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Budget structure and reelection prospects: empirical evidence from French local elections*

Aurélie Cassette†, Etienne Farvaque‡, Jérôme Héricourt§, Nicolas Jean¶

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Abstract

This paper is a study of the influence of economic and political conditions on the results of incumbent parties' candidates in local elections in France. The large sample used covers 586 towns and two elections (2001 and 2008). It explicitly deals with the specificities induced by the two-round process of the French electoral rule, and results are provided for both the reelection probability and the share of votes. It is shown that the budget structure, and notably equipment expenditures, has a strong impact on the incumbent party's share of votes. Political variables also play a role, as do the number of candidates, and national partisan waves.

Key-words: Local elections ; Visible expenditures

JEL Classification: D72 - H72 - H76

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1 Introduction

In the last decades, since Downs' (1957) seminal work and the classical studies by Key (1966), Kramer (1971) and Frey and Schneider (1978), the significant impact of economic conditions on voting behavior has been repeatedly confirmed. Strikingly, it has also been shown that voters hold relatively "naïve" views of the economy, as voters hold incumbent politicians accountable for past and current (but not prospective) economic outcomes. Such behavior was given theoretical foundations in Rogoff and Sibert (1988) in a competency model with rational expectations where political parties also differ by their ability to deliver good economic outcomes to the population. As ability cannot be directly observed, past and present outcomes find their way into the electorate's evaluations and votes. A similar result can be derived from Alesina and Cukierman's (1990) model, where voters are not informed about parties' preferences and have to guess future policies from current developments. Harrington (1993) elaborates on both models to build a synthetic one, with the conclusion unchanged about voters' behavior, relying on past and current data.

While first developed to analyze presidential elections in bipolar political environments (and thus for the United States), the literature has since devoted attention to lower level elections, allowing the small sample problem of presidential runs to be overcome. Moreover, the growing literature on sub-national elections also reveals that politicians can influence voters with the instruments they can use at this level, particularly the repartition of budgets between investment and operating expenditures, and the number of public employees they can hire. Veiga and Veiga (2007), for Portugal, show that increases in investment expenditures and changes in the composition of spending favoring highly visible items are associated with higher vote percentages for incumbent mayors seeking reelection. Sakurai and Menezes-Filho (2008), for Brazil, analyze the influence of public expenditures on the probability of mayors' reelection, and show that mayors who spend more during their terms of office increase the probability of their own reelection or of a successor of the same political party. For France, Dubois and Paty (2009), testing the yardstick competition hypothesis at the municipal level, show that voters sanction their incumbent if their own local housing tax is high compared to their close geographical neighbors.

Our aim in this paper is to build on this emerging literature to check the influence of the local budget structure on incumbents' results and reelection prospects. To do so, we look at the French local (municipal) elections of 2001 and 2008. The French case is interesting in itself given its specific legal framework and the (induced) multiparty political arena. Also, as the institutional structure is the same across the sample, with fixed election dates being called exogenously (from the perspective of the local politician), an endogenous bias is removed.

Other than the new database we use, the paper brings two contributions to the literature. First, the empirical methodology we build permits the identification of specific determinants for the first and the second rounds of the

electoral process. In the first round, the incumbent faces three possibilities (re-election, defeat or standing again in the second ballot) while, if the incumbent has to stand again at the second ballot, there are two possibilities for him (like in existing studies focusing on one-stage elections): reelection or defeat. The second feature, and additional contribution of the paper is that we proceed in two steps. The first step considers the probability of being reelected, while the second focuses on the number of votes of the incumbents. The determinants of the share of votes a candidate receives may, naturally, be different from the ones that explain the probability of being reelected. To our knowledge, the potential differences between the two are rarely acknowledged, if at all, in the literature.

Moreover, to escape from the influence of spin-doctors and individual charisma, we build our database not from individual politicians' results, but from their political parties' results. Partisan endorsements are the variable of interest here. The logic behind this choice is that it allows for investigation of the crossed influence of partisanship, incumbency, and economic performance (here assessed notably from the expenditures side) on the election results, without noise from individual characteristics. The durable attachment of most voters to one or another political party has been noted since at least Campbell et al. (1960), and empirically and theoretically confirmed ever since (see, e.g. Degan and Merlo, 2009). Here, given the French political and legal systems, we have an opportunity to test the influence of endorsements by political parties on voters' behavior. Such an enrichment of the analysis had been called for, for example, by Bartels and Brady (2003).

We first show that municipal budget structure has an impact on both the result of the incumbent's party and the probability of reelection but only in the first round. More precisely, operating expenditures, apart from staff costs have a significant negative impact on the first round, both on the incumbent's result and on her probability of being reelected in the first round (compared to the "stand again" case). Equipment spending plays a positive role on the incumbent party's share of votes but has no significant effect on the probability of being reelected in the first round. As for political variables, an interesting result is that the number of competing candidates in the first round both reduces the probability of the incumbent being reelected in the first round and her probability of being defeated in the first round. Also, and more specifically, a positive impact of mergers in the second round is only observed for the 2001 election. More strikingly, the fact that the incumbent and the majority in Parliament belong to the same party tends to reduce the incumbent's share of vote and her probability of being reelected. Finally, it has to be noted that local economic (gap to the average) variables only come into play in voters' minds in the first round of the 2008 election.

The following section details the background literature, while Section 3 specifies the legal and political contexts of the study. Section 4 presents the data and the econometric methodology, while empirical results are commented on

Section 5. The conclusion gives a summary and delivers some hints for further research.

2 Background literature

Former papers studying local interactions between politics and economics generally consider the political business cycle of municipal economics, omitting the voters' reactions. Thus, the estimation of vote functions including politically strategic determinants and/or economical variables is a relatively recent issue at the local level. A first strand of the literature deals with the composition of public budgets, while another focuses on the effect of local tax rates and tests the yardstick competition hypothesis.

Regarding local jurisdictions, Silva and Silva Costa (2006) establish the levels of performance of Portuguese incumbents through the construction of an empirical frontier using the Data Envelopment Analysis (DEA) methodology and then introduce these levels in the vote function. However, the efficiency of local governments does not appear as an important factor in explaining the vote shares whereas ideology has some influence on the voters' decisions. In turn, Cerda and Vergara (2007) use a panel of Chilean municipalities to conclude that the national rate of unemployment decreases the incumbent's share of votes. Brender (2003) notably stands closer to our point, examining the reelection of mayors in Israeli cities. When voters are able to effectively monitor the fiscal choices of local officials, any build up of large pre-election deficits harms an incumbent's chances of being reelected. Not only do voters in Israel penalize election year deficits, but they also reward high expenditure in development projects in the year preceding an election. In a study evaluating local Russian governmental entities, Akhmedov and Zhuravskaya (2004) find that pre-electoral manipulation of fiscal instruments increases the incumbent's chances of being reelected. Using data from Portuguese municipalities, Veiga and Veiga (2007) find that increases in investment expenditures and changes in the composition of spending favoring highly visible items are associated with higher vote percentages for incumbent mayors seeking re-election. Drazen and Eslava (2009) analyze Colombian mayoral elections by considering a panel of Colombian cities during the 1992–2000 period. Similarly to Peltzman (1992) and Brender (2003), their results indicate that the share of votes received by the incumbent's party is decreasing in the level of the deficit in the year preceding the election. It appears therefore that well informed voters are not only hard to "buy" through spending increases, but are also averse to high overall government spending and deficits. Sakurai and Menezes-Filho (2008), for Brazil, analyze the influence of public expenditures on the probability of mayors being reelected, and show that mayors who spend more during their terms of office increase the probability of their own reelection or of a successor of the same political party.

Vote functions have been studied by the yardstick competition literature that assumes that voters are sensitive to neighbors' choices. In this case, if all

her neighbors lower their tax rates in the election year it is desirable for the incumbent to lower her own tax rate in order to be reelected. Tests of this hypothesis generally rely on the estimation of tax reaction functions. In their pioneer work, Besley and Case (1995) mainly explain the probability of incumbent defeat in the US States from 1960 to 1988 by "own tax change" (coming with a positive sign) and "neighbors' tax change" (coming with a negative sign). Using a classical vote function instead of the probability of defeat, Bordignon et al. (2002) reject the yardstick competition hypothesis for Italy. The equation was estimated on a cross-sectional sample of 97 Municipal elections held in Lombardia between 1998 and 2000, where levels and changes in neighbors' business property tax rates were found to be insignificant. In another study, Revelli (2002) attempts to test a possible yardstick competition effect in 122 English districts on the period 1979-1987. His results confirmed the yardstick competition hypothesis with a negative effect of own property tax increases and a positive effect of neighbors' property tax increases on the incumbent's vote share. Veirmer and Heyndels (2006) investigated yardstick voting in Flemish Municipal elections during the period 1982-2000. They found that higher rates of local income tax and property tax in neighboring municipalities were favorable to the incumbents. Bosch and Solé-Ollé (2007) confirmed that property tax increases in Spanish municipalities, both at municipal and neighborhood levels, have the expected impact on the incumbent's share of the vote in three local elections (1995, 1999 and 2003). Finally, estimating a fully specified vote function on a panel data set of 104 French municipalities (including both political and economic determinants at both national and local levels), Dubois and Paty (2009) show that voters sanction the incumbent if their own local housing tax is high compared to their close geographical neighbors.

To our knowledge, none of the vote function papers on French mayoral elections include budgetary variables. In studies relying on other countries including disaggregated local expenditures, the political ground is quite limited. Moreover, the specific setting of some municipal elections, which take the form of two-stage processes is never clearly taken into account. We here complement the literature on both accounts.

3 Legal and political environment

Compared to the existing studies in the field, both the legal and political contexts of French local elections are very different. First, the French political arena is not a bi-partisan one. In the chosen sample (see below), a lot of different parties exist (and cannot be considered as marginal). For each election we consider, voters are given the choice among more than ten parties. Simply differentiating the Right from the Left would thus clearly not be relevant, as this would have combined, for example, in 2001, the National Front (FN, far-right party, leader: Jean-Marie Le Pen) with the Rally for the Republic (RPR, moderate right, leader: Jacques Chirac). We do not believe this situation to be as prob-

lematic as it may first seem. If anything, it may lead to a slight over-estimation in our results, as a statistical artifact: an incumbent will typically face several opponents, and thus will ceteris paribus have a higher ex-ante probability of victory, simply because the opposing electorate will divide its vote over several candidates.

The legal context for local elections has historically evolved several times, but has remained fixed since 1982 (and applied since 1983). Elections normally take place every six years[1]. A 3,500-inhabitant threshold is fixed, the voting system being different for smaller towns. As our sample is composed only of towns with population numbers above the threshold (see below), we only describe the relevant system: the poll competition is organized by lists, with two rounds (possibly) taking place. The winning list receives half the seats to be filled in the town council, the other half of the seats being distributed proportionally between all the lists (including the winning list) that have received more than 5% of the votes. If a second round is necessary, all the lists with more than 10% of the votes can compete but the lists with more than 5% of the votes can merge between the two rounds. As a consequence of the multi-partisan context, the electoral law offers the possibility to the lists defeated in the first round to merge with one (or several) of the runners-up in the second round of the election. Even if the electorate may disapprove of the merger, it may prove important for winning the second round of the election. On practical as well as on academic grounds, this possibility of a merger is not without consequences, and we will have to specifically include this potential effect in our study.

Hence, to our knowledge, this study is the first at the local level to provide a full view of the two-stage election process, to explicitly account for the possibility to merge lists, and to simultaneously account for the number of candidates.

4 Data

As for the geographical coverage, a trade-off had to be faced. Considering towns that are too small in size would have let strong personal links, between the electorate and the incumbent mayor, play an important (and troubling, not to say spurious) role, but we also wanted to have a good representation of the French population. We thus selected a threshold of 10,000 inhabitants. Due to the fact that in some rural departments, the biggest cities are under the threshold, we include the biggest cities of the department. So all departments are represented, excluding overseas territories. This gives us coverage of 586 cities, or about half the French population, which is almost certainly something that we can safely consider as representative. Moreover, this threshold also ensures that the institutional (political and legal) context is consistent through the sample. At the city level, spending data is available over the period 2000-2007, so we

[1]Except between 2001 and 2008, the election being postponed to avoid electoral fatigue in 2007, a year in which both the Presidential and Assembly elections were taking place.

cover for the elections of 2001 and 2008. The time-period is sufficiently short to comfortably assume a constant electoral behavior and, to our knowledge, our geographic and demographic coverage is larger than in the existing literature on French vote functions.

Three kinds of information are collected, the first being political data for each town and each election available from the ministry of internal affairs.

4.1 Political variables

The observed variable we want to explain is the electoral result of the incumbent mayor's party. The latter can be understood either as the incumbent's party's share of votes, called *INC* or the probability of being reelected, or Prob(*INC*). This means that if the incumbent mayor does not run for the following election, we consider the candidate of the same party as the incumbent. This is clearly designed to capture partisan effects, as we want to explain the party's result, not the individual result. The underlying theory goes back to Hibbs (1977), who supposed that politicians tend to adopt policies that favor their supporters. Powell and Whitten (1993) and Swank (1993) have also introduced partisan effects in the literature on voters' behavior. Here, our option is to consider parties' shares of votes to account for partisan effects. As a consequence, we will not need to resort to partisan effect dummies, as our dependent variable, the party's share of the votes, includes this information. Of course, we do not ignore the fact that a charismatic incumbent can help her party. Such charisma is not the explained variable but can be an important one in some contests. However, we will also capture those personal effects, as we control our estimates in three different ways: first, by introducing the party share of votes at the preceding election (*INCPREC*); second, by taking into account the link of the incumbent with the majority in Parliament (*PARL*, more on this below); third, by including the potentiality that the incumbent has to merge with competing candidates (*MERG*).

More precisely, in link with the two-step electoral process, we define two incumbent party shares of the vote: *INC1*, corresponds to the share of votes obtained by the incumbent candidate i at the first round while *INC2* represents the share of votes received by the incumbent candidate i at the second ballot when the incumbent has to stand again in the second round.

As explanatory variables, we include political variables relative to the past and present specificities of the local election and political variables controlling for national characteristics. For first round estimations, we include the vote share of the incumbent party in the first round of the preceding municipal elections (*INCPREC*). In the second round, this variable is replaced by $INC1$, the share of votes received by the incumbent in the first round. As pointed out by Dubois and Paty (2009), the previous local vote expresses a long-term strength or vote inertia, since many voters vote the same way from one election to the next. This variable may be viewed as a proxy for socio-demographic

determinants (religious practice, age, occupation...). Another way to deal with past electoral results is to introduce a dummy $DROUND$ which is equal to one if the mayor was elected in the first round of the preceding election and zero otherwise. A positive sign is expected on both the party's share of votes and on the probability of being reelected, as it indicates that the mayor was easily elected at the previous election. DUR is a duration variable that is defined as the logarithm of the number of consecutive mandates spent by the incumbent as mayor. This variable has an unknown expected sign, since it can be viewed as a proxy for experience (positive) but also as a measure of weariness (negative). We will also include the square of this variable (DUR^2) in our estimates to check for non-linearities in the duration phenomenon. The distribution of this variable is given in table 1[2].

[Table 1 about here]

If a merger takes place between the two rounds, we give the $MERG$ variable a value 1, and 0 otherwise. The merger of lists between two rounds should have a negative impact on the number of votes received by the incumbent, as it signals that she alone is not in a position to win.

We introduce the number of candidates in each of the corresponding rounds ($NBCAND1$ and $NBCAND2$). All candidates, whose scores in the first round are higher than 10% of the total vote, qualify for the second round. Then, depending on the results of the first round, more than two candidates may be present in the second round. 40% of the second round races are two-candidate races, generally between a right-wing and a left-wing candidate whereas in another half (46.5%), a third candidate is present (usually from the far-right party, the National Front), or even a fourth or a fifth one (in 4 cases over the sample).

[Table 2 about here]

In this case, the winner can receive less than 50% of the votes when the number of candidates is high in the second round run-off, as it reduces the share of the vote for the incumbent. According to Foucault and François (2005) and Fauvelle-Aymar and François (2003), an increase in the number of candidates leads to a dispersion of votes that penalizes the incumbent. This should be especially true for the first round, hence a negative sign is expected for the $NBCAND1$ variable. Conversely, an increase in the number of candidates at the second round should be favorable to the incumbent, since it lowers the threshold to be reached for reelection. Hence, a positive sign is expected on the $NBCAND2$ variable.

To control for the link with national political trends, we include a dummy $PARL$ equal to 1 if the incumbent mayor and the majority in Parliament belong

[2]Due to changes in the electoral rules in 1982 and data availability, we did not take into account elections before 1977 for computing the DUR variable.

to the same political party, 0 otherwise[3]. The main purpose of having included this variable is to control for the potential influence exerted by the government's popularity in local elections. It has been common for French voters to consider municipal elections as mid-terms, using them as a way to penalize the President in charge (negative effect). The variable *PRESID* is the vote share received by the incumbent mayor's party presidential candidate in the second round of the preceding presidential election[4]. This variable represents a short-term strength (Dubois and Paty, 2009). In our sample, the concerned elections are the 1995 and 2008 Presidential elections. The expected sign is positive for this variable. Indeed, French voters are quite legitimist in the year following a presidential election, that is, they tend to vote more for the President's party whichever election is concerned (positive effect).

4.2 Budgetary and economic variables

As the structure of the budget can be used by politicians to swing elections, a second data set includes budgetary data at the city level (as in Veiga and Veiga, 2007, or Sakurai and Menezes-Filho, 2008). Budgetary data is available from the French Data Census of the Ministry of Finance over the period 2000-2007. We consider operating expenditures, apart from staff costs *(OPER)*, staff costs (*STAFF*) and equipment spending (*EQUIP*). All these variables are expressed per capita. Perceived as a manifestation of bad government, operating expenditures excluding staff costs should have a negative impact on the incumbent's share of votes. Conversely, equipment spending, as new investments, should positively impact the dependent variable. The sign of the coefficient on staff spending is less clear: on the one hand, high staff spending, like other operating costs, can be interpreted as bad government; on the other hand, more staff spending can also entail more jobs or higher wages, increasing voters' welfare (or simply buying votes). It will definitely be interesting to identify which of these two effects dominate empirically.

The third data set includes economic variables. We follow Peltzman's (1987) argument about voters considering local economic variables. Peltzman considered GDP data, while the literature often uses the personal income, an example that we follow. The model will also account for the unemployment rate. It could be argued that this variable is rarely significant in the literature, which is mainly based on American elections. In European countries, however, where the unemployment rate is higher and has been high under the period we consider, we think that this variable should not be dismissed peremptorily. We consider the gross personal income per capita and annual unemployment rate for each local authority. For these two variables, we use the gap between municipal value

[3]Note that centrist UDF-MODEM party belongs to the opposition both in 2001 and in 2008 whereas socialists belongs to the majority in 2001 but not in 2008 (it is the contrary for UMP).

[4]If the mayor of municipality i is from the right, we report the result of the right wing candidate in the municipality at the Presidential election.

and the average of all other municipalities of the sample ($INCOME\_GAP$ and $UNEMP\_GAP$). Indeed, it seems sensible to consider that voters will not decide their vote considering the absolute level of these variables, but rather the size of the gaps to their national counterparts – or in our context, the averages at the city level. We expect the coefficients on the gaps to average disposable income and to average unemployment rate to be positive and negative respectively. Finally, we introduce the size of the municipal population (POP) as a proxy of the size of the municipal electorate, precisely to control for size effect. We expect a positive sign for this variable, as political parties tend to invest more in bigger strongholds.

[Table 3 about here]

5 Empirical methodology

We study separately the effect of budget structure, economic context and political variables on the incumbent's party probability of reelection (see e. g., Brender, 2003, in Israel and Sakurai and Menezes-Filho, 2008, in Brazil) and vote share (French municipal vote functions have notably been estimated by Dubois and Paty, 2009[5]). Besides, these studies generally focus on one round of the considered election, either the first or the winning round. In this paper, our empirical setting is designed to differentiate between the two rounds of the French municipal elections.

5.1 The incumbent's probability of election

First round. The incumbent faces three possibilities in the first round of the election: 1. To receive enough votes (more than 10% of votes) to stand again in the second ballot (defined as outcome 0); 2. To receive less than 10% of the votes in the first round and not be allowed to compete in the second round (defined as outcome 1); 3. To have more than 50% of the votes and to be reelected directly (defined as outcome 2). Table 4 gives the repartition of the three cases for our sample.

[Table 4 about here]

Therefore, for each incumbent i in year t, a multinomial probit with potential outcome $INC1_{it} \in (0, 1, 2)$ is appropriate. More specifically, selecting $INC1_{it} = 0$ as the natural omitted category (The "stand again" is set as the

[5]It is also the way adopted by Happy (1992) in Canada, Drazen and Eslava (2009) in Colombia and Veiga and Veiga (2007) in Portugal.

reference because it is the more frequent case in our sample (see table 2)), we associate the following value functions for each outcome:

$$\begin{aligned} V_{0it} &= 0 \\ V_{1it} &= \alpha_{1i} U_{it} + \beta_{1i} \phi_{it} + \gamma_{1i} \Omega_{it} + \eta_t + c + \epsilon_{1it} \\ V_{2it} &= \alpha_{2i} U_{it} + \beta_{2i} \phi_{it} + \gamma_{2i} \Omega_{it} + \eta_t + c + \epsilon_{2it} \end{aligned} \tag{1}$$

where the dependent variable is the result of the first round (reelection, defeat, standing again), U_{it} is the vector of economic variables, ϕ_{it} is the vector of political determinants and Ω_{it} includes the budgetary variables. The outcome corresponds to whichever value function is greatest:

$$Y = j \text{ if } V_j = max(V_0, V_1, V_2)$$

and the likelihood is

$$\begin{aligned} Prob(Y = 0) &= Prob(V_0 > V_1, V_0 > V_2) \\ Prob(Y = 1) &= Prob(V_1 > V_0, V_1 > V_2) \\ Prob(Y = 2) &= Prob(V_2 > V_0, V_2 > V_1) \end{aligned} \tag{2}$$

The coefficients are estimated by maximum likelihood procedures. For each independent variable, the estimated coefficients capture the likelihood of being reelected or defeated relative to the reference case, which is to stand again. Specification 2 is estimated with year dummies.

The expected signs are obviously different according to which outcome one considers. Regarding the probability of being reelected (outcome 2), we expect the coefficients on $INCOME\_GAP$ and $UNEMP\_GAP$ to be positive and negative respectively (economic variables U_{it}). Regarding budgetary variables (ϕ_{it}), we expect the coefficients on $OPER$ and $EQUIP$ to be negative and positive respectively; the sign on $STAFF$ has to be empirically settled. Turning to political variables (Ω_{it}), we expect the coefficient on $INCPREC$, $PRESID$ and $DROUND$ to be positive, and on $MAJOPARL$ and $NBCAND1$ to be negative; finally, the signs for coefficients on DUR and DUR^2 have to be empirically settled. Regarding the probability of being defeated (outcome 1), the symmetry with outcome 2 leads us to expect opposite signs for most of the considered variables. One exception has to be mentioned: the sign on $NBCAND1$ should indeed be negative in both cases: the higher the number of candidates, the lower the probability for the incumbent to reach the 50% threshold in the first round.

Second round. We define the reelection of the incumbent as a discrete variable which takes the value 1 if the incumbent is reelected and zero otherwise. Note that in nearly 65% of cases, the incumbent who has to stand again at the second ballot is reelected. A binary probit is appropriate. Hence, the probability of reelection of the incumbent in city i against $k = 1...n$ competitors during year t is:

$$Prob(INC2_{it} > Max(COMP2_{1it}, ..., COMP2_{nit}) =$$
$$\begin{cases} 1 & if \quad \delta_i U_{it} + \rho_i \phi_{it} + \kappa_i \Omega_{it} + \lambda_d + \eta_t + c + \epsilon_{it} > Max(COMP2_{1it}, ..., COMP2_{nit}) \\ 0 & otherwise \end{cases} \tag{3}$$

where $COMP2_{k=1...n,it}$ is the share of votes of the k_{th} competitor. Once again, we expect the coefficients on $INCOME\_GAP$ and $UNEMP\_GAP$ to be positive and negative respectively. Regarding budgetary variables (ϕ_{it}), we still expect the coefficients on $OPER$ and $EQUIP$ to be negative and positive respectively, while the sign on $STAFF$ has to be empirically settled. Turning to political variables (Ω_{it}), we expect the coefficient on $INC1$ (which substitutes to $INCPREC$), $NBCAND2$, $PRESID$, $DROUND$ and $MERG$ to be positive; the coefficient on $PARL$ is expected to be positive. However, we also expect differences of significance between the two rounds: some variables may be important in the first round but not in the second.

Econometric Issues. In order to check for potential multicollinearity between regressors, we compute the Variance Inflation Factor (VIF) for each regressor. The VIF shows how the variance of an estimator is inflated by the presence of multicollinearity. The larger the VIF value, the more collinear the variables will be. A common rule of thumb is to consider a VIF exceeding 10 as an indication of high collinearity of the considered variable (cf. Gujarati, 2004). For all our variables, the VIF ranges between 1.06 and 4.32[6]. These results confirm that our variables do not suffer from any multicollinearity problems.

As pointed out by Wooldridge (2002), the issue of unobservable individual heterogeneity is not easy to tackle in the context of non-linear models. While the extra orthogonality condition used by the random effects estimator can be considered in our context as a dubious assumption[7], fixed effects cannot be implemented in the context of the multinomial models that we use for the first round. Since our sample contains only two years, we are left with an insufficient time variance to include city-level fixed effects in a logit model estimation[8]. We decided therefore to estimate specifications (1) and (3) with pooled probit functions, specification (3) including department dummies λ_d in order to account for unobservable heterogeneity at the department level. Besides, we will present estimates that are run separately on each year. The importance of differences between these two sets of estimates will give us valuable information on the influence of unobserved heterogeneity. Besides, endogeneity may be a concern for city-level economic and budgetary variables. Due to the limited degrees of freedom, we cannot perform any non-linear instrumental variables estimation

[6]Complete results of VIF tests available upon request.

[7]Namely, the assumption that the city-specific intercept is exogenous, or, alternatively, that the regressors are uncorrelated with the time-invariant city-specific component of the error term.

[8]When an incumbent is reelected on both considered elections, the city's contribution to the log-likelihood is zero. This leads us therefore to drop a major part of our sample during the maximization process.

for the probit models. Therefore, we use first lagged values of right-hand side variables to address the simultaneity of city-level variables issue.

Finally, the structure of our data confronts us with the problem of the clustering of errors. It is to be expected that observable and unobservable characteristics of the cities are correlated (cf. Moulton, 1986, Moulton, 1990). Here, in addition to the standard White correction for heteroskedasticity, we correct for clustering using the Froot correction (Froot, 1989). We therefore correct for the correlation of errors at the city level.

5.2 The incumbent's share of votes

First round. For the first round, the impact of the set of explanatory variables detailed before on the incumbent's share can be estimated through a standard linear equation, which can be written as follows:

$$INC1_{it} = \alpha_i U_{it} + \beta_i \phi_{it} + \gamma_i \Omega_{it} + \lambda_d + \eta_t + c + \varepsilon_{it} \tag{4}$$

Second round. We estimate a similar equation for the second round if any. From the first equation, we replace the vote share for the incumbent in the first round of the previous municipal elections by the vote share in the first round of the present election. We also introduce the number of candidates in the second round instead of the number in the first round.

$$INC2_{it} = \alpha_i U_{it} + \beta_i \phi_{it} + \gamma_i \Omega_{it} + \lambda_d + \eta_t + c + \varepsilon_{it} \tag{5}$$

For both rounds, we expect the same signs for coefficients than previously. The potential differences in terms of size and significance between the two sets of estimates should provide useful insights on which variables are decisive for being reelected, and which ones help only to win more votes[9].

Econometric issues. Due to the lack of time variance and to preserve comparability with results for the probability of reelection, specifications (4) and (5) are estimated using Ordinary Least Squares with a full set of department (λ_d) and year (η_t) dummies[10]. We also control for a potential influence of unobserved heterogeneity by two different means. First, we run separate estimates on 2001 and 2008, as we do for the probability of reelection. Second, we run another set of estimates on first-difference variables, which is another standard method to eliminate unobserved heterogeneity. Once again, we use first lagged values

[9]Note that contrary to the estimation of the incumbent party's probability of reelection, we will not include the dummy variable $MERG$ in specification 5, due to endogeneity concerns. There is indeed an obvious issue of reverse causality on the dependent variable and $MERG$: the expected share of votes for the incumbent at the second round clearly impacts the probability of merging. Without any robust option to instrument this variable, we prefer to remove it from the incumbent party's share of votes estimations.

[10]Similarly to Dubois and Paty (2009), $INCPREC$ is not a lagged dependent variable in the strict sense. Besides, since we do not include city-level fixed effects, our estimates do not suffer from systematic bias in the lagged dependent variable, which is traditionally solved by taking a within transformation, and then applying instrumental variables (IV) estimation or Generalized Method of Moments (GMM) estimation. Therefore, estimators of the Arellano-Bond type are not necessary.

of explanatory variables to address the endogeneity issue. Finally, for the same motivations presented regarding the probit models for the incumbent reelection, we correct for clustering at the city level using the Froot (1989) correction.

6 Results

6.1 Econometric evidence: the reelection probability

Results for the reelection probability in the first round (equations 1 or 2) are presented in table 5. Regarding the first round, columns (a) to (d) present the results on the whole sample; columns (a) and (b) report the results from the basic specification without political variables; the latter are added in columns (c) and (d). Columns (e) to (h) (resp. (i) to (l)) replicate these estimates over the year 2001 (resp. 2008). We present the estimates for both the probability of being defeated ($P(Y = 1)$) and of being reelected ($P(Y = 2)$) - considering that the reference case is the "stand again" situation ($P(Y = 0)$). The reported coefficients are marginal effects computed at means for continuous regressors.

[Table 5 about here]

The estimation results show that high staff costs per capita raise the probability that the incumbent is reelected in the first round, rather than having to stand again. However, if the incumbent spends more in non-wages operating expenditures, she reduces her probability of being reelected in the first round. Even if her probability of being reelected is reduced, she would not worry about being defeated in the first round as spending choices have no impact on the probability of being defeated in the first round. These results are in line with those obtained by Sakurai and Menezes-Filho (2008) for Brazil: mayors who spend more in capital expenditures during their terms of office increase the probability of their own reelection, or of a successor from the same political party. However in their paper, the impact of current expenditures is not precisely estimated. One potential explanation is that operating expenditures have to be disaggregated to distinguish the effect of salaries from the effect of other operating expenditures, which may appear unnecessary to the electorate. Note that in our sample, the impact of budgetary variables on the probability of reelection is significant for the whole period and for the 2008 election but not for the 2001 election. This new importance of budgetary choices on voters' decisions is in line with Brender's (2003) findings for Israel and Veiga and Veiga's (2007) findings for Portugal. It may result from a shift in voters' concerns away from ideological issues to economic ones, leading to voters' greater sensitivity to the budget cycle.

Here, as in the above first set of estimates, the indicators of relative economic performance (income and unemployment) appear to have little significance. For

the whole sample, a higher than the national average unemployment rate reduces the probability of being reelected in the first round and increases the probability of being defeated in the first round (compared to the reference case). If the effect is significant at 10% for the whole sample, the effect is more significant when we only study the year 2008. It seems that the budget variables' impacts dwarf that of other performance indicators (unemployment and income).

Even if one has to be cautious about the meaning of pseudo-R-quared, one has to notice that the pseudo R-squared of the estimations increases dramatically when we include the political variables, by a factor of three or four. This implies that political considerations clearly weigh more in voters' minds than economic considerations. To be defeated in the first round rather than to stand again depends on the past electoral results of the mayor and of the incumbent's wing at the presidential election. As these two variables are statistically significant with the expected sign, there is strong evidence to suggest that the incumbent party enjoys both short and long-term strength by benefiting from the vote share of parties of similar ideology in preceding national elections. The lower the incumbent's vote share at the previous municipal election, the higher her probability of being defeated in the first round when compared to the "stand again" case. Moreover, where the incumbent belongs to the left (resp.right), her probability of being defeated in the first round will be high (resp low) if the left-wing candidate made a low (high) score in the municipality at the presidential election.

Strikingly, the number of competing candidates in the first round has a negative impact, both on the probability of being defeated in the first round and on the probability of being reelected in the first round (compared to the "stand again" case). It confirms a result found by Foucault and François (2005) and Fauvelle-Aymar and François (2003): when there is an increase in the number of candidates, it leads to a dispersion of votes, which penalizes the incumbent. Nevertheless, when there are too many candidates, it is reassuring for the electorate to vote for someone they know, thus preventing the incumbent from being defeated in the first round[11].

The impact of the *PARL* dummy is even more interesting, as its sign is negative and its significance high for the probability of being reelected. This result adds weight to the view of voters seizing the first electoral opportunity to send a message of discontent to the national majority. Such a message may however strongly conflict with local contexts where the mayor has strong charisma and/or is of a national caliber.

[11]One way to test this hypothesis is to introduce both the number of candidates and the square of the number of candidates, because a non-linear relationship between the number of candidates and the incumbent party's share of votes is very likely. A negative sign will be expected for the first variable and a positive sign for the second one (Foucault and François, 2005).

[Table 6 about here]

Table 6 presents the pooled probit estimates for the second ballot result (if any). In this case, the dependent variable is the probability of being reelected. As in table 5, column (a) gives the results of basic specifications including only economic variables while column (b) provides the full specification with political variables. Once again, columns (c)/(d) and (e)/(f) display the results for each year considered separately.

These results reveal important differences from the first ballot parameters. First, budgetary variables no longer play a role on the probability of being reelected. Second, as $INC1$ and $PRESID$ are statistically significant with a positive effect on the probability of being reelected, this represents strong evidence that the incumbent benefits from vote inertia and partisan waves. This may indicate that a local incumbent is first rewarded for good use of public funds in the first round, but that ideological considerations may dominate during the second round debate, a result that supports the need for considering the two rounds separately. Third, in this round, if there are more than two candidates, it is favorable to the incumbent as it increases her probability of being reelected (even if it reduces the incumbent party's share of votes).

As noted above, a particularity in French local elections is that the contest is multi-partisan (with up to ten parties competing), and that some of the parties can decide to merge after the first round. We also show that the ballot rules (i.e., the possibility of merging lists between two electoral rounds) count and increase the probability of being reelected. However this effect is only significant in the 2001 election. Finally, belonging to the majority in Parliament reduces the probability of being reelected, as in the first round.

6.2 Econometric evidence: the incumbent's party's share of votes

Estimation results for equations 4 and 5 are shown in tables 7 and 8 respectively. Both tables detail the baseline specifications, establishing if and how voters react to local economic conditions on the whole sample, before adding political variables to the picture. More precisely, columns (a) and (b) report the results from estimating equations 4 and 5 in levels, while columns (c) and (d) show estimates from the first differentiations of these equations. Lastly, columns (c) to (h) give yearly estimates to check if the results obtained on the pooled series for 2001 and 2008 are verified for each year separately.

[Table 7 about here]

Regarding the first round, estimates based on levels and first differences lead mostly to the same signs for coefficients. Unsurprisingly, many variables lose their significance from levels to first differences, which is likely to be due to the loss of information implied by differentiation. Overall, an important result emerges from the basic specification in column (a): the influence of operating and equipment infrastructures on voters' behavior. Strikingly and importantly, the sign on the operating expenditures excluding staff costs is negative, but positive on the equipment spending and salaries[12]. As we consider the biggest municipalities, this may not be so surprising, as they benefit from higher levels of managerial staff and are the location of most decentralized central services, which can legitimate high staff costs for the voters. Hence, all things considered, this awareness amongst voters of the budget structure confirms the preceding results on Portugal and Brazil, for example, but had, to our knowledge, not been shown for France before. However, the significance of budgetary variables is not obtained for the year 2001.

The inclusion of the local income performance (relative to the sample's average) shows no or weak influence on the incumbent's party results. This result contrasts with those generally obtained, notably since Peltzman (1987). More in line with the literature (see Hibbs, 2006) is the result that unemployment never influences voters' decisions[13]. Although the two results seem to imply that voters do not react to economic conditions, it can be said that these are already implicitly included in the spending variables, given that municipalities' receipts are sensitive to the business cycles, and that they are in charge of some welfare transfers. As for the municipal population variable, incumbents in bigger cities seem to receive higher shares of votes, but this effect is only highly significant when we include political variables in the analysis. Again, one can think that incumbent parties will invest more in bigger cities and propose well-known candidates, as it is strategic to maintain the leadership of big cities.

As for political variables, past local elections play roles in the reelection process: the higher the past vote shares, the higher they will be for the present election (which confirms the presence of an incumbency premium). Moreover, if the mayor has been elected in the first round in the past, he will receive more votes at the present election. However, we exhibit a tiredness effect for mayors running successive mandates: being in office during many mandates reduces the vote shares obtained and tends to reduce the incumbency premium. A quadratic relationship is observed which means that the electorate becomes attached to people that have been mayors since the end of the 1970s. The number of competing candidates has a negative impact on the incumbent's vote share. It confirms a result found by Foucault and François (2005) and Fauvelle-Aymar and François (2003): when there is an increase in the number of candidates, it leads to a dispersion of votes that penalizes the incumbent. *PRESID* and *PARL*

[12]Additional results show that the debt level does not influence voters. One potential explanation is that municipalities are not highly indebted in France.

[13]Voters may punish the incumbent party only if it belongs to the majority in Parliament, because reducing unemployment is a task of the central government.

variables control for the link with national political trends. The $PARL$ dummy variable is strongly significant and shows up negatively in this specification, adding weight to the view of voters seizing the first electoral opportunity to send a message of discontent to the national majority, whatever its color. Such a message may however strongly conflict with local contexts where the mayor has strong charisma and/or is of a national caliber.

[Table 8 about here]

Most of the variables that have a significant impact on the vote share in the first round lose their significance in the second round, especially budgetary variables. The local incumbent is rewarded or punished for his local management in the first round but in the second, only political factors matter. With a coefficient of around 0.8, the result of the first round explains a high part of the result of the second round. In the second round, if there are more than two candidates, the vote-share of the incumbent is reduced. However, it is possible for her to be reelected with less than 50% of votes. As previously, incumbents in bigger cities receive more votes, which can be a consequence of parties choices in the designation of candidates. Finally, belonging to the majority in Parliament does not guarantee an easy reelection for the incumbent. Voters consider municipal elections as mid-terms, using them to penalize the majority in Parliament. This effect shows up here, as the 2008 election stood one year after the presidential and legislative votes, and signals the end of the honeymoon period. Other studies on French elections report this effect (see for example Auberger and Dubois, 2005 who analyze reciprocal local-national influences on legislative elections).

6.3 Robustness checks on the biggest cities

In some departments, there is no municipality with more than 10,000 inhabitants. In order to represent all French departments, we introduced the biggest cities of each department even if their size was under the threshold. However, it is interesting to perform the estimations on a sub sample of big cities. Proceeding this way shows whether our results are driven by the smallest municipalities. Note that our full sample contains 586 municipalities. Dropping municipalities with less than 10,000 inhabitants only reduces the sample by 21 municipalities. Results reported in tables 9, 10, 11 and 12 in appendix allow to conclude that there is no difference in voters behaviors between the full sample and the sub sample with municipalities with more than 10,000 inhabitants. This result validates the choice to introduce the biggest cities of each department when there is no municipality above the threshold.

Performing estimations on the 211 municipalities with more than 30,000 people changes the picture. First, good electoral results in the past do not protect candidates against being defeated in the first round. Moreover,the incumbency

premium is no longer observed in the estimation of the vote share. Second, bad spending choices (too high operating expenditures excluding staff costs or too low equipment spendings) increase the probability of being defeated in the first round. It appears that voters in big municipalities observed the mayor's choices more than in other municipalities. We observe that equipment spendings have a strong impact on the probability of being reelected in the first round in municipalities with less than 30,000 inhabitants whereas the effect is not significant for the whole sample, nor for municipalities with more than 30,000 inhabitants. Third, in the biggest municipalities, the number of competing candidates in the first round loses its negative impact on the probability of being defeated in the first round (compared to the "stand again" case). Finally, in the second round, the only difference between the full sample and the sample with the biggest municipalities lies in the *PRESID* variable, which now becomes insignificant.

7 Conclusion

This paper highlights the link between budget structure and the results of the 2001 and 2008 elections in French municipalities. We first show that municipal budget structure has an impact both on the result of the incumbent's party and the probability of reelection, but only in the first round. More precisely, operating expenditures excluding staff costs have a significant negative impact in the first round both on the incumbent's result and on her probability of being reelected in the first round (compared to the "stand again" case). Equipment spending plays a positive part on the incumbent party's share of votes but has no significant effect on the probability of being reelected in the first round. These results confirm those of similar empirical studies in other countries. The distinction between productive and unproductive expenditures, emphasized by endogenous macroeconomic models, meets with a response in the voters' mind. This latter result confirms the role of "highly visible" expenditures on voters' behavior emphasized in Veiga and Veiga (2007).

Turning to political grounds, one can notice the interest to carry out this double study. An interesting result is that the number of competing candidates in the first round both reduces the probability of the incumbent being reelected in the first round, and her probability of being defeated in the first round. A tiredness effect for mayors running successive mandates appears in the first round. The need for a mayor to merge lists with those of other competitors can increase her chance of being reelected. More strikingly, the fact that the incumbent belongs to the party that has the majority in Parliament tends to reduce the incumbent's share of the vote, and her probability of being reelected in both rounds. Furthermore, local socio-economic and economic (gap to the average) variables do not come into play in voter's minds.

The outcomes of this paper point to several directions for future research. First, an incumbent's results are significantly affected by the number of com-

peting candidates. This degree of electoral competition may depend on the performance of the mayor during her mandate. The electoral process begins before elections, starting with the choice of residents for whom to be candidate. Then, the number of candidates affects the incumbent's result. As a consequence, this electoral process could be explained better by using a system of simultaneous equations. By itself, this research agenda stands as an important one, but it is probably as important, given how the budget structure weighs in voters' behavior, to have a model taking into account interactions between politicians' decisions about the budget (in the line of what Dubois et al., 2007, did for French departments, for example) and their impact on a politician's prospects for future election(s).

8 References

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Duration	Proportion (in %)	Duration	Proportion (in %)
1	40.9	4	14.6
2	25.3	5	3.5
3	15.6	6	0.1

Table 1: Number of consecutive mandates spent by the incumbent as a mayor

9 Appendix

Number of candidates	First round	Second round
1	1.1%	/
2	17.7%	40.9%
3	28.1%	46.5%
4	22.5%	11.9%
5	15.3%	0.7%
6	6.7%	/
7	5.0%	/
$\geqslant 8$	3.6%	/

Table 2: Repartition of the number of candidates

Variables	Definition	Source	Mean	StdDev	Min	Max
OPER	Operating costs p.c.	Census of the	562.73	197.46	158.00	2129.00
STAFF	Staff costs p.c	ministry of	0.35	0.07	0.12	0.71
EQUIP	equipment spending p.c	finance	0.19	0.07	0.008	0.58
UNEMP_GAP	Unemployment rate gap	INSEE	-5.10-8	0.30	-0.67	1.28
INCOME_GAP	Gross personal income gap	INSEE	-2.10-8	0.34	-0.59	3.69
POP	population of the municipality	INSEE	35761	39958	4239	437715
INC1	incumbent party's share of votes 1st round	Ministry of internal affairs	49.90	13.60	8.20	100.00
INC2	incumbent party's share of votes, second round if any		47.31	8.43	13.65	100.00
INCPREC	mayor's share of votes, previous election		53.61	9.03	22.98	100.00
NBCAND1	# candidates, first round		3.93	1.66	1.00	11.00
NBCAND2	# candidates, second round		2.72	0.69	2.00	5.00
PRESID	incumbent party's share of votes, presidential election		54.5	7.10	32.50	86.80
DUR	# consecutive mandates		2.10	1.20	1.00	6.00

Table 3: Data sources and summary statistics

	Proportion
stand again	48.7%
defeated	3.7%
reelected	47.5%

Table 4: Result of the first round race

Table 5: First round, Incumbent party's probability of being defeated ($P(Y = 1)$) or reelected ($P(Y = 2)$)

Dep. Var.	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$
	Full Sample				$Year$: 2001				$Year$: 2008			
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
OPER	0.0120	-0.1820^{a}	0.0237	-0.1905^{b}	0.0069	-0.1005	0.0104	-0.1053	0.0162	-0.2592^{b}	0.0239	-0.2460^{b}
	(0.0213)	(0.0699)	(0.0219)	(0.0810)	(0.0226)	(0.0986)	(0.0183)	(0.1179)	(0.0360)	(0.1062)	(0.0331)	(0.1235)
STAFF	-0.0203	0.1171	-0.0146	0.2281^{a}	0.0270	-0.1141	0.0252	0.0152	-0.0731^{b}	0.3365^{a}	-0.0483	0.3899^{a}
	(0.0231)	(0.0777)	(0.0219)	(0.0857)	(0.0289)	(0.1089)	(0.0236)	(0.1304)	(0.0360)	(0.1083)	(0.0317)	(0.1217)
EQUIP	-0.0075	0.0782^{b}	-0.0123	0.0582	-0.0098	0.0678	-0.0099	0.0328	-0.0065	0.0909^{c}	-0.0134	0.0797
	(0.0107)	(0.0362)	(0.0112)	(0.0422)	(0.0113)	(0.0480)	(0.0088)	(0.0588)	(0.0170)	(0.0520)	(0.0156)	(0.0615)
INCOME_GAP	-0.0218	-0.0294	-0.0051	-0.0378	-0.0125	-0.0539	-0.0014	-0.0484	-0.0300	-0.0110	-0.0030	-0.0406
	(0.0189)	(0.0333)	(0.0152)	(0.0356)	(0.0181)	(0.0451)	(0.0123)	(0.0439)	(0.0326)	(0.0410)	(0.0241)	(0.0461)
UNEMP_GAP	0.0019	-0.0110	0.0036^{c}	-0.0004	-0.0013	0.0041	0.0002	0.0192^{c}	0.0068^{c}	-0.0329^{a}	0.0088^{b}	-0.0297^{b}
	(0.0020)	(0.0078)	(0.0021)	(0.0084)	(0.0021)	(0.0090)	(0.0016)	(0.0108)	(0.0036)	(0.0101)	(0.0034)	(0.0125)
POP	0.0006	-0.0259	-0.0003	0.2821^{a}	-0.0024	0.0082	0.0040	0.3347^{a}	0.0056	-0.0485	-0.0149	0.2670^{a}
	(0.0227)	(0.1612)	(0.0343)	(0.1630)	(0.0292)	(0.2396)	(0.0271)	(0.1985)	(0.0453)	(0.1746)	(0.0663)	(0.2132)
INCPREC	-0.0402^{c}	1.1019^{a}	-0.0757^{b}	0.7121^{a}	0.0244	0.9807^{a}	0.0042	0.6070^{a}	-0.1374^{a}	1.3339^{a}	-0.2041^{a}	0.9811^{a}
	(0.0183)	(0.0469)	(0.0177)	(0.0558)	(0.0218)	(0.0673)	(0.0154)	(0.0779)	(0.0286)	(0.0607)	(0.0261)	(0.0785)
PARL			0.0109	-0.1624^{a}			-0.0080	-0.1516^{a}			0.0289^{c}	-0.1897^{a}
			(0.0096)	(0.0356)			(0.0084)	(0.0540)			(0.0149)	(0.0501)
NBCAND1			-0.0784^{a}	-0.9800^{a}			-0.0627^{a}	-1.1326^{a}			-0.0591^{b}	-0.8663^{a}
			(0.0211)	(0.0664)			(0.0192)	(0.0943)			(0.0275)	(0.0912)
PRESID			-0.1086^{a}	0.6587^{a}			-0.0447	0.4083^{c}			-0.1353^{b}	0.7718^{a}
			(0.0397)	(0.1433)			(0.0437)	(0.2238)			(0.0592)	(0.1965)
DUR			-0.0080	-0.1909^{a}			-0.0311	-0.3834^{a}			0.0019	-0.0401
			(0.0163)	(0.0679)			(0.0212)	(0.1280)			(0.0234)	(0.0895)
DUR^2			0.0009	0.0318^{b}			0.0065	0.0659^{b}			-0.0026	0.0081
			(0.0030)	(0.0129)			(0.0041)	(0.0257)			(0.0049)	(0.0162)
DROUND			0.0095	0.1912^{a}			0.0030	0.2445^{a}			0.0255	0.1387^{b}
			(0.0115)	(0.0460)			(0.0108)	(0.0627)			(0.0180)	(0.0613)
Observations	1150	1150	1127	1127	575	575	574	574	575	575	553	553
Estimation		Multinomial Probit				Multinomial Probit				Multinomial Probit		
Pseudo-R^2	0.1056	0.1056	0.3405	0.3405	0.1041	0.1041	0.4048	0.4048	0.1129	0.1129	0.2936	0.2936

Note: Marginal effects computed at means. Robust errors into parentheses. Estimates reported on columns (a) to (d) include year dummies. Significance levels: ^{c}10%, ^{b}5%, ^{a}1%. Intercept not reported. Froot (1989) correction for city-level cluster correlation.

Table 6: Second round, Incumbent party's probability of being reelected

Dep. Var	$P(INC2_{it} > Max(COMP2_{1it}, ..., COMP2_{nit})$					
	Full Sample		$Year$: 2001		$Year$: 2008	
	(a)	(b)	(c)	(d)	(e)	(f)
OPER	0.0760	0.0681	0.0869	0.0604	0.1131	0.1858
	(0.1395)	(0.1462)	(0.1210)	(0.1326)	(0.1618)	(0.1883)
STAFF	-0.2279	-0.2044	-0.1519	-0.0689	0.0316	-0.0520
	(0.1430)	(0.1454)	(0.1450)	(0.1620)	(0.1328)	(0.1550)
EQUIP	-0.0093	-0.0119	-0.0314	0.0300	-0.0315	-0.0744
	(0.0611)	(0.0632)	(0.0623)	(0.0674)	(0.0705)	(0.0719)
INCOME_GAP	-0.0315	-0.0664^{b}	0.0230	-0.0149	-0.0406	-0.0671^{c}
	(0.0286)	(0.0287)	(0.0417)	(0.0474)	(0.0428)	(0.0404)
UNEMP_GAP	-0.0031	-0.0048	-0.0061	-0.0034	-0.0227	-0.0171
	(0.0148)	(0.0162)	(0.0109)	(0.0120)	(0.0142)	(0.0163)
POP	0.1504^{b}	0.3041^{a}	0.0606	0.2028^{b}	0.1057	0.2042^{b}
	(0.0606)	(0.0652)	(0.0754)	(0.0795)	(0.0784)	(0.0878)
INC1	1.6611^{a}	2.1524^{a}	1.2959^{a}	1.8093^{a}	1.3364^{a}	1.7257^{a}
	(0.1692)	(0.2153)	(0.1729)	(0.2327)	(0.2257)	(0.2657)
PARL		-0.2206^{a}		-0.2024^{a}		-0.1526^{b}
		(0.0555)		(0.0690)		(0.0727)
NBCAND2		0.8496^{a}		0.8810^{a}		0.6003^{a}
		(0.1305)		(0.1447)		(0.1681)
PRESID		0.5835^{b}		0.6139^{b}		0.5431^{c}
		(0.2568)		(0.2717)		(0.3043)
DUR		0.1248		0.1833		-0.0211
		(0.1141)		(0.1564)		(0.1349)
DUR^2		-0.0189		-0.0232		0.0037
		(0.0226)		(0.0317)		(0.0245)
DROUND		0.1248^{c}		0.1363^{b}		-0.0046
		(0.0641)		(0.0671)		(0.0879)
MERG		0.1514		0.2123^{a}		-0.2349
		(0.0973)		(0.0627)		(0.1671)
Observations	502	493	304	303	258	250
Estimation	Probit		Probit		Probit	
Pseudo-R^2	0.1954	0.3413	0.2093	0.4341	0.1858	0.2860

Note: Marginal effects computed at means. Robust errors into parentheses. Estimates reported on columns (a) and (b) include department and year dummies. Significance levels: ^{c}10%, ^{b}5%, ^{a}1%. Intercept not reported. Froot (1989) correction for city-level cluster correlation.

Table 7: First round, Incumbent party's share of votes

Dep. Var	$INC1_{it}$		$D.INC1_{it}$		$INC1_{it}$			
	Full Sample		*Full Sample*		$Year$: 2001		$Year$: 2008	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
OPER	-4.3258^b	-3.0156^b	-3.4626	-0.2670	-3.7400	-2.5936	-6.5710^a	-3.6336^b
	(1.7920)	(1.3847)	(2.7101)	(2.1524)	(2.4755)	(1.7949)	(2.3402)	(1.8133)
STAFF	1.2994	3.8496^b	7.8994^b	5.0674	1.0699	3.0021	7.5297^a	6.8981^a
	(1.9906)	(1.6385)	(3.9401)	(3.3966)	(2.7811)	(2.0865)	(2.3707)	(1.9326)
EQUIP	3.1717^a	2.0973^a	2.5452^b	2.2054^b	2.0727^c	1.1040	2.8254^a	2.2054^b
	(0.8959)	(0.7101)	(1.1908)	(0.9607)	(1.2286)	(0.8969)	(1.0254)	(0.8660)
INCOME_GAP	-0.9433^c	-0.7152^c	-0.3807	-4.0383	-1.4886^c	-0.8186	-0.0767	-0.2697
	(0.4866)	(0.4218)	(4.9147)	(4.0069)	(0.8034)	(0.5220)	(0.6206)	(0.5169)
UNEMP_GAP	0.0762	0.1121	-0.3106	0.2577	0.1428	0.3804^b	-0.3965	-0.2882
	(0.2299)	(0.1825)	(0.6228)	(0.4802)	(0.2235)	(0.1585)	(0.2501)	(0.2005)
POP	-1.0117	6.0942^a	2.4919	1.7896	-0.1283	6.2981^a	-1.5386	5.5003^a
	(0.9606)	(0.8288)	(9.8610)	(10.1744)	(1.4349)	(1.0211)	(1.2495)	(1.1173)
INCPREC	0.5717^a	0.3052^a	-0.2455^a	-0.1038^c	0.5952^a	0.2630^a	0.6631^a	0.3971^a
	(0.0529)	(0.0482)	(0.0768)	(0.0612)	(0.0621)	(0.0545)	(0.0687)	(0.0622)
PARL		-3.4380^a		-2.8198^a		-1.6852^b		-5.5300^a
		(0.5643)		(0.5339)		(0.8237)		(0.8071)
NBCAND1		-22.4024^a		-20.1641^a		-22.8607^a		-20.2998^a
		(1.1665)		(1.2964)		(1.4809)		(1.5304)
PRESID		11.8652^a		3.9215		11.7078^a		13.9400^a
		(2.5986)		(3.9101)		(3.2813)		(2.7222)
DUR		-2.9591^a		-2.0174		-5.2023^a		-1.2434
		(1.0560)		(1.2385)		(1.7652)		(1.3555)
DUR^2		0.4522^b		0.0839		0.8922^b		0.1458
		(0.1971)		(0.2520)		(0.3676)		(0.2404)
DROUND		3.1832^a		0.4563		4.0136^a		2.5847^a
		(0.7720)		(0.9708)		(1.0277)		(0.9947)
Observations	1150	1127	575	553	575	574	575	553
Estimation	OLS	OLS	First Diff.	First Diff.	OLS	OLS	OLS	OLS
R^2	0.2953	0.5892	0.0484	0.4188	0.1769	0.5460	0.2479	0.5521

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

Table 8: Second round, Incumbent party's share of votes

Dep. Var	$INC2_{it}$		$D.INC2_{it}$		$INC2_{it}$			
	Full Sample		*Full Sample*		$Year$: 2001		$Year$: 2008	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
OPER	0.8004	0.0702	2.1889	0.7301	2.7139^{c}	1.5628	-0.0394	-0.6280
	(1.3297)	(1.2084)	(7.3218)	(2.7008)	(1.5184)	(1.3843)	(1.9561)	(1.7893)
STAFF	-0.0566	0.9309	4.5114	3.7077	-1.3646	1.1128	1.3065	1.7958
	(1.5292)	(1.2556)	(9.6660)	(3.1489)	(1.9626)	(1.7596)	(1.4586)	(1.5669)
EQUIP	1.0175	0.6885	4.0272	1.5996	1.2185	0.4995	0.1816	0.1729
	(0.6623)	(0.5296)	(3.0205)	(1.0142)	(0.8426)	(0.7052)	(0.6179)	(0.6287)
INCOME_GAP	-0.5743	-0.5473	23.6031^{c}	-7.9556^{c}	-0.0025	-0.2768	-0.4590	-0.3933
	(0.4073)	(0.3640)	(13.2372)	(4.3944)	(0.4064)	(0.3352)	(0.4112)	(0.3798)
UNEMP_GAP	0.0451	0.1324	2.4723^{c}	-0.3319	0.0504	0.1131	0.0201	-0.0647
	(0.1463)	(0.1392)	(1.4279)	(0.4626)	(0.1394)	(0.1134)	(0.1569)	(0.1609)
POP	2.6582^{a}	2.2011^{a}	-42.6648	14.7505	1.8588^{b}	1.8142^{a}	2.2474^{b}	1.7746^{c}
	(0.8027)	(0.7367)	(27.1968)	(11.4027)	(0.7766)	(0.6772)	(0.9655)	(0.9440)
INC1	0.8205^{a}	0.7363^{a}	-0.5415^{a}	0.7700^{a}	0.8108^{a}	0.7325^{a}	0.8418^{a}	0.7495^{a}
	(0.0438)	(0.0470)	(0.1129)	(0.0630)	(0.0530)	(0.0504)	(0.0538)	(0.0688)
PARL		-2.2521^{a}		-1.5265^{b}		-2.4511^{a}		-2.2925^{b}
		(0.5354)		(0.6350)		(0.6120)		(0.9037)
NBCAND2		-11.8168^{a}		-8.8419^{a}		-10.5811^{a}		-10.6771^{a}
		(2.1047)		(1.9796)		(1.2132)		(3.3599)
PRESID		2.1222		-6.3356^{c}		1.5445		5.9263
		(2.7036)		(3.5986)		(2.2705)		(4.7651)
DUR		-0.6760		-0.3560		-0.5790		-1.7680
		(0.9768)		(1.4739)		(1.3943)		(1.2609)
DUR^2		0.1469		0.1580		0.2125		0.2881
		(0.1938)		(0.2918)		(0.2885)		(0.2315)
DROUND		-0.2992		-1.5582		-0.4182		-0.2829
		(0.7276)		(1.3590)		(0.6987)		(1.1573)
Observations	562	553	258	178	304	303	258	250
Estimation	OLS	OLS	First Diff.	First Diff.	OLS	OLS	OLS	OLS
Pseudo-R^2	0.6124	0.7101	0.1070	0.6597	0.5628	0.6765	0.5310	0.6248

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

Table 9: Robustness 1a: First round, Incumbent party's probability of being defeated ($P(Y=1)$) or reelected ($P(Y=2)$)

Dep. Var.	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$	$P(Y=1)$	$P(Y=2)$
		More than 10,000 inhab.				*Less than 30,000 inhab.*				*More than 30,000 inhab.*		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
OPER	0.0197	-0.1778^{b}	0.0290	-0.1933^{b}	0.0015	-0.2222^{a}	0.0154	-0.2007^{b}	0.0388^{c}	-0.0763	0.0001	-0.1086
	(0.0212)	(0.0703)	(0.0221)	(0.0810)	(0.0309)	(0.0858)	(0.0346)	(0.0998)	(0.0215)	(0.1213)	(0.0002)	(0.1403)
STAFF	-0.0292	0.0782	-0.0206	0.1961^{b}	-0.0313	0.1073	-0.0318	0.1918^{c}	-0.0166	0.0691	-0.0000	0.2328^{c}
	(0.0232)	(0.0778)	(0.0223)	(0.0857)	(0.0350)	(0.0933)	(0.0355)	(0.1075)	(0.0137)	(0.1349)	(0.0001)	(0.1408)
EQUIP	-0.0130	0.0815^{b}	-0.0188	0.0617	-0.0024	0.0952^{b}	-0.0076	0.1157^{b}	-0.0188^{c}	0.0356	-0.0000	-0.0365
	(0.0112)	(0.0362)	(0.0118)	(0.0415)	(0.0172)	(0.0430)	(0.0208)	(0.0509)	(0.0103)	(0.0655)	(0.0001)	(0.0714)
INCOME_GAP	-0.0199	-0.0381	-0.0088	-0.0395	-0.0648	-0.1660	0.0161	-0.0850	-0.0219^{b}	0.0041	-0.0000	-0.0340
	(0.0196)	(0.0348)	(0.0175)	(0.0365)	(0.0732)	(0.1516)	(0.0795)	(0.1688)	(0.0093)	(0.0425)	(0.0002)	(0.0445)
UNEMP_GAP	0.0015	-0.0109	0.0030	0.0003	0.0016	-0.0116	0.0051	-0.0030	-0.0004	-0.0120	0.0000	0.0004
	(0.0020)	(0.0079)	(0.0021)	(0.0084)	(0.0033)	(0.0106)	(0.0041)	(0.0114)	(0.0015)	(0.0134)	(0.0000)	(0.0150)
POP	-0.0046	-0.0008	0.0024	0.2884^{a}	0.0242	0.0538	-0.0161	0.3258^{a}	0.0313^{c}	-0.1658	0.0001	0.1886
	(0.0206)	(0.0507)	(0.0196)	(0.0580)	(0.0402)	(0.0947)	(0.0460)	(0.1133)	(0.0189)	(0.1060)	(0.0004)	(0.1154)
INCPREC	-0.0477^{b}	1.1089^{a}	-0.0834^{b}	0.6835^{a}	-0.0726^{b}	1.0787^{a}	-0.1272^{b}	0.6999^{a}	-0.0046	1.0666^{a}	-0.0000	0.6317^{a}
	(0.0234)	(0.1659)	(0.0355)	(0.1605)	(0.0357)	(0.2043)	(0.0583)	(0.2137)	(0.0197)	(0.1825)	(0.0002)	(0.2091)
PARL			0.0114	-0.1713^{a}			0.0024	-0.1206^{a}			0.0003	-0.2170^{a}
			(0.0098)	(0.0352)			(0.0163)	(0.0441)			(0.0008)	(0.0566)
NBCAND1			-0.0779^{a}	-0.9674^{a}			-0.0846^{b}	-1.0670^{a}			-0.0001	-0.7957^{a}
			(0.0217)	(0.0666)			(0.0352)	(0.0867)			(0.0003)	(0.1027)
PRESID			-0.1077^{a}	0.6494^{a}			-0.1659^{b}	0.6296^{a}			-0.0000	0.5991^{a}
			(0.0405)	(0.1432)			(0.0667)	(0.1827)			(0.0002)	(0.2319)
DUR			-0.0048	-0.2060^{a}			0.0190	-0.1987^{b}			-0.0000	-0.1788^{c}
			(0.0165)	(0.0684)			(0.0307)	(0.0884)			(0.0001)	(0.1027)
DUR^2			0.0002	0.0347^{a}			-0.0065	0.0341^{b}			0.0000	0.0297
			(0.0031)	(0.0130)			(0.0060)	(0.0171)			(0.0000)	(0.0191)
DROUND			0.0093	0.1999^{a}			0.0163	0.1594^{a}			-0.0000	0.2596^{a}
			(0.0115)	(0.0453)			(0.0187)	(0.0583)			(0.0000)	(0.0712)
Observations	1130	1130	1126	1126	750	750	727	727	422	422	422	422
Estimation		Multinomial Probit				Multinomial Probit				Multinomial Probit		
Pseudo-R^2	0.1043	0.1043	0.3048	0.3048	0.1043	0.1043	0.3298	0.3298	0.0969	0.0969	0.3094	0.3094

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

Table 10: Robustness 1b: Second round, Incumbent party's probability of being reelected

Dep. Var	$P(INC2_{it} > Max(COMP2_{1it}, ..., COMP2_{nit})$					
	More than 10,000 inhab.		*Less than 30,000 inhab.*		*More than 30,000 inhab.*	
	(a)	(b)	(c)	(d)	(e)	(f)
OPER	0.1243	0.1078	0.1770	0.1391	0.0204	0.1431
	(0.0950)	(0.1014)	(0.1285)	(0.1354)	(0.1425)	(0.1451)
STAFF	-0.0905	-0.0626	-0.1596	-0.0718	-0.0310	-0.1641
	(0.0955)	(0.1005)	(0.1295)	(0.1404)	(0.1543)	(0.1538)
EQUIP	-0.0581	-0.0178	0.0216	0.0570	-0.1178^{c}	-0.0470
	(0.0464)	(0.0480)	(0.0583)	(0.0660)	(0.0668)	(0.0654)
INCOME_GAP	-0.0176	-0.0387	0.3710^{c}	0.1487	0.0178	0.0004
	(0.0293)	(0.0243)	(0.1957)	(0.2310)	(0.0410)	(0.0332)
UNEMP_GAP	-0.0137	-0.0097	-0.0099	-0.0137	0.0028	0.0111
	(0.0085)	(0.0092)	(0.0133)	(0.0153)	(0.0146)	(0.0144)
POP	0.1035^{c}	0.1990^{a}	-0.0700	0.1614	-0.0243	0.0640
	(0.0582)	(0.0574)	(0.1325)	(0.1543)	(0.1214)	(0.1122)
INC1	1.2534^{a}	1.7062^{a}	1.3897^{a}	1.8396^{a}	1.1197^{a}	1.5320^{a}
	(0.1336)	(0.1697)	(0.1983)	(0.2446)	(0.1846)	(0.2153)
PARL		-0.1809^{a}		-0.1957^{a}		-0.1735^{a}
		(0.0454)		(0.0680)		(0.0562)
NBCAND2		0.7249^{a}		0.6944^{a}		0.7097^{a}
		(0.1102)		(0.1511)		(0.1535)
PRESID		0.5769^{a}		0.6139^{b}		0.4593
		(0.1936)		(0.2739)		(0.2839)
DUR		0.1097		0.1418		0.0624
		(0.0944)		(0.1344)		(0.1263)
DUR^2		-0.0164		-0.0246		-0.0025
		(0.0180)		(0.0258)		(0.0236)
DROUND		0.0761		0.0863		0.1100^{c}
		(0.0519)		(0.0690)		(0.0651)
MERG		0.1417^{c}		-0.0258		0.2022^{a}
		(0.0833)		(0.1538)		(0.0367)
Observations	559	555	333	324	238	238
Estimation	Probit		Probit		Probit	
Pseudo-R^2	0.1838	0.3355	0.2174	0.3417	0.1643	0.3693

Note: Marginal effects computed at means. Robust errors into parentheses. Estimates include department and year dummies. Significance levels: ^{c}10%, ^{b}5%, ^{a}1%. Intercept not reported. Froot (1989) correction for city-level cluster correlation.

Table 11: Robustness 2a: First round, Incumbent party's share of votes

Dep. Var	$INC1_{it}$		$INC1_{it}$		$INC1_{it}$	
	More than 10,000 inhab.		*Less than 30,000 inhab.*		*More than 30,000 inhab.*	
	(a)	(b)	(c)	(d)	(e)	(f)
OPER	-4.2346^a	-3.3972^a	-4.6656^b	-2.8799^b	-2.5542	-3.1157
	(1.5980)	(1.2218)	(1.9665)	(1.4537)	(2.5702)	(2.0090)
STAFF	3.4339^c	5.7379^a	2.4745	5.2417^a	3.1547	5.9777^b
	(1.8238)	(1.4539)	(2.0279)	(1.6017)	(3.3834)	(2.7061)
EQUIP	2.5899^a	1.8584^a	2.9327^a	2.5444^a	1.1664	0.3065
	(0.8164)	(0.6436)	(1.0202)	(0.7677)	(1.0943)	(0.8711)
INCOME_GAP	-0.7315	-0.4846	-3.1773	0.4912	0.3438	-0.3824
	(0.5254)	(0.3974)	(3.1320)	(2.6519)	(0.6212)	(0.5307)
UNEMP_GAP	-0.1015	0.1691	-0.0991	0.0931	-0.1015	0.1482
	(0.1794)	(0.1330)	(0.2632)	(0.1814)	(0.2459)	(0.2174)
POP	-0.6861	5.8274^a	0.6763	5.2145^a	-4.3630^b	3.0981^c
	(0.9959)	(0.7873)	(2.1694)	(1.9009)	(1.9014)	(1.7104)
INCPREC	0.6497^a	0.3472^a	0.6470^a	0.3339^a	0.5481^a	0.3299^a
	(0.0493)	(0.0434)	(0.0638)	(0.0556)	(0.0656)	(0.0539)
PARL		-3.6731^a		-2.9533^a		-4.4387^a
		(0.5351)		(0.7152)		(0.7754)
NBCAND1		-21.7287^a		-25.9633^a		-14.2058^a
		(1.0892)		(1.3571)		(1.2797)
PRESID		13.4991^a		14.2952^a		11.6583^a
		(2.2913)		(2.9219)		(3.6340)
DUR		-3.1089^a		-2.6561^b		-2.7211^c
		(1.0064)		(1.3065)		(1.3889)
DUR^2		0.4973^a		0.4448^c		0.3837
		(0.1876)		(0.2452)		(0.2570)
DROUND		3.0279^a		1.9220^b		4.9649^a
		(0.7327)		(0.9603)		(1.0188)
Observations	1130	1126	750	727	422	422
Estimation	OLS	OLS	OLS	OLS	OLS	OLS
R^2	0.2107	0.5348	0.2056	0.5804	0.1937	0.4608

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

Table 12: Robustness 2b: Second round, Incumbent party's share of votes

Dep. Var	$INC2_{it}$		$INC2_{it}$		$INC2_{it}$	
	More than 10,000 inhab.		*Less than 30,000 inhab.*		*More than 30,000 inhab.*	
	(a)	(b)	(c)	(d)	(e)	(f)
OPER	1.3634	0.5563	2.1642	1.9233	2.0281	0.2703
	(1.1487)	(1.0157)	(1.5344)	(1.3178)	(1.7959)	(1.7579)
STAFF	0.5236	1.9370^{c}	-1.0280	0.1928	0.4232	1.6581
	(1.1343)	(1.0812)	(1.4045)	(1.2380)	(2.1625)	(2.1906)
EQUIP	0.5838	0.1345	1.5585^{b}	0.7913	-1.0331^{c}	-0.9334
	(0.5677)	(0.4569)	(0.7001)	(0.6201)	(0.5946)	(0.7142)
INCOME_GAP	-0.2107	-0.3001	2.5233	2.0991	-0.4763	-0.5343
	(0.3383)	(0.3018)	(2.1446)	(1.8642)	(0.5718)	(0.5270)
UNEMP_GAP	0.0075	0.0296	0.1118	0.1082	-0.0381	0.0090
	(0.1016)	(0.0881)	(0.1268)	(0.1123)	(0.1980)	(0.1820)
POP	2.0828^{a}	1.8363^{a}	1.2177	1.1445	3.4041^{c}	2.7958^{c}
	(0.6963)	(0.6544)	(1.5649)	(1.5554)	(1.8011)	(1.6326)
INC1	0.8188^{a}	0.7320^{a}	0.8200^{a}	0.7654^{a}	0.8053^{a}	0.6724^{a}
	(0.0390)	(0.0418)	(0.0485)	(0.0497)	(0.0638)	(0.0728)
PARL		-2.2805^{a}		-2.1609^{a}		-2.5661^{a}
		(0.4988)		(0.5907)		(0.8500)
NBCAND2		-10.5354^{a}		-9.0495^{a}		-12.2700^{a}
		(1.6209)		(1.2704)		(3.2508)
PRESID		3.8804^{c}		1.1743		6.6982
		(2.2844)		(1.9440)		(5.0276)
DUR		-1.3331		-0.5925		-1.2314
		(0.9492)		(1.2257)		(1.5498)
DUR^2		0.2721		0.1628		0.2358
		(0.1834)		(0.2416)		(0.3008)
DROUND		-0.1567		-0.3467		-0.0892
		(0.6793)		(0.6715)		(1.2732)
Observations	559	555	333	324	238	238
Estimations	OLS	OLS	OLS	OLS	OLS	OLS
R^2	0.5438	0.6428	0.5915	0.6721	0.4606	0.5908

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

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