Dummies for the incumbent's national standing are included and are equal to 1 if she is a minister, a deputy or a senator, and 0 otherwise. Another method for examining past electoral results is to introduce a dummy equal to 1 if the mayor was elected in the first round in the last election and 0 otherwise. We expect a positive sign of all the variables because they represent incumbent-specific features, which may favor reelection. Finally, we introduce a duration variable (defined as the number of consecutive mandates implemented by the incumbent mayor) and its square to check for non-linearities in the duration phenomenon. This variable can be considered a proxy for experience (positive) but also as a measure of voter fatigue (negative). During her first term, the current mayor could profit from a "honeymoon" effect, favoring easier reelection than in the case of a candidate from the same party who lacks experience. During the additional terms, voter fatigue, erosion of power and more familiarity with the mayor's preferences may be harmful to reelection prospects.

Most of these regressors are applied in the second round, with two exceptions. First, the mayor's share

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[11] This distinction among budget variables in four categories is generally used in communications from municipalities to local journals and thus is familiar to voters.

of votes in the previous election is replaced by a dummy variable equal to 1 if the incumbent received the highest vote share in the first round and equal to 0 otherwise. Including this variable helps to capture the dynamics inherited from the first round, with an expected positive sign. Second, the duration variables are used as selection variables in our empirical strategy for the second round (section 5.3 below). Indeed, correct implementation of the two-step Heckman selection procedure requires, for identification purposes, the inclusion in the selection equation of at least one variable which does not influence the main equation (Wooldridge 2002). The number of consecutive mandates and its square satisfy these conditions.

The second subgroup of political variables (Ω_i) addresses the intensity of the electoral competition. As already indicated, all candidates whose scores in the first round are higher than 10% of the total vote qualify to stand in the second round, and the winner is the candidate who receives the highest percentage of votes. Depending on the first-round results, more than two candidates may stand in the second round (see Table 2 below).

[Table 2 about here]

Another interesting feature of the multipartisan political context is that the incumbent party may be damaged by candidates from other parties located on the same side of the political spectrum (Left or Right). According to Fauvelle-Aymar and François (2006), an increase in the number of candidates leads to a vote dispersion which penalizes the incumbent, and it could be argued that this dispersion effect may be quantitatively different depending whether the other candidates are from the same wing (Left or Right) as the incumbent or from the opposite wing. In both rounds, we distinguish the number of candidates belonging to the incumbent's wing and the number of candidates belonging to the opposing wing. Due to the dispersion effect, we expect a negative sign of these variables.

For the second round, we add two regressors to address the possibility that lists with more than 5% of the votes may merge between rounds. The first regressor takes the value 1 if the incumbent merges with one or several lists, and 0 otherwise. Similarly, the second regressor takes the value of 1 if the potential competitors merge (with one or several other lists) and 0 otherwise. Merging can have a positive impact on the incumbent's share of votes because it widens the incumbent's electorate reach. Conversely, this variable could display a negative sign because the merger reflects the incumbent's weakness and incapacity to win on her own. The reasoning is similar for merging competing lists: the sign will be negative if the merger of rival lists increases popularity, also positive if the merger leads to an inconsistent or too wide group, *de facto* benefiting the incumbent party. As a consequence, the signs of the variables for mergers are *a priori* unknown and must be empirically settled. To analyze the intensity of second-round competition, a dummy variable accounts for the presence of the far-right party (FN) in the second round and its potentially disruptive effects on the incumbent's results. Because we do not know *ex ante* which of the two effects will dominate, the sign of this variable must be settled empirically.

The third subgroup of political variables (χ_i) accounts for the links between the local and national political contexts. We include a dummy equal to 1 if the incumbent mayor and the majority in Parliament are from the same political party and 0 if not. This variable controls for the potential influence exerted by the government's popularity in local elections. French voters commonly consider municipal elections

as mid-terms and use them to penalize government and the parliamentary majority; we expect a negative sign of this variable. We use a variable to control for the vote share received by presidential candidate from the incumbent mayor's party, in the second round of the last presidential election.[12] In our sample, the relevant elections were the 1995 and 2007 presidential elections. Logically, the sign for this variable should be positive because it has been shown for France that the incumbent benefits from the vote share of parties close to her own, obtained in the second round of the previous national elections (see, e.g., Dubois and Paty, 2010).

4.5   Third set of explanatory variables: economic control

We follow Peltzman's (1987) argument that voters consider local economic performance. As in much of the literature we use personal income: we use the municipal gross personal income per capita (Y_i). The expected sign is positive, because increasing personal income per capita indicates local economic success for the incumbent.[13]

Table 3 summarizes the data sources, the definitions of our variables and the expected signs of the related parameters; Table 4 provides summary statistics for the main sample.

[Table 3 about here]

[Table 4 about here]

5   Empirical methodology

5.1   General setting

Accounting for different political variables and the economic context, we study the effect of budget structure and electoral rule on the incumbent party's share of the votes. Including these variables makes our model more complete than those in the existing literature and allows us to disentangle their relative impact in each round of the election process.

In the first round of the election, the incumbent faces three possibilities: receiving enough (more than 10%) votes to run again in the second ballot; receiving less than 10% of the votes in the first round and not competing in the second round; and having more than 50% of the votes and being directly reelected. On average, in the two elections considered (2001 and 2008), 48.7% of the incumbents were in a "run again" position; 3.7% were defeated, and 47.5% were reelected.

For the first round, the impact of the set of explanatory variables described above on the incumbent's share of votes can be estimated by this standard linear equation:

$$INC1_i = \alpha U_i + \beta \Phi_i + \gamma \Omega_i + \delta \chi_i + \zeta Y_i + c + \varepsilon_i \qquad (3)$$

where i is the municipality. We estimate a similar equation for a second round, if needed:

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[12]If the mayor of municipality i is from the right, we report the result for the right wing candidate in the municipality in the presidential election, and vice-versa.

[13]One could argue that the unemployment rate would be a relevant variable. However, it is almost never significant in the literature, a finding confirmed in our case by preliminary results.

$$INC2_i = \theta U_i + \vartheta \Phi_i + \kappa \Omega_i + \rho \chi_i + \tau Y_i + c + \varepsilon_i \qquad (4)$$

5.2 General econometric issues

Our dependent variables show the ratio of number of votes for the incumbent's party and the total valid votes. Behind this share of votes is a binary choice "to vote or not to vote for the incumbent's party". This consists of the proportion, P_i, of the n_i individuals who vote for the incumbent's party (and give a vote equal to 1 for the incumbent's party and 0 for all other parties). As Greene (2008) suggests, equations 3 and 4 could be estimated with grouped data estimation techniques using a weighted least squares probit procedure for grouped data. However, in our setting, there is no need to estimate individual-level parameters. The only goal is a reasonable model for the dependent variable p, lying between 0 and 1. Then, a linear regression with a logistic transformation is appropriate: if r is the vote share in any round, then R = log(r/(100-r)) is the logistic transformation.[14] As Cameron and Trivedi (2005) emphasize, the errors will be heteroskedastic: therefore, we use White heteroskedastic robust standard errors. Also, the structure of our data means we have the problem of error clustering. It is expected that the observable and unobservable characteristics of the cities are correlated (cf. Moulton, 1986, 1990). In addition to the standard White correction for heteroskedasticity, we correct for city-level error correlation using the Froot (1989) correction. Finally, in order to ensure that the normality of residuals is achieved in our preferred sample, we introduce a dummy variable in the second round estimates that is equal to 1 if the dependent variable (the incumbent party's share of votes in the second round) is higher or lower than three times its standard deviation.

To check for potential multicollinearity among regressors, we compute the Variance Inflation Factor (VIF) for each regressor. The VIF shows how the presence of multicollinearity inflates estimator variance. The larger the VIF value, the more collinear the variables. A common rule is to consider a VIF exceeding 10 as an indicator of high collinearity of the considered variable (Gujarati, 2004). For all our variables, the VIF, on average, is 2.40 for equation 3 and 1.37 for equation 4[15], confirming that our estimates do not suffer from multicollinearity problems.

As indicated by the notations, equations 3 and 4 are cross-sectionally estimated separately for each year (2001 and 2008). With only two years, a panel estimation would not make much sense. The importance of the differences between these two sets of estimates will give us valuable information on the relative importance of the determinants listed above. Moreover, the political contexts of each election are very different. The 2001 election was held one year *before* the presidential election and took place under a divided government (termed "cohabitation" in French, i.e., the President and the Prime Minister were from different parties, the latter being the leader of the majority in the Assembly), whereas the 2008 election took place one year *after* a presidential election the result of which was confirmed during the subsequent legislative election. Thus, the government was not divided after 2007, but the 2008 election offered the electorate its first opportunity to sanction the national executive and therefore can

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[14]For the same reason, a logit transformation is made on the vote share the incumbent party received in the preceding municipal election.

[15]Complete results of the VIF tests available upon request.

be considered a midterm election. Because some of our variables do not have a clear theoretical sign, it is interesting to look at both elections separately to uncover differences that might remain hidden were the data pooled.

One can think system-estimation methods (e.g., Three-Stage Least squares or Full Information Maximum Likelihood) as appropriate ones for the joint estimation of equations 3 and 4. In our case, their application is not straightforward, because it leads to estimations based on roughly half of our main sample and excludes cities where *de facto* no second round takes place, because the incumbent wins directly in the first round. Since they can be understood as a non-random selection, we choose not to rely on such estimates, which could be flawed by systematic bias. We designed different empirical methodologies to account for the two rounds of the electoral process, and the dynamics they produce.

5.3 Econometric issues specific to each round

For the first round, estimations are performed using OLS. Here, the specific issue is the number of incumbents reelected in the first round. We provide estimates for this sub-sample of incumbents to highlight specific factors that may explain their success relative to other observations in the sample. As the first-round winners, by definition, have received more than 50% of the votes, our analysis requires a censored Tobit-type estimation based on a left-censoring limit of 50% (i.e. 50% of the vote is equivalent to a logit-transformed proportion equal to 0).[16]

Estimation concerns are not so straightforward for specification 4. A simple OLS estimation for equation 4 may be affected by a potential selection bias from the first-round results. We rely on the Heckman two-stage estimation procedure to correct for potential selection bias. We use as city-level selection variables the number of consecutive mandates implemented by the incumbent and the square of this number. Because of the erosion of power and voter fatigue effects, these variables consistently influence the probability of running again in the second round (the selection equation) but do not influence the share of votes (specification 4, see Wooldridge 2002, for more details).[17] As shown below, there is no evidence of selection.

There is an obvious issue of reverse causality in the dependent variable at the second round (the share of votes) with the possibility for the incumbent to merge with other lists. The expected share of votes for the incumbent in the second round clearly influences the probability of merging. In statistical terms, endogeneity arises because a merger for the incumbent's list is correlated with the error term in the vote function equation. In this context, a treatment effect model is adequate: it simultaneously estimates equations for the likelihood of treatment (merging lists) and the outcome of the treatment (share of votes received by the incumbent). We construct a second set of estimates, including the variable representing a merger of the incumbent with competing lists, based on a treatment effect model using the Heckman selection estimator. We first obtain predicted values for the merger variable through a probit estimation (treatment effect equation)[18], and include these predicted values as additional regressors in equation 4 (see, among others, Winship and Mare, 1992; Vella and Verbeek, 1999, Blundell and Costas Dias, 2000).

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[16]Note that the right-censoring limit of 100% is already taken into account in the logit transformation.

[17]All estimates including the selection variables are available upon request.

[18]Complete results are available upon request from the authors.

In addition to the regressors in equation 4, we include a number of variables in the treatment equation that are likely to affect a merger. We include a dummy variable that takes the value of 1 if the incumbent is the incumbent mayor and 0 if not (incumbents are likely to experience more difficulty to be reelected when they are not known to the electorate). We also include a gender dummy (1 if the incumbent is a woman and 0 if not) and the log of the municipal population.

6 Empirical evidence

Estimation results for equations 3 and 4 are shown in Tables 5, 6 and 7. All specifications were first estimated on our main sample and then on a subsample restricted to incumbents who are also the mayor. This is a simple and direct test for the potential charisma effects mentioned previously. For comparison, we provide results for the incumbents who were reelected in the first round. We provide separate estimates for 2001 and 2008. For 2008, we provide a double set of estimates: one is performed on our main sample, the other on an enlarged sample of cities with a population of over 3,500 inhabitants[19]. For 2008, results based on our sample and results based on the expanded sample are qualitatively identical and quantitatively very similar in almost all cases. This provides substantial evidence that our preferred sample reproduces almost perfectly the features of the whole populations of cities with over 3,500 inhabitants, and therefore can be considered fully representative. For each estimation, we also report the Jarque-Bera statistic for normality and the associated p-value. Under the null, the Jarque-Bera statistic has a Chi-square distribution with two degrees of freedom. For all estimates but one on the main sample, the null of normality cannot be rejected at the 5% level (or even the 10% in most cases). For estimates on the enlarged sample, the null of normality is systematically rejected for the first round estimates, however. Therefore, we check the robustness of our inference by performing additional estimates based on bootstrapping techniques.[20] The bootstrapped standard errors are very close to the conventional ones, supporting the reliability of conventional estimates for the expanded sample.

6.1 First round

Table 5, columns (a) and (b) give the results for the main sample (incumbent mayors and party incumbent) for the first round, and column (c) presents the estimates for the enlarged sample. Staff costs have a positive impact on the incumbent's share of the votes, supporting the idea that voters consider this to be more useful spending than standard operating expenditures. As expected, debt and operating costs reduce the share of the votes, but operating costs are never significant. Spending on equipment also appears to be valued by voters. Voters' awareness of the budget structure confirms earlier results on Portugal and Brazil. In 2001, equipment spending and political variables seem to be the main determinants of the incumbent's share of votes (see below). This could be linked to 2001 election occurring one year before a presidential election, compared to the 2008 municipal elections which occurred after the presidential election.

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[19]The logit transformation of the dependent variables and missing data for some cities leaves us with a total of 801 observations for 2001, 812 for 2008 (main sample), and 2,247 for the enlarged sample.

[20]More details of these alternative estimates are available upon request to the authors.

Political variables generally have an impact on the incumbent's vote share. Past local elections play a role in the reelection process. The higher the share of the past vote, the higher the present vote share (highlighting a strong incumbency premium). If the mayor was elected in the first round in the past, she will receive more votes in the current election. There is some evidence of non-linearity in the duration variable. In 2008, the number of consecutive mandates had a positive and significant impact on the incumbent's vote share. Interestingly, after a certain number of terms, the "honeymoon" effect ends (the square of the duration variable has a negative impact on the share of votes). In other words, voter fatigue, the erosion of power and better knowledge of the mayor's preferences reduce the incumbent mayor's vote share. Finally, being a minister does not generate votes, whereas deputies and, to a lesser extent, senators (but only in 2001) attract significantly more votes. These three variables signal to voters national competence and, potentially, the incumbent's ability to obtain government grants for local pet projects based on her networks. It appears also that voters fear that a national representative, such as a minister, will be less available to devote time to managing the city, and these fears offset the reputation effect.

The number of competing candidates from the same or the opposite wing has a negative impact on the incumbent's vote share, confirming the results in Fauvelle-Aymar and François (2006): an increase in the number of candidates leads to vote dispersion which penalizes all the candidates, including the incumbent. Dispersion in the candidate's wing is even more prejudicial to the incumbent than dispersion in the opposite wing. The Wald test rejects the null of equality between the estimated parameters for the number of candidates in the first round from the same wing and from the opposite wing. In other words, the parameter of the number of candidates from the same wing is higher (in absolute value) than the parameter of the number of candidates in the opposite wing. Dispersion is more harmful to the incumbent in her own wing than in the opposite wing. This result holds regardless of the year (election), the round considered or whether the incumbent is the current mayor.[21] The only exception is when the incumbent is elected in the first round. In this case, dispersion in her wing and in the opposite wing seem equally harmful.

The dummy variable for the incumbent from the leading parliamentary coalition is strongly significant and shows up negatively for 2008, adding weight to the view that voters seized the first electoral opportunity to send a message of discontent to the national majority. Other studies on French elections report this effect (see, e.g., Auberger and Dubois, 2005, who analyze reciprocal local-national influences on legislative elections). In 2001, the coefficient is positive, but not significant at the 5% level. The national political context, marked by "cohabitation" between a Right-wing president and a Left-wing leading coalition in parliament, might explain this result. These results accord with the theory of second order elections (Reif and Schmitt, 1980; Norris and Reif, 1997), according to which a government's popularity decreases year on year. This trend results from government implementing unpopular measures at the beginning of its mandates and implementing measures to increase the probability of reelection at the end of its mandate. Results of second order elections, such as municipal elections, are determined strongly

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[21] Details of all equality tests for the second round available upon request.

by the timing of municipal elections in the national cycle, and as explained above, this timing was very different for the two elections we consider. The share of votes in the presidential election confirms the expected positive sign, supporting the fact that (national) partisanship matters.

When comparing the results for 2001 and 2008 (columns (a) and (b)/(c)), the political variables affect voter behavior in 2001 but not the budget variables (except equipment spending, which has a low level of significance). In this election, political and ideological concerns predominate over the incumbent's spending policy, in voters' decisions.

We perform the estimates on elections in which the incumbent is the current mayor (columns (c) and (d) for the main sample, column (e) for the enlarged sample). While almost all the signaled effects remain unchanged between the two subsamples (management of public funds, dispersion effects induced by the increased number of candidates, presence of an incumbency premium), there is one difference: the non-linear effect of time in office is significant when we consider the entire sample, but it is less (2001) or not (2008) significant when the current mayor is a candidate. As our dependent variable is the incumbent party's share of votes in the former case, the results can be interpreted as meaning that the fatigue effect is related more to political parties than to people, which would confirm the trend towards lower partisan bonds across voters (Kayzer and Wlezien, 2011).

In the third step, we focus on the share of the vote when the incumbent was reelected in the first round (columns (e) and (f) for the main sample, column (g) for the enlarged sample). With the exception of spending on equipment, no major change is observed when comparing with the whole sample. When equipment spending increases, it increases the vote share of all incumbents except those reelected in the first round. This might suggest that directly reelected incumbents can consider their seats to be safe, which reduces the incentive to use the budget strategically. Equipment spending remains significant for the enlarged sample, however: in that case, the interpretation converges to the one mentioned above.

6.2 Second round

Table 6 below presents a set of estimates for equation 4 based on the Heckman two-step selection procedure, for the second round.

[Table 6 about here]

It can be seen that the Mills ratio is insignificant in all the estimates, providing strong evidence of the absence of selection. The estimates are similar to those presented in Table 7 which include an endogenous dummy variable that is equal to 1 when the incumbent list merges with competing lists.

[Table 7 about here]

These results are based on a treatment effect model that simultaneously estimates the likelihood that the incumbent merges her list between the two rounds, and the second round vote share, controlling for the merger's potential endogeneity (see above). The Mills ratio, computed from the fitted values of the treatment equation, is significant in 2001 (main sample) and 2008 (expanded sample). This provides strong support for the existence of self-selection in mergers and the relevance of a treatment effect model.

Interestingly, the results show that some variables with a significant impact on vote share in the first round lose their significance in the second round, especially the budget variables. Some political variables that mattered in the first round also lose their influence in the second round. Being elected in the first round in the previous election does not exert a positive influence on the incumbent's share of votes in the second round. The statistical significance of the share of votes in the presidential election is also much reduced, disappearing almost completely in Table 7, revealing a dilution in the partisan effects between the two rounds. Conversely, the midterm effect on the municipal elections is even more visible than in the first round because belonging to the leading coalition in parliament now exerts a negative and significant impact in the specifications for both elections, whatever the sample considered. Similarly, the incumbent's vote share is reduced more by the number of candidates from the same wing than from the opposing wing, and the negative effect of vote dispersion persists in the second round with a stronger impact when competition from the incumbent's own wing increases.

The possibility of opposite lists merging between the two rounds negatively affects the incumbent's score in most specifications: as expected, a merger of competitors generates stronger adversaries, depressing the incumbent result. Also, the treatment effect model in Table 7 shows a statistically significant negative effect of mergers made by the incumbent on her 2008 vote share, for both the whole sample (column (c)) and the subsample where the incumbent mayor is a candidate (column (f)). To evaluate whether or not this treatment effect is causal, the estimated expectations (conditional on the occurrence of the treatment) are averaged across the sample and differentiated, which allows us to estimate the average treatment effect across the whole sample. We obtain a significantly positive value for the average treatment effect in 2001 (main sample) and 2008 (enlarged sample), suggesting that the incumbents would have received more votes had they not merged with other lists between the two rounds. When the incumbent decides to merge her list with competing ones, the share of votes obtained in the second round decreases more or less strongly. This suggests that the incumbent could get more votes were she to run alone, and provides evidence that the merger shrinks rather than widens the basis for support.

To account for the dynamics between the two rounds, we introduce a dummy equal to 1 when the incumbent came first in the first round. We obtain a positive and highly significant effect on the vote share, suggesting that the result of the second round is determined strongly by the first round. It is much easier for a candidate to win in the second round if she came first in the first round.

Overall, these results show that local management of the incumbent and economic considerations (gross income per capita is also much less systematically significant than in the first round) play a much smaller role in the second round. Specific political factors, related to strategic considerations at the local level (number of candidates and merger of lists), are stronger determinant. In national politics, only the midterm negative effect seems to persist in the second round, which shows the importance of considering the two rounds of an election when mandated by the electoral rule.

6.3 Robustness checks

Finally, we checked the robustness of our results to various alternative specifications.[22] As stated above, French municipalities are constrained by strict rules on staff hiring, which are defined in relation to the size of the cities (statistically known as "strates"). The robustness check we implement is designed to compare each city according to the category of its "strate" average. Our results are unaffected by the introduction of the ratio of local spending on the corresponding average for the city's "strate", rather than considering the level of local spending. The results are qualitatively identical and, if anything, the difference between the first and the second round is even more dramatic with the budget variables being generally insignificant. We test also a specification that includes the incumbent's margin in the second round estimations rather than her position (captured by a dummy variable in our main results). The underlying idea being tested is that being first after the first round may not help the incumbent win if the margin with the nearest competitor is narrow. As expected, we show that the higher the incumbent's margin, the higher the vote share at the end of the second round. Our estimates reveal that a negative margin in the first round acts as negative shock on the vote share. Interestingly, a standard equality test indicates that the coefficient of the positive margin is significantly lower than the coefficient (in absolute values) of the negative margin. A negative margin will have a greater effect on the incumbent's result than a positive one. The other results are qualitatively unchanged. Finally, on statistical grounds, all estimates over the main sample are robust to bootstrapping techniques.

7 Conclusion

Using a new database on French municipalities, we studied the determinants of voters' choices in the 2001 and 2008 local elections, accounting for the two-round structure of the competition. We showed first that the electoral rule matters. More specifically, in the French case (dual ballot under the plurality rule), we reveal that the budget variables (and especially equipment expenditures) affect voting in the first round, except in safe seats where manipulating the budget variables is less relevant. Second, the second-round votes are determined more by national political considerations (and notably the midterm nature of the election) and by the degree of political competition (number of candidates from the same political side and from the other side). Third, although different determinants can lead to considering the two rounds as separate elections, we show that they are strongly related, with the dynamics of the first round strongly impacting on the incumbent's score in the second.

This paper contributes to the literature on the impact of local spending policies and economic and political determinants on voters' behavior and emphasizes the importance of accounting for the specificities of the electoral rule. It offers a more complete model of voters' decision-making processes.

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[22]All robustness tables are available upon request to the authors.

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Tables

Table 1: Sample representativeness

	Main sample	Population >10,000	Population >3,500 & <10,000	Population >3,500
	(1)	(2)	(3)	(4)
Number of cities	821	794	1723	2543
Population	31293.83	32064.62	5714.34	13962.55
	(36696.57)	(37039.66)	(1684.66)	(24058.27)
Political variables				
Share of incumbents reelected	79.9	79.6	76.3	77.4
Incumbent score, 1st round	52.48	51.34	57.25	55.39
	(14.29)	(14.36)	(19.53)	(18.20)
Incumbent score, 2nd round	47.13	47.14	43.35	45.00
	(8.52)	(8.61)	(9.96)	(9.54)
Income variables (2007)				
Income (euros per capita)	12733.18	12789.29	12964.01	12889.58
	(3772.46)	(3804.56)	(3308.05)	(3465.54)
Median Income (euros)	16599.81	16658.38	17142.34	16967.4
	(3749.37)	(3777.34)	(3424.44)	(3540.84)
Local spending (euros per capita)				
Equipment	363.66	362.94	381.61	375.82
	(196.67)	(195.73)	(251.43)	(235.28)
Wages	619.68	624.05	424.61	487.51
	(187.95)	(188.02)	(193.33)	(212.17)
Operating	273.61	275.14	234.89	247.37
	(108.12)	(109.27)	(128.19)	(123.39)

Note: Main figures are means. Standard deviations in parentheses.

Table 2: Repartition of the number of candidates opposing the incumbent

	First round				Second round			
Number of candidates	Same party		not same		Same party		Other	
	2001	2008	2001	2008	2001	2008	2001	2008
0	0	0.4	3.2	3.3	51.5	57.5	52.1	59.3
1	37.3	36.2	49.2	42.1	23.3	22.5	36.6	32
2	35	37.6	29.4	35.3	22.3	18	10.5	7.4
3	17.4	17.3	13.1	14.1	2.6	1.8	0.7	0.6
4	6.5	6.3	3.3	3.2	0.2	0.1	0	0.1
5	2.5	2.1	1	1.4	0	0	0	0
6	0.8	0.1	0.6	0.1	0	0	0	0
>6	0	0	0	0.5	0	0	0	0

Table 3: Data and expected empirical impacts

Variables	Source	First round	Second round
		Expected Signs	
Spending variables (U_i)	Census of the Ministry of Finance		
Operating costs (per capita)		-	-
Staff costs (per capita)		+/-	+/-
Equipment spending (per capita)		+	+
Debt of the city (per capita)		-	-
Political variables 1 (Φ_i): incumbent controls			
Mayor's share of votes at the previous election		+	
1 if the incumbent ranked first at the first round, 0 otherwise			+
1 if the incumbent is a minister, 0 otherwise		+	+
1 if the incumbent is a deputy, 0 otherwise		+	+
1 if the incumbent is a senator, 0 otherwise		+	+
1 if the mayor was elected in the first round of the preceding election, 0 otherwise		+	+
Number of consecutive mandates		+	
Square of the number of consecutive mandates		-	
Political variables 2 (Ω_i): intensity of competition	Ministry of Internal Affairs		
Number of candidates at the first round, same wing		-	
Number of candidates at the first round, opposite wing		-	
Number of candidates at the second round, same wing			-
Number of candidates at the second round			-
1 if the incumbent merges with competing list, 0 otherwise.			+/-
1 if opposite lists merge, 0 otherwise			+/-
1 if a far-right candidate is present at the second round, 0, otherwise			+/-
Political variables 3 (χ_i): national context			
Incumbent party share of votes at the presidential election		+	+
1 if the incumbent mayor and the majority in Parliament belong to the same political party, 0 otherwise		-	-
Economic control (Y_i)	INSEE		
Gross personal income per capita		+	+

Table 4: Summary Statistics (main sample

	Obs.	Mean	StdDev	Min	Max
Spending variables (U_i)					
Operating costs (per capita)	1642	552.5	199.5	158	2129
Staff costs (per capita)	1642	556.2	180.9	127	1411
Equipment spending (per capita)	1642	316.9	180.6	13	1876
Debt of the city (per capita)	1642	1025	612.6	0	7877
Political variables 1 (Φ_i): Incumbent controls					
Incumbent party's share of votes at the first round (dependent variable)	1620	50.7	14.1	7.8	100
Incumbent party's share of votes at the second round (dependent variable)	734	46.9	8.4	13.6	100
Mayor's share of votes at the previous election	1620	53.8	9.3	22.9	100
1 if the incumbent is a minister, 0 otherwise	1620	0.009	0.1	0	1
1 if the incumbent is a deputy, 0 otherwise	1620	0.16	0.36	0	1
1 if the incumbent is a senator, 0 otherwise	1620	0.04	0.21	0	1
1 if the mayor was elected in the first round of the preceding election, 0 otherwise	1620	0.4	0.49	0	1
Number of consecutive mandates	1620	1.6	1.2	0	6
Political variables 2 (Ω_i): controls for the intensity of competition					
Number of candidates at the first round, same wing	1620	2	1	1	6
Number of candidates at the first round, opposite wing	1620	1.7	1	0	9
Number of candidates at the second round, same wing	734	1.5	0.6	0	4
Number of candidates at the second round	734	0.2	0.5	0	4
1 if the incumbent merges with competing list, 0 otherwise	734	0.1	0.3	0	1
1 if opposite lists merge, 0 otherwise	734	0.1	0.3	0	1
1 if a far-right candidate is present at the second round, 0 otherwise	734	0.1	0.3	0	1
Political variables 3 (χ_i): controls for the national context					
Incumbent party share of votes at the presidential election	1619	54.5	7.5	31.2	86.8
1 if the incumbent mayor and the majority in Parliament belong to the same political party, 0 otherwise	1620	0.5	0.5	0	1
Economic control (Y_i)					
Gross personal income per capita	1642	10541	3911.2	4068.8	54060

Table 5: First round

	All Cities			Mayor candidate			Incumbent reelected at first round		
	2001	2008		2001	2008		2001	2008	
	Main sample	Main sample	All > 3,500	Main sample	Main sample	All > 3,500	Main sample	Main sample	All > 3,500
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Operating costs net from interest charges (t-1)	-0.050	-0.063	0.001	-0.052	-0.078	0.031	-0.007	-0.103	-0.009
	(0.082)	(0.076)	(0.042)	(0.088)	(0.077)	(0.045)	(0.096)	(0.091)	(0.044)
Staff costs (t-1)	0.072	0.256^a	0.105^b	0.042	0.218^a	0.101^b	-0.017	0.292^a	0.167^a
	(0.090)	(0.076)	(0.045)	(0.094)	(0.081)	(0.049)	(0.112)	(0.095)	(0.049)
Equipment spending (t-1)	0.058^c	0.105^a	0.073^a	0.086^b	0.118^a	0.081^a	0.054	0.060	0.053^a
	(0.035)	(0.038)	(0.018)	(0.039)	(0.041)	(0.021)	(0.042)	(0.044)	(0.019)
Debt (t-1)	-0.001	-0.069^a	-0.059^a	0.004	-0.062^a	-0.053^a	0.024	-0.079^a	-0.062^a
	(0.020)	(0.020)	(0.012)	(0.022)	(0.020)	(0.013)	(0.025)	(0.023)	(0.013)
Mayor's share of votes at the previous election	0.120^a	0.044^b	0.065^a	0.114^a	0.041^b	0.060^a	0.109^a	0.035^c	0.061^a
	(0.040)	(0.019)	(0.019)	(0.039)	(0.020)	(0.020)	(0.041)	(0.019)	(0.018)
Minister	0.009	0.178	0.144	-0.030	0.161	0.116	-0.406^b	0.295	0.225
	(0.099)	(0.186)	(0.192)	(0.103)	(0.192)	(0.204)	(0.206)	(0.312)	(0.266)
Deputy	0.127^a	0.188^a	0.146^a	0.127^a	0.186^a	0.153^a	0.104^c	0.213^a	0.156^a
	(0.045)	(0.041)	(0.034)	(0.047)	(0.044)	(0.036)	(0.060)	(0.052)	(0.039)
Senator	0.168^b	0.102	0.059	0.170^b	0.127^c	0.095	0.160^b	0.065	0.029
	(0.067)	(0.074)	(0.063)	(0.067)	(0.075)	(0.067)	(0.081)	(0.087)	(0.069)
Elected in the first round of the preceding election	0.190^a	0.239^a	0.136^a	0.217^a	0.290^a	0.173^a	0.225^a	0.306^a	0.132^a
	(0.041)	(0.035)	(0.024)	(0.045)	(0.036)	(0.026)	(0.053)	(0.042)	(0.025)
Number of consecutive mandates	-0.015	0.211^a	0.195^a	-0.130^b	0.004	-0.031	0.008	0.181^a	0.156^a
	(0.043)	(0.045)	(0.024)	(0.066)	(0.071)	(0.038)	(0.055)	(0.056)	(0.026)
(Number of consecutive mandates)^2	0.003	-0.040^a	-0.033^a	0.024^c	-0.006	0.003	0.001	-0.035^a	-0.028^a
	(0.009)	(0.009)	(0.005)	(0.012)	(0.013)	(0.007)	(0.011)	(0.011)	(0.006)
Number of candidates, same wing	-0.266^a	-0.267^a	-0.379^a	-0.255^a	-0.254^a	-0.366^a	-0.341^a	-0.290^a	-0.389^a
	(0.019)	(0.019)	(0.015)	(0.021)	(0.020)	(0.017)	(0.034)	(0.028)	(0.020)
Number of candidates, opposite wing	-0.178^a	-0.179^a	-0.238^a	-0.175^a	-0.174^a	-0.222^a	-0.275^a	-0.253^a	-0.306^a
	(0.023)	(0.020)	(0.016)	(0.025)	(0.021)	(0.017)	(0.044)	(0.037)	(0.023)
Share of votes at the presidential election	0.244^a	0.286^a	0.262^a	0.220^b	0.273^a	0.265^a	0.282^a	0.373^a	0.284^a
	(0.077)	(0.058)	(0.033)	(0.086)	(0.059)	(0.036)	(0.090)	(0.071)	(0.035)
From the leading coalition in Parliament	0.067^c	-0.322^a	-0.268^a	0.040	-0.289^a	-0.246^a	0.051	-0.377^a	-0.283^a
	(0.037)	(0.035)	(0.021)	(0.040)	(0.037)	(0.024)	(0.044)	(0.042)	(0.022)
Gross personal income per capita	0.118^a	0.126^a	0.069^a	0.113^a	0.123^a	0.068^a	0.102^a	0.080^b	0.025
	(0.028)	(0.027)	(0.019)	(0.031)	(0.029)	(0.021)	(0.038)	(0.036)	(0.021)
Observations	801	812	2,274	680	712	1,774	801	812	2,274
Estimation		OLS			OLS			Tobit	
Jarque -Bera Normality Statistic (χ^2)	2.72	0.48	29.46	1.08	0.28	41.98	0.37	0.10	39.66
P-value	0.26	0.79	0.00	0.58	0.87	0.00	0.83	0.95	0.00
Wald Statistic for number of candidates (χ^2)	22.18	11.83	54.42	6.33	8.97	47.41	2.70	0.92	7.19
P-value	0.00	0.00	0.00	0.01	0.00	0.00	0.10	0.34	0.00
R^2	0.43	0.47	0.47	0.43	0.45	0.44	0.31	0.34	0.45

Note: Robust errors into parentheses. Significance levels: ^{c}10%, ^{b}5%, ^{a}1%. Intercept not reported. Marginal effects computed at means for continuous regressors for the Tobit estimator, based on a left-censoring limit at 50%. Froot (1989) correction for city-level cluster correlation.

Table 6: Second round: Heckman two-stage estimation procedure for sample selection

	All Cities			Mayor candidate		
	Main sample 2001	Main sample 2008	All > 3,500	Main sample 2001	Main sample 2008	All > 3,500
	(a)	(b)	(c)	(d)	(e)	(f)
Operating costs net from interest charges (t-1)	-0.027	0.020	-0.033	-0.059	0.035	0.001
	(0.056)	(0.067)	(0.036)	(0.060)	(0.070)	(0.040)
Staff costs (t-1)	0.095	0.024	0.047	0.138^c	0.007	0.007
	(0.060)	(0.054)	(0.037)	(0.074)	(0.059)	(0.043)
Equipment spending (t-1)	0.032	0.037	0.036^b	0.047	0.037	0.025
	(0.027)	(0.033)	(0.016)	(0.030)	(0.034)	(0.018)
Debt (t-1)	-0.018	0.006	0.000	-0.037^c	0.011	0.011
	(0.014)	(0.019)	(0.012)	(0.019)	(0.021)	(0.013)
Incumbent first at the first round	0.337^a	0.364^a	0.382^a	0.333^a	0.369^a	0.382^a
	(0.033)	(0.030)	(0.018)	(0.038)	(0.036)	(0.022)
Minister	0.052	0.267^a	0.086	0.101	0.304^a	0.099
	(0.065)	(0.042)	(0.134)	(0.080)	(0.041)	(0.144)
Deputy	-0.002	0.033	0.051	-0.009	0.072^c	0.082^b
	(0.035)	(0.042)	(0.036)	(0.037)	(0.042)	(0.038)
Senator	-0.016	-0.004	-0.007	0.010	0.034	0.015
	(0.068)	(0.044)	(0.039)	(0.074)	(0.043)	(0.039)
Elected in the first round of the preceding election	0.025	0.037	-0.006	-0.001	0.019	-0.011
	(0.032)	(0.031)	(0.018)	(0.041)	(0.025)	(0.021)
Number of candidates, same wing	-0.307^a	-0.255^a	-0.275^a	-0.297^a	-0.214^a	-0.259^a
	(0.026)	(0.028)	(0.017)	(0.030)	(0.029)	(0.021)
Number of candidates, opposite wing	-0.181^a	-0.147^a	-0.175^a	-0.194^a	-0.126^a	-0.169^a
	(0.027)	(0.028)	(0.016)	(0.031)	(0.029)	(0.019)
Merging of opposite lists	-0.109^b	-0.031	-0.057^a	-0.101^b	-0.023	-0.059^a
	(0.044)	(0.027)	(0.018)	(0.048)	(0.029)	(0.020)
Far-right candidate	0.071^c	0.066	0.078	0.100^b	-0.059	-0.031
	(0.039)	(0.072)	(0.066)	(0.042)	(0.059)	(0.050)
Share of votes at the presidential election	0.069	0.111^b	0.109^a	0.048	0.025	0.070^b
	(0.049)	(0.048)	(0.027)	(0.057)	(0.050)	(0.033)
From the leading coalition in Parliament	-0.103^a	-0.108^a	-0.075^a	-0.123^a	-0.100^a	-0.072^a
	(0.027)	(0.029)	(0.018)	(0.032)	(0.027)	(0.021)
Gross personal income per capita	0.024	0.027	0.019^c	0.039^c	0.023	0.013
	(0.019)	(0.018)	(0.011)	(0.021)	(0.019)	(0.014)
Inverse Mills ratio	-0.064	-0.010	0.001	0.079	-3.090	-0.022
	(0.127)	(0.147)	(0.071)	(0.153)	(2.415)	(0.087)
Observations	387	343	800	307	291	586
Jarque -Bera Normality Statistic (χ^2)	2.93	4.48	4.19	2.48	3.78	7.43
P-value	0.23	0.11	0.12	0.29	0.15	0.03
Estimation method	Heckman selection model			Heckman selection model		
Selection variable	consecutive mandates & (consecutive mandates)^2			consecutive mandates & (consecutive mandates)^2		
R^2	0.51	0.53	0.73	0.52	0.51	0.70

Note: Robust errors into parentheses. Significance levels: ^{c}10%, ^{b}5%, ^{a}1%. Intercept not reported. Froot (1989) correction for city-level cluster correlation.

Table 7: Second round: Heckman two stage estimation procedure for endogenous treatment

	All Cities			Mayor candidate		
	Main sample 2001	Main sample 2008	All > 3,500	Main sample 2001	Main sample 2008	All > 3,500
	(a)	(b)	(c)	(d)	(e)	(f)
Operating costs net from interest charges (t-1)	-0.010	0.013	-0.052	-0.058	0.015	-0.017
	(0.055)	(0.058)	(0.037)	(0.060)	(0.059)	(0.043)
Staff costs (t-1)	0.083	0.031	0.073^c	0.130^b	0.027	0.026
	(0.057)	(0.052)	(0.039)	(0.066)	(0.053)	(0.046)
Equipment spending (t-1)	0.037	0.040	0.037^c	0.059^b	0.033	0.023
	(0.025)	(0.029)	(0.019)	(0.028)	(0.030)	(0.020)
Debt (t-1)	-0.023	0.008	0.004	-0.041^c	0.016	0.017
	(0.018)	(0.016)	(0.012)	(0.022)	(0.016)	(0.014)
Incumbent first at the first round	0.350^a	0.353^a	0.369^a	0.358^a	0.364^a	0.368^a
	(0.030)	(0.030)	(0.018)	(0.035)	(0.033)	(0.023)
Minister	0.069	0.244	0.059	0.103	0.264	0.066
	(0.079)	(0.215)	(0.170)	(0.090)	(0.208)	(0.172)
Deputy	-0.016	0.026	0.028	-0.017	0.052	0.051
	(0.036)	(0.037)	(0.038)	(0.040)	(0.040)	(0.042)
Senator	-0.029	-0.020	-0.058	0.007	0.015	-0.035
	(0.065)	(0.063)	(0.062)	(0.073)	(0.065)	(0.066)
Elected in the first round of the preceding election	0.009	0.036	-0.005	-0.003	0.017	-0.012
	(0.030)	(0.026)	(0.018)	(0.037)	(0.027)	(0.021)
Number of candidates, same wing	-0.262^a	-0.253^a	-0.259^a	-0.260^a	-0.213^a	-0.246^a
	(0.023)	(0.023)	(0.016)	(0.027)	(0.025)	(0.019)
Number of candidates, opposite wing	-0.173^a	-0.146^a	-0.170^a	-0.191^a	-0.131^a	-0.170^a
	(0.026)	(0.024)	(0.016)	(0.030)	(0.025)	(0.020)
Merging of opposite lists	-0.099^b	-0.037	-0.056^b	-0.094^b	-0.031	-0.059^b
	(0.042)	(0.031)	(0.022)	(0.045)	(0.032)	(0.025)
Far-right candidate	0.060^c	0.071	0.087	0.087^b	-0.061	-0.044
	(0.032)	(0.066)	(0.062)	(0.036)	(0.076)	(0.076)
Share of votes at the presidential election	0.034	0.103^b	0.100^a	0.008	0.013	0.048
	(0.046)	(0.041)	(0.028)	(0.054)	(0.046)	(0.034)
From the leading coalition in Parliament	-0.081^a	-0.116^a	-0.101^a	-0.099^b	-0.099^a	-0.089^a
	(0.031)	(0.026)	(0.019)	(0.039)	(0.026)	(0.022)
Gross personal income per capita	0.031^c	0.032^c	0.037^a	0.040^c	0.029	0.031^b
	(0.017)	(0.017)	(0.012)	(0.020)	(0.018)	(0.015)
Merging with competing lists	-0.095	-0.129	-0.484^a	-0.134	-0.134	-0.594^a
	(0.111)	(0.104)	(0.108)	(0.167)	(0.159)	(0.155)
λ parameter	0.150^b	0.059	0.264^a	0.174^c	0.046	0.300^a
	(0.064)	(0.062)	(0.056)	(0.093)	(0.088)	(0.079)
Observations	387	342	800	307	290	586
Jarque -Bera Normality Statistic (χ^2)	3.75	4.78	15.47	4.97	5.37	5.53
P-value	0.15	0.10	0.00	0.09	0.07	0 .07
Estimation	Heckman treatment-effect model			Heckman treatment-effect model		
R^2	0.48	0.50	0.66	0.47	0.44	0.61

Note: Robust errors into parentheses. Significance levels: ^{c}10%, ^{b}5%, ^{a}1%. Intercept not reported. Froot (1989) correction for city-level cluster correlation. Gender, local population and the