REGIONAL STUDIES, 2017
VOL. 51, NO. 4, 575–585
http://dx.doi.org/10.1080/00343404.2015.1118029

Routledge
Taylor & Francis Group

Regional Studies Association

Do closeness and stake increase voter turnout? Evidence from election results in small French towns in Brittany

Eric Dubois[a] and Matthieu Leprince[b]

ABSTRACT

Do closeness and stake increase voter turnout? Evidence from election results in small French towns in Brittany. *Regional Studies*. This article explores the determinants of second-round voter turnout in small French towns with a focus on two hypotheses. First, an increase in the closeness of the race may lead to an increase in turnout. Second, a higher seats stake, that is, a higher proportion of the total number of seats that remain to be filled in the second round of the election, may increase turnout. Results show that increases in both closeness and seats stake lead to higher voter turnout. Thus, evidence is given in favour of the assumption of rationality in voting in local elections.

KEYWORDS

turnout; local elections; closeness; seats stake; France; municipalities

摘要

亲近性与关键席次比率会增加投票率吗？来自法国布列塔尼小镇的选举结果之证据. *区域研究*。本文探讨法国小镇第二轮选举的投票率之决定因素，并聚焦两项假说。首先，种族亲近性的增加，或许会导致投票率的增加。再者，较高的关键席次比率，亦即在第二轮选举中，总席次中有较高的比例须被填补，亦有可能增加投票率。研究结果显示，亲近性与关键席次比例的增加，皆导致了较高的投票率，因此有证据支持地方选举投票的合理性之预设。

关键词

投票率; 地方选举; 亲近性; 关键席次比例; 法国; 行政区

RÉSUMÉ

Le caractère serré et l'enjeu augmentent-ils la participation électorale? Des preuves provenant des résultats électoraux dans les communes de petite taille en Bretagne. *Regional Studies*. Cet article examine les déterminants de la participation électorale au second tour dans des communes françaises de petite taille en se concentrant sur deux hypothèses. Premièrement, une compétition plus serrée pourrait entraîner une participation plus forte. Deuxièmement, un enjeu plus élevé en termes de sièges, c'est-à-dire une proportion de sièges restant à pourvoir au second tour plus élevée, pourrait conduire à une participation plus forte. Les résultats montrent qu'à la fois le caractère serré et l'enjeu en termes de sièges entraînent une participation électorale plus élevée, confortant l'hypothèse de rationalité dans le vote lors des élections locales.

MOTS-CLÉS

participation; élections locales; caractère serré; enjeu en termes de sièges; France; communes

ZUSAMMENFASSUNG

Erhöht sich die Wahlbeteiligung bei einem knappen Rennen und einer hohen Sitzquote? Belege von den Wahlergebnissen in französischen Kleinstädten der Bretagne. *Regional Studies*. In diesem Beitrag untersuchen wir die Determinanten der Wahlbeteiligung in der zweiten Runde in französischen Kleinstädten unter besonderer Berücksichtigung von zwei Hypothesen. Erstens, dass sich die Wahlbeteiligung bei einem knapperen Rennen erhöht. Zweitens, dass sich die

CONTACT

[a] eric.dubois@univ-paris1.fr
Maison des Sciences Economiques, CES-Université de Paris 1, Paris, France.
[b] **(Corresponding author)** matthieu.leprince@univ-rennes1.fr
Faculté des sciences économiques de Rennes, CREM-Université de Rennes 1, Rennes, France.

Wahlbeteiligung erhöht, wenn in der zweiten Wahlrunde die Sitzquote höher ausfällt, also ein höherer Anteil an der Gesamtanzahl von Sitzen noch besetzt werden muss. Aus den Ergebnissen geht hervor, dass sowohl ein knappes Rennen als auch eine hohe Sitzquote zu einer höheren Wahlbeteiligung führen. Dies dient als Beleg für die Anname von Rationalität beim Wahlverhalten in Kommunalwahlen.

SCHLÜSSELWÖRTER
wahlbeteiligung; kommunalwahlen; knappheit; sitzquote; Frankreich; gemeinden

RESUMEN
¿Aumenta la participación electoral en elecciones reñidas y con una mayor competición por los escaños? Evidencia de los resultados de elecciones en pequeñas ciudades francesas de Bretaña. *Regional Studies*. En este artículo analizamos los determinantes de la participación electoral en la segunda vuelta en pequeñas ciudades francesas centrándonos en dos hipótesis. Primero, la participación aumenta en elecciones reñidas. Segundo, la participación aumenta con una mayor competición por los escaños, es decir, un mayor porcentaje del número total de escaños que se han de cubrir en la segunda vuelta de las elecciones. Los resultados indican que tanto un estrecho margen como la competición por los escaños llevan a una mayor participación electoral. Esto nos da evidencia a favor de la suposición de la racionalidad en la votación de elecciones locales.

PALABRAS CLAVES
participación; elecciones locales; elecciones reñidas; competición por los escaños; Francia; municipios

JEL D72
HISTORY Received November 2012; in revised form September 2015

INTRODUCTION

Spatial variation in voter turnout between constituencies is a central concern for the political science and economics literature (Geys, 2006), and studies on electoral participation usually rest on a basic model provided by the rational or 'instrumental' choice theory of voting (Downs, 1957; Tullock, 1968; Riker & Ordeshook, 1968), according to which to decide to turnout or to abstain voters balance the benefits of voting (weighted by the probability to be decisive) and its costs. This article focuses on two potential factors – closeness and seats stake – of a voter's benefit to participate in municipal elections by exploiting the electoral framework provided by the French municipalities of fewer than 3500 inhabitants.

The first focus of this article is on election closeness as a possible factor of voter participation. Whether and how election closeness impacts voter turnout has been hotly debated ever since the seminal work of Downs (1957) and his assumption that people vote to influence the election outcome. A prediction that follows is that the closer the election is expected to be, the higher the probability of a voter influencing the outcome and thus the higher the participation. More specifically, the use of closeness to explain turnout rests on two hypotheses. First, according to the 'decision hypothesis', an expectedly close ballot makes each vote more decisive and thus can bring people to the polls. Second, according to the 'mobilization hypothesis', an expectedly close ballot can drive candidates to mobilize voters more intensively.

Local election data have been increasingly used in recent years to study participation factors. This is the case in France where the fragmented structure of local government has been recently exploited. Eggers (2015) demonstrated the positive effect on turnout of the proportional rule used in larger (more than 3500 inhabitants) French municipalities compared with the majority rule used in smaller municipalities. However, although closeness is a key parameter in Eggers (2015) because the proportional rule especially increases turnout in less closely contested elections, the impact of closeness on turnout is not in itself studied. Fauvelle-Aymar and François (2015) provided clear-cut evidence on the positive effect of a concurrent election on turnout in a single-member cantonal election. Using a sample of more than 3500 inhabitants' municipalities, Cassette, Farvaque, and Héricourt (2013) show that higher spending in equipment and staff, and a higher incumbent's margin in the first round, increases the incumbent party's vote-share in the second-round election. Turnout itself was ignored, however. Therefore, it can be concluded that the impact of closeness on turnout has been studied in France for only national (legislative or presidential) elections, with supportive evidence given by Fauvelle-Aymar and François (2006) and Indridason (2008), while failing to address the issue in municipal elections.

This article uses the French municipal election context and fills in this lack of evidence on the impact of closeness on local election participation since both the 'decision hypothesis' and the 'mobilization hypothesis' have a high potential interest when focusing on elections in small (i.e., fewer than 3500 inhabitants) French municipalities.

First, voters may be more interested in going to the polls because the voting population is small and the perception of closeness might be more compelling, leading to a significant effect of closeness on participation. This is especially the case since election competitiveness is much more 'local' in nature than in larger municipalities (or in legislative election) and not subject to potential bias since lists and candidates usually do not have any partisan affiliation in small municipalities. Thus, the 'decision hypothesis'

can be tested with more confidence (Cassette et al., 2013, have evidence on the effect of national politics on elections in large municipalities).

Second, owing to interpersonal relationships that are more common in smaller municipalities, voters and candidates may know each other: both accountability and effectiveness in mobilization efforts should thus be high in the small-town sample of this study, leading to a significant and potentially more robust effect of closeness on turnout, as suggested by the instrumental voting theory. More specifically, this article exploits one key property of the electoral rule in municipalities of fewer than 3500 inhabitants: both lists as a whole and candidates in each list have incentives to mobilize because voters can express candidate-level preferences and, if necessary, choose candidates from different lists at each round of the election. This gives an opportunity to refine the test of the impact of closeness on turnout using two sorts of closeness indicators in the same election context: indicators at the list level, which remains the most frequent tool to analyze the degree of competition in an election race, and indicators at the candidate level, competition occurring also between individual candidates, even possibly with a unique list in the race.

Lastly, empirical evidence on the impact of closeness on turnout in local elections is still needed since the view that a closer election increases turnout has been strongly challenged by Ashworth, Geys, and Heyndel (2006), who demonstrate that voters like 'winners'. Therefore, even if the ballot is not expected to be close, people participate, and the more one party dominates, the more people participate. They call this effect an 'identification effect' and find empirical support for the argument with Belgian one-round local election data. Although this article is a major challenge for the standard point of view that closeness has a positive effect on turnout, it seems that local election data have not been used to re-examine the issue. All in all, more evidence is therefore needed to provide a renewed empirical test of the impact of closeness on turnout using the local election context, and this article does this by exploiting the specificities of the electoral rule in small French municipalities.

The second focus of this article is on the second-round election stake, analyzed in terms of seats to be filled. It provides an empirical test of the hypothesis that a potential driver of voter participation in the second-round election is the seats stake, defined as the share of the total number of seats to be allocated between candidates. To do this, this article again takes advantage of the nature of the electoral rule used in small French municipalities: it is a two-round and *open-list* rule that allows great variability in the number of seats to be filled in the second round, depending on the number of seats filled in the first round. The hypothesis is the following. First, the higher the seats stake, the higher the incentive for voters to turnout because they can choose a higher number of people among the individual candidates. Second, this instrumental motivation effect may be reinforced by an increased mobilization, with a higher seats stake leading to higher efforts by local elites to attract votes.[1]

Whereas closeness is hotly debated in general, although with less attention in the context of small and very small municipalities, Andersen, Fiva, and Natvik (2014) note that 'little evidence on the effect of election stakes on electoral participation exists' (p. 157). Some evidence, however, is noticeable. Carlin and Love (2013) give international evidence that a higher number of veto players leads to less frequent changes of the status quo in policy-making and thus less voter turnout. Andersen et al. (2014) provide strong evidence in Norway that election stake in terms of local government fiscal capacity has a significant and positive effect on turnout. Michelsen, Boenisch, and Geys (2014) show that election stake can also be defined in terms of the institutional design of local public provision, voters in federal municipalities perceiving a larger net benefit of voting than in centralized municipalities in Germany, leading to a higher electoral turnout in federal than in centralized municipalities.

In the French local election context, recent studies focusing on election stakes and their impact on turnout in municipalities with fewer than 3500 inhabitants are scarce. Eggers (2015) focuses on the effects of the number of competing lists on turnout, but what is at stake in the French local election remains out of scrutiny. Nevers (1992) shows that in small municipalities where the mayor retires and electing a new leader is at stake, the turnout rate is higher. However, both Eggers (2015) and Nevers (1992) focus on first-round turnout in French municipal elections where by definition the entire set of seats is at stake for the different competing lists and where this set varies with the municipal population, but not across municipalities of the same population.

All in all, the major empirical strategy in this article is to take advantage of the specific property of the electoral rule used in small French municipalities: it is a two-round open-list rule that allows one to test the two central hypotheses that a higher election closeness and a higher share of seats at stake in the second round are significant factors of increasing participation in the second-round election.

The article is organized as follows. The second section presents the voting system used to elect municipal councils in France. The third section presents the data and the empirical model. The fourth section reports and discusses the estimation results. The fifth section provides some robustness checks. The sixth section concludes.

THE ELECTORAL SYSTEM IN MUNICIPAL FRENCH ELECTIONS

The municipality (*commune*) is the lowest tier of the French administrative hierarchy. Members of municipal councils, the decision-making body of the *commune*, are elected by direct universal suffrage for a renewable six-year term.[2] The number of elected councillors varies from nine for the smallest *communes* up to 69 for those with more than 300,000 inhabitants (with special conditions governing Paris, Lyon and Marseille, the three biggest cities in

France). The method of voting used in municipal elections varies according to the size of the municipal population.

Councillors in the 'small' *communes* with fewer than 3500 inhabitants have been elected since 1884 according to a two-ballot multi-member open-list majority rule system (see Eggers, 2015, for the closed-list system used in larger municipalities). Voters are given ballot papers with lists of candidates. They can vote for candidates from a single list or from different lists (*panachage*) and thus each individual candidate's vote is counted. In the first round, an absolute majority is required for an individual candidate to be elected, plus the support of one-quarter of the registered voters. Therefore, for a total number n of seats to be filled, from zero up to $(n-1)$ seats might be filled in the first round, but a second voting round is still necessary. In the second round, the top-scoring candidates are elected.

To clarify, here is an example extracted from the database. Cohiniac is a city with fewer than 2500 inhabitants. There are 11 seats to fill and two lists compete with one independent candidate. As allowed by the voting system, the second list (B) is not complete (nine candidates for 11 seats).

As can be seen in column 3 of Table 1, the total number of votes cast in the first round (2688) is much larger than the number of voters (269). This is the result of the open-list voting system in which each voter has as many votes as there are seats to be allocated. Nine candidates (seven from list A and two from list B) receive more than 50% of the vote in the first round and are therefore elected. The seats stake in the second round is thus of 18.18% (2:11) because the two remaining seats are filled in the second round.

DATA AND MODEL

The original dataset used here reports information on first- and second-round election results for the entire set of the 1270 municipalities of Brittany, one of the 22 administrative *régions* in the West part of metropolitan France. Among them, 15 are removed because of missing data and 522 of the 1255 remaining municipalities experienced a second-round ballot in the 2008 election. This article focuses on the 460 municipalities with fewer than 3500 inhabitants and exploits voting results obtained by 11,121 individual candidates.

The empirical model to be estimated is as follows:

$$TURNOUT_i = \alpha + \beta \times CLOSENESS_i + \sigma \times STAKE_i + \lambda \times Z_i + \varepsilon_i \qquad (2)$$

with $i = 1$–460 municipalities.

The dependent variable (*TURNOUT*) used here is the number of votes cast for the number of registered voters expressed as a percentage rate. A debate among scholars still exists regarding the choice of denominator. Some prefer to use the voting-age population (among others, Hoffmann-Martinot, 1992), but this article uses the number of registered voters instead because the size of the population is also an explanatory variable of the model and, anyway, these two variables are highly correlated (0.99).

The first explanatory variable of interest is closeness. Its most widely used indicator (*RELATIVE CLOSENESS*) is the difference in the vote-shares obtained by the two top-scoring candidates and a negative impact on turnout is expected: the smaller the difference, the higher the closeness, and thus the higher the turnout will be.

Up to now in the literature, indicators of closeness such as *RELATIVE CLOSENESS* have been built from electoral results using the vote-shares obtained by candidates or by lists. As explained in the second section, an open-list multi-member voting system is used in France in the municipalities of fewer than 3500 inhabitants. The contesting lists do not receive an overall vote-share each and there are as many vote-shares as there are candidates in each list. However, as municipal races are mainly interpreted in terms of the number of seats won by the competing lists, closeness indicators have to rely primarily on seats.[3] Therefore, the number of candidates elected in the first election round has to be calculated for each list and this will give the number of seats obtained by each list. Then a ranking of each list has to be done according to its number of first-round seats and the calculation of the closeness indicator follows. The *RELATIVE CLOSENESS* variable used in the empirical model is thus the difference in the share of seats obtained in the first round by the list ranked first (S1) and the share of seats obtained in the first round by the list ranked second (S2).[4]

This article also explores the impact on turnout of the seats stake of the election, defined as the share of seats that remain to be filled in the second-round election. This variable is denoted by *SEATS STAKE*. Indeed, for a given population size and a given closeness of the race, the turnout is expected to be higher when there are many seats still to be filled in the second round among the total number of seats to allocate in the election.[5] Thus, the expected sign of *SEATS STAKE* is positive.

It seems that this original variable has never been examined in the literature. This is probably owing to the properties of the multi-member open list and two-round voting system used in the 'small' municipalities the studied here. Indeed, in the single-round voting system frequently used in many countries (for example, see the Belgian case in Ashworth et al., 2006), as well as in the multi-member closed-list two-round voting system used in the French municipalities with more than 3500 inhabitants (which are excluded from the sample), the stake in terms of seats to be filled is the same for all the municipalities (100%) at both the first and second election rounds.

To estimate accurately the impact of the closeness and stake variables on turnout, the article controls for different variables that may influence turnout beside closeness and stake (see vector Z in the estimated equation). First, the lagged dependent variable is usually used to take into account habits in turnout (Geys, 2006), or to be a proxy of different sociological characteristics of the electorate, or to avoid multicollinearity among possible explanatory variables such as, for example, occupation, income and

Table 1. Example: the city of Cohiniac.

Round		First round			Second round		
Registered number of voters		318			318		
Number of cast votes		277			260		
Number of expressed votes		269			256		
List/IC (independent candidates)	Candidates	Number of votes	Vote as a % of expressed voters	Seats	Number of votes	Vote as a % of expressed voters	Seats
A	1	181	67.28	1	Cannot compete	Cannot compete	Cannot compete
A	2	169	62.82	1	Cannot compete	Cannot compete	Cannot compete
A	3	152	56.50	1	Cannot compete	Cannot compete	Cannot compete
A	4	147	54.64	1	Cannot compete	Cannot compete	Cannot compete
A	5	145	53.90	1	Cannot compete	Cannot compete	Cannot compete
A	6	144	53.53	1	Cannot compete	Cannot compete	Cannot compete
A	7	138	51.30	1	Cannot compete	Cannot compete	Cannot compete
A	8	126	46.84	0	115	44.92	0
A	9	126	46.84	0	Does not compete	Does not compete	Does not compete
A	10	124	46.09	0	114	44.53	0
A	11	120	44.60	0	Does not compete	Does not compete	Does not compete
B	1	165	61.33	1	Cannot compete	Cannot compete	Cannot compete
B	2	143	53.15	1	Cannot compete	Cannot compete	Cannot compete
B	3	133	49.44	0	141	55.08	1
B	4	120	44.60	0	134	52.34	1
B	5	119	44.23	0	Does not compete	Does not compete	Does not compete
B	6	108	40.14	0	Does not compete	Does not compete	Does not compete
B	7	105	39.03	0	Does not compete	Does not compete	Does not compete
B	8	100	37.17	0	Does not compete	Does not compete	Does not compete
B	9	99	36.80	0	Does not compete	Does not compete	Does not compete
IC	1	24	8.92	0	Does not compete	Does not compete	Does not compete

level of education. One potential problem with measuring this variable of previous turnout is that 176 of the 460 municipalities with a second round in March 2008 had not experienced a second round in the previous election of March 2001. It is thus assumed for the whole sample that the turnout rate in the *first* round in 2001 will be the lagged dependent variable. It is labelled *TURNOUT1_2001*, and a positive sign for this variable is expected.

Second, the population is often used as an explanatory variable of turnout with different motivations. First, it is linked to the 'social pressure' hypothesis according to which it is not acceptable to abstain in small municipalities since everyone knows each other (Panagopoulos, 2011). Second, using the population variable allows the model to take into account that in small municipalities the small number of voters increases their probability of casting a decisive vote (Lancelot, 1968; Nevers, 1992). Finally, the population variable is a proxy for the rural or urban characteristics of the municipalities. The database used in this article reports the municipal population in 2006. Given the considerable inter-municipal variation in the population size, which ranges from 91 to 3422 in the sample, the linear relationship usually specified has been relaxed and the natural log of the population is used. This variable will be denoted by *POPULATION*, and the expected sign for the population variable coefficient is negative. Note that empirical evidence available in French studies is mixed: the estimated coefficient is negative in Becquart-Leclercq (1976), positive in Fauvelle-Aymar and François (2006), and not significant in Nevers (1992).

A third control variable is the growth rate of the number of unemployed people between December 2006 and December 2007 (the variable denoted by *UNEMPLOYMENT*): this short-term (one year) perspective is compatible with the voters' short memory emphasized by the economic voting literature. The expected sign of this economic variable is undetermined since it may have two opposite effects on turnout: (1) some voters who supported the incumbent during the previous election and who are disappointed by the economic situation may abstain; and (2) the economic situation can bring to the polls some people who abstained during the previous election. Dubois and Ben Lakhdar (2007) and others find an effect of the economy on turnout, whereas Blais (2000, ch. 1) and others do not.

Fourth, in municipalities with fewer than 3500 inhabitants, there are different ballot rules depending on the population size. In municipalities with more than 2500 inhabitants, and contrary to what is possible in smaller municipalities, lists must gather as many candidates as there are seats to be filled and independent candidates (i.e., those who do not belong to a list) are not allowed. To investigate the impact of these differences on turnout, a variable able to describe how candidates really use the rules is built. This *de facto* indicator is worth 1 in cities where the lists are complete and where no independent candidates compete, and 0 otherwise (the variable is named *COMPLETE LISTS*). The expected sign is positive, since having complete list(s) may be a good signal for voters. An incomplete list may indicate that the head of the list (often the candidate who has built the list) has had problems finding enough people to share her/his political ideas and join the list. This can be reinforced by the fact that independent candidates compete, demonstrating that the head of the list not only failed to convince them to join the list but also failed to convince them not to become candidates.

Fifth, when several elections are held on the same day, one expects turnout to be higher because it raises the benefit and/or reduces the cost of going to the polls (for French local elections, see Fauvelle-Aymar & François, 2015). In the 2008 second-round municipal sample of this article, voters in 204 municipalities were also invited to vote in the second-round cantonal elections to elect members of the *Conseil Général*. The model thus includes a dummy variable noted as *SIMULTANEOUS ELECTIONS* which takes a value of 1 in municipalities where both municipal and cantonal second-round elections are held at the same time, and 0 otherwise. A positive sign is expected for this variable.

The last three variables control for political supply. The first aspect is the number of contesting lists in the race. It may have at least two opposite effects on turnout. On the one hand, the higher the number of lists, the larger is the choice for voters and the higher the turnout will be. On the other hand, a high number of lists can lead to a 'confusion effect' or to increase the probability of a coalition, thus to decrease the influence of voters on municipal policies and to a lower turnout. Such a negative effect on turnout is reported in the French case by Hoffmann-Martinot (1992), Hoffmann-Martinot, Rallings, and Thrasher (1996), and Dubois and Ben Lakhdar (2007). Considering this complex impact, the model includes the number of lists (*NBLIST*) and the square of the number of lists ($NBLIST^2$), as suggested by Ashworth et al. (2006), to allow a curvilinear impact of political fragmentation on turnout.

Second, the political set should include variables controlling for second-round cases where the especially poor political supply leads voters to abstain. First, it is the case where there is one candidate and one seat to fill, thus decreasing turnout. Note that this situation is different from other more frequent situations with a single list and several candidates in the list even if there is only one seat to be filled. To take this into account, a variable named '*1CANDIDATE-1SEAT*' is included, and a negative sign is expected: it is worth 1 in municipalities where there is one candidate for one seat, and 0 elsewhere. Second, people can be disappointed by the political supply even if there are more candidates than seats. To control for such a specific political situation, the number of blank and null votes calculated as a high percentage of the votes cast is interesting: in these municipalities, people go to the polls but their dissatisfaction leads them to cast a null or a blank vote. Therefore, the model includes a dummy variable named *BLANK VOTES* that is worth 1 in municipalities where the percentage of blank and null votes in cast votes is abnormal in a statistical sense (that is, it is larger than the mean of this percentage plus 3 SDs (standard deviations)) in the second round, and 0 otherwise. A negative sign is expected for this variable.

In conclusion, note that several potential controls have been dismissed for various reasons, especially owing to the unavailability of data. This is notably the case for the personality of the incumbent mayor, partisanship and campaign spending. Table 2 lists the explicative variables of the model with their name, a brief definition and the expected sign.

RESULTS

To evaluate accurately the impact of closeness and seats stake on turnout, this article relies on the two-round property of municipal elections. Its main advantage, as Fauvelle-Aymar and François (2006) already pointed out in France for legislative elections with two rounds, is that there is only one week between the two election rounds and great stability and comparability of the political offer between the two rounds. Thus, the expected closeness of the second round is measured with first-round election data, avoiding the endogeneity problem that is frequent in studies where the expected closeness of the election is measured with the actual election results, closeness indicators being a function of the dependent variable. Another advantage is that contrary to what is done in one-round elections, one does not resort to the actual election results to compute closeness indicators, as if voters were characterized by perfect foresight.

Since the turnout rate necessary ranges from 0% to 100%, a Tobit estimation procedure might in theory be favoured. Nevertheless, since the mean of the second-round turnout rate is 75.4 with SD = 9.8, the fitted values do not fall below 0 or exceed 100, and this is actually the case for each estimation of the model. The ordinary least squares (OLS) method is therefore suitable for estimating the model. All the estimates of the article are also robust to heteroskedasticity by applying the White correction. Finally, the null hypothesis of normality of the residuals is accepted for all the models (with p-values of the Jarque–Bera statistics higher than 0.05). Correlations between explanatory variables, descriptive statistics and sources are displayed in Appendix A in the supplemental data online.

Table 3, column 1, shows the results of estimates. First, the model used provides quite a good explanation of inter-municipal differences in turnout rates in the second round

Table 2. Summary of the explanatory variables.

Name	Definition	Expected sign
TURNOUT1_2001	Turnout rate in the first round in 2001	+
UNEMPLOYMENT	Growth rate of unemployed people over the year 2007	?
POPULATION	Logarithm of the population	–
COMPLETE LISTS	Dummy for municipalities with complete list(s) and no independent candidate	+
SIMULTANEOUS ELECTIONS	Dummy for the occurrence of another election on the same day	+
NBLIST	Number of lists in the competition	+
NBLIST^2	Square of the number of lists in the competition	–
1CANDIDATE-1SEAT	Dummy for municipalities where there is one candidate for one seat	–
BLANK VOTES	Dummy for municipalities where there is an abnormal percentage of blank and null votes	–
SEATS STAKE	Percentage of seats that remain to be filled in the second round	+
RELATIVE CLOSENESS	Difference in the shares of seats obtained by the two top lists	–
RATIO CLOSENESS	Ratio of the shares of seats obtained by the two top lists (see Table 4)	+
ABSOLUTE CLOSENESS	Difference in the number of seats obtained by the two top lists (see Table 4)	–
LEADER CLOSENESS	Share of seats obtained by the top list (see Table 4)	–
ENTROPY CLOSENESS	Entropy measure based on shares of seats obtained by the two top lists (see Table 4)	+
CANDIDATE CLOSENESS	Difference between *LASTELECTED* and *FIRSTNONELECTED*	–
LASTELECTED	Share of votes obtained by the last elected candidate in the first round	–
FIRSTNONELECTED	Share of votes obtained by the first non-elected candidate in the first round	+

of the 2008 election, with about 70% of the variance explained. The first variable of interest, *RELATIVE CLOSENESS*, is significant at the level of 1% and has the expected (negative) sign: the smaller the difference in the shares of seats obtained by the two top lists, the higher the closeness, and thus the higher is the turnout. A decrease of 1 point in the difference between shares of seats raises the turnout by about 5 points.

Moreover, *SEATS STAKE*, the original variable measuring the second-round stake as the share of seats remaining to be filled in the second-round election, is also a very significant factor explaining voter turnout, with the expected positive sign. An increase in stake of 0.1 points leads to a higher turnout rate of about 1.1 points. This shows that an open-list voting system with two rounds generates by itself an original and significant factor of inter-municipal differences in turnout rates.[6]

Control variables also give interesting results. First, the number of contesting lists significantly influences the second-round turnout with the expected non-linear form owing to the presence of both an 'enlarging choice effect' and a 'confusing effect'. Second, the two dummies intended to control for municipalities with poor political supply or dissatisfied voters are strongly significant, with the expected negative sign. Third, the negative sign for the population size variable shows that municipalities with larger populations have lower turnout rates. The combination of this strong negative 'population effect' and the previously discussed 'closeness effect' on turnout gives clear empirical support to the prediction of the instrumental voting theory: voters tend to participate more when the probability of being decisive increases, that is, where the election is closer and population size is lower. Fourth, the previous turnout in 2001 has a strongly significant and positive influence on the 2008 second-round turnout in line with previous findings in the French case. Fifth, the turnout is about 1 point higher in municipalities where people vote on the same day in the municipal election and another election. Sixth, even if the variable *COMPLETE LISTS* is weakly significant (at 10%), its positive sign indicates that complete list(s) and the absence of independent candidates lead to a higher turnout, as expected. Finally, *UNEMPLOYMENT* is not significant at conventional levels.

ROBUSTNESS CHECKS

Two types of robustness checks are provided. First, competitiveness between lists might be studied with different indicators relying on the same information of the number of seats obtained by each list. Second, as a consequence of the open-list electoral rule used in the small municipalities, votes are counted at the candidate level, which gives the opportunity to investigate an indicator of competitiveness between candidates.

Alternative indicators of closeness at the list level

Historically, one of the first measures to be used is the ratio of the vote obtained by the candidate ranked second on the vote obtained by the candidate ranked first (Rosenthal & Sen, 1970, 1973). This *RATIO CLOSENESS* variable is expected to have a positive sign in terms of the theory of instrumental voting.

Table 3. Estimates' results.

Dependent variable: *TURNOUT*								
Explanatory variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
INTERCEPT	41.07***	35.81***	36.18***	39.23***	38.06***	38.60***	48.97***	21.03**
	(5.78)	(5.04)	(5.14)	(5.37)	(5.48)	(5.25)	(5.46)	(2.54)
TURNOUT1_2001	0.63***	0.63***	0.62***	0.63***	0.61***	0.64***	0.64***	0.63***
	(11.46)	(11.41)	(11.10)	(11.28)	(11.13)	(11.17)	(11.25)	(10.92)
UNEMPLOYMENT	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.89)	(0.95)	(0.94)	(0.89)	(0.65)	(0.81)	(0.87)	(0.87)
POPULATION	−3.80***	−3.79***	−2.19***	−3.79***	−3.82***	−3.81***	−3.80***	−3.76***
	(7.77)	(7.69)	(4.30)	(7.62)	(7.95)	(7.77)	(7.71)	(7.55)
COMPLETE LISTS	1.24*	1.35**	0.70	1.52**	0.84	1.62***	1.66***	1.65***
	(1.94)	(2.11)	(1.15)	(2.35)	(1.35)	(2.60)	(2.61)	(2.65)
SIMULTANEOUS ELECTIONS	1.28**	1.24**	1.31***	1.21**	1.51***	1.21**	1.18**	1.28**
	(2.55)	(2.44)	(2.69)	(2.34)	(3.09)	(2.35)	(2.28)	(2.49)
NBLIST	6.78***	7.25***	6.55***	7.73***	4.80**	5.48**	6.43***	6.31***
	(3.20)	(3.45)	(3.18)	(3.69)	(2.20)	(2.56)	(3.08)	(3.05)
NBLIST²	−1.27***	−1.38***	−1.18***	−1.51***	−0.72	−1.00**	−1.22***	−1.16**
	(2.66)	(2.94)	(2.59)	(3.20)	(1.48)	(2.16)	(2.67)	(2.58)
1CANDIDATE-1SEAT	−21.98***	−22.06***	−21.34***	−22.10***	−21.26***	−22.22***	−22.17***	−22.11***
	(7.25)	(7.16)	(7.33)	(6.97)	(7.07)	(6.82)	(6.89)	(6.68)
BLANK VOTES	−10.76***	−10.80***	−9.74***	−10.90***	−10.53***	−11.53***	−11.48***	−11.04***
	(3.24)	(3.19)	(3.23)	(3.20)	(3.43)	(3.50)	(3.40)	(3.37)
SEATS STAKE	11.32***	11.39***	3.27**	11.81***	14.09***	13.10***	12.87***	13.66***
	(11.33)	(11.24)	(2.28)	(11.19)	(15.52)	(14.24)	(13.42)	(14.57)
RELATIVE CLOSENESS	−4.87***	–	–	–	–	–	–	–
	(6.33)	–	–	–	–	–	–	–
RATIO CLOSENESS	–	4.52***	–	–	–	–	–	–
	–	(5.41)	–	–	–	–	–	–
ABSOLUTE CLOSENESS	–	–	−0.67***	–	–	–	–	–
	–	–	(8.21)	–	–	–	–	–
LEADER CLOSENESS	–	–	–	−3.76***	–	–	–	–
	–	–	–	(3.32)	–	–	–	–
ENTROPY CLOSENESS	–	–	–	–	8.67***	–	–	–
	–	–	–	–	(8.53)	–	–	–
CANDIDATE CLOSENESS	–	–	–	–	–	−0.22***	–	–
	–	–	–	–	–	(4.31)	–	–
LASTELECTED	–	–	–	–	–	–	−0.23***	–
	–	–	–	–	–	–	(3.22)	–
FIRSTNONELECTED	–	–	–	–	–	–	–	0.38***
	–	–	–	–	–	—	–	(3.68)
Adjusted R^2	0.69	0.69	0.72	0.68	0.71	0.68	0.68	0.68
White	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jarque–Bera (*p*-value)	0.29	0.28	0.36	0.35	0.46	0.23	0.26	0.44
N	460	460	460	460	460	460	460	460

Notes: See Tables 2 and 4 for detailed definitions of the variables.
***Significant at 1%; **significant at 5%; and *significant at 10%. Student's *t*-values are given in parentheses.

Second, Cox (1988) and Cox and Munger (1989) challenged *RELATIVE CLOSENESS*, showing that a 1 percentage point difference in the vote-share can represent more or fewer votes depending on the number of voters. As a consequence, Cox (1988) suggests *ABSOLUTE CLOSENESS* as an alternative indicator: the absolute gap in

Table 4. Alternative measures of closeness in seats.

Name	Definition	Minimum of closeness	Maximum of closeness	Expected sign
RATIO CLOSENESS	(S2/S)/(S1/S)	0	1	+
ABSOLUTE CLOSENESS	S1 − S2	S	0	−
LEADER CLOSENESS	S1/S	1	0	−
ENTROPY CLOSENESS	−S1/S × ln (S1/S) − S2/S × ln (S2/S)	0	0.7	+

votes (and not in vote-shares) between candidates, with an expected negative effect on turnout.

Third, Barzel and Silberberg (1973) and Ashworth et al. (2006) used the vote-share of the candidate ranked first as an indicator of the election closeness (*LEADER CLOSENESS*). As suggested by the expressive voting theory followed by these authors, a positive sign was found. However, this article tests the instrumental voting theory and thus a negative sign is here expected: the higher this share, the lower the closeness and the lower the turnout is expected to be.

Lastly, Kirchgässner and Schimmelpfennig (1992) and Kirchgässner and Meyer Zu Himmern (1997) recommended the use of an 'entropy index', denoted here by *ENTROPY CLOSENESS*. Its advantage is that it takes into account the fact that election closeness depends not only on the vote-share received by the candidates but also on the number of candidates. It is also its main weakness, however: it is difficult to distinguish between the 'size of the candidates effect' and the 'number of the candidates effect'. This indicator is expected to have a positive sign in the turnout model.

Table 4 summarizes the different indicators of closeness presented above. To illustrate the differences, the formula is given when two lists are running, the minimum and the maximum, and the expected sign according to the instrumental voting theory. S1 is the number of seats obtained by the list ranked first; S2 is the number of seats obtained by the list ranked second; and S is the total of seats filled in the first round.

What is important to underline first is that the differences in the expected signs across the measures in Table 4 only come from the differences in definitions. Second, whatever the differences in signs, they are all consistent with the instrumental voting theory prediction that an increase in closeness leads to an increase in turnout.[7]

Results are displayed in columns 2–5 of Table 3. They show that the significant effect on turnout obtained with *RELATIVE CLOSENESS* is also found with alternative indicators. Thus, the results are robust to a change in the definition of the closeness variable. All the closeness measures are strongly significant and impact turnout in a way that does not contradict the instrumental voting theory: the closer the election, the higher the turnout.

More interestingly, the results contradict recent evidence provided by Ashworth et al. (2006) for Belgian local election data, according to which the presence in the race of a highly dominant party receiving at least two-thirds of the votes increases turnout. The article offers the opposite empirical evidence since column 4 shows a negative and significant effect of the *LEADER CLOSENESS* variable. In other words, this study gives evidence that contrary to the Belgian local voter, for example, the French local voter does not seem to have a preference for 'winners'.

Alternative indicators of closeness at the candidate level

Until now, measures of closeness defined in terms of seats have been considered. As discussed above in the second and third sections, even if each candidate receives a different vote share, many municipal races are frequently summarized as a fight between lists of candidates. This led to a measure of the closeness variable in terms of seats. However, by doing this the information given by the votes obtained by each candidate has not been fully exploited, and the fact that municipal races might also be a fight between candidates themselves (and not only between lists when considering the closeness in terms of seats) has not been taken into account. Therefore, this section develops a measure of the closeness relying on votes.[8] More precisely, *CANDIDATE CLOSENESS* is defined as the difference in each city in the vote shares received by the last elected candidate and the first non-elected candidate.[9] A negative sign is expected for this variable: the smaller the difference in the vote shares received by the last elected candidate and the first non-elected candidate in the first-round election, the closer the election and the higher the turnout in the second round.

Results reported in column 6 of Table 3 show that the estimated coefficient of *CANDIDATE CLOSENESS* is significant at 1% and negative. This result demonstrates that a closeness indicator can also be derived in terms of vote-share because candidates do not receive the same vote-share in the first-round election, even if they belong to the same list. As additional estimates, a decomposition of *CANDIDATE CLOSENESS* is tested to examine the result of column 6 further. To do that, the difference that defines *CANDIDATE CLOSENESS* was split in its two components: the vote-share received by the last elected candidate (*LASTELECTED*) and the vote-share received by the first non-elected candidate (*FIRSTNONELECTED*).[10] A negative sign for *LASTELECTED* and a positive sign for *FIRSTNONELECTED* are expected. Indeed, the higher the vote-share received by the last elected candidate, the lower the closeness and the lower the turnout; and the higher the vote-shares received by the first non-elected candidate, the higher the closeness

and the higher the turnout. Results are shown in columns 7 and 8 of Table 3. *LASTELECTED* and *FIRSTNONELECTED* are both significant and have both the expected sign. This decomposition gives confidence in the results obtained with *CANDIDATE CLOSENESS* and, more fundamentally, shows that even if municipal races in France are, usually and rightly, well summarized by a fight between lists, the specific rules in small towns offer also the opportunity to model electoral competition between candidates in a way that also can be interpreted as a closeness effect on turnout.

CONCLUSIONS

This study is motivated by the following: empirical evidence is still needed to identify the factors of election turnout more fully. This is the case, first, because empirical studies on turnout still provide contrasting results, notably concerning the impact of closeness. This casts doubt on the validity of the rational voter theory according to which higher closeness leads to higher turnout. Second, the voting system in small towns is an open-list system where only part of the total set of seats to be filled is usually at stake in the second round, leading to an original political variable to be studied: a higher stake, defined as the share of seats to be filled in the second round, may lead to higher turnout, *ceteris paribus*. This article tests these hypotheses with election data from a sample of small French towns and provides two main results.

First, clear empirical support is given to the instrumental voting theory according to which closer elections are expected to have higher turnout. Indeed, different indicators of election closeness, based on the performance of either lists or candidates, all lead to the same robust and significant result: in French two-round municipal elections, the closer the election, the higher the turnout. Therefore, this article offers new and clear-cut evidence for local election data that were never previously studied in small towns. Second, thanks to the unique feature of the municipal two-round open-list voting system, empirical evidence is given in favour of the original hypothesis that second-round turnout is higher where the share of seats remaining to be filled in the second round is higher.

Although the results advance the understanding of spatial variation in voter participation between local government constituencies, additional empirical works are needed. It might indeed be interesting to control for factors that are ignored in this work owing to data unavailability, such as campaign expenditure by candidates or incumbencies.

As an extension, it would be interesting to develop a more comprehensive empirical strategy to test the impact of closeness on turnout. This article used the *ex-ante* measures of closeness (with closeness indicators based on electoral results in the first round), but an alternative would be to follow an *ex-post* view of closeness, where turnout in the second round is explained by the closeness in the second round calculated with the results in the second round. It would be interesting to study if these alternative strategies to test the closeness hypothesis empirically lead to different results and why.

ACKNOWLEDGMENTS

The authors thank the anonymous reviewers for their helpful comments and suggestions.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

FUNDING

The authors thank the Agence nationale de la recherche (ANR) for financial support [grant number ANR-08-GOUV-054] for the project SOLITER 'Négocier la solidarité territoriale dans les intercommunalités'.

SUPPLEMENTAL DATA

Supplemental data for this article can be accessed at http://10.1080/00343404.2015.1118029

NOTES

1. The authors thank a referee for this suggestion in the interpretation of the *SEATS STAKE* effect.
2. The last municipal elections were in 2001, 2008 and 2014.
3. See the fifth section for robustness checks that provide alternative closeness indicators measured at the list level as well as at the candidate level.
4. When there is only one list in the competition, the share of seats for the list ranked two is set to zero (and therefore *RELATIVE CLOSENESS* = 1). This is not a crucial choice because when *RELATIVE CLOSENESS* = 1 it can mean that there is only one list in the competition or that there are several lists in the competition and one of them obtained all the seats; closeness is weak in both cases. Computing *RELATIVE CLOSENESS* using the seats obtained by the *two* top lists is not problematic: in the sample there is only one municipality where the list ranked third has obtained at least one seat.
5. The closeness and the stake are not necessarily linked. An election could, for example, at the same time be close and have a low stake. Table A1 in the supplemental data online mentions that the correlation between *RELATIVE CLOSENESS* and STAKE is –0.35.
6. Previous versions of this paper tested two specific hypotheses: (1) whether the fact that one list already won a majority of the seats in the first-round election reduced the impact of stake on turnout; and (2) whether the marginal effect of stake on turnout depends on closeness. However, in both hypotheses the results were not robust to changes in specification. Details are available from the authors upon request.

7. The same remarks as given above in note 4 apply. First, *RATIO CLOSENESS* and *LEADER CLOSENESS* are not defined when S2 = S1 = 0. In these cases, the value of *RATIO2/1* is set at 1 and those of *LEADER CLOSENESS* at 0 because S2 = S1 = 0 implies that the ballot is close. Second, when there is only one list in the competition, S2 is set to 0. In this case, *ENTROPY CLOSENESS* is not defined and its value is set to 0. Finally, computing the closeness measures *RATIO CLOSENESS* and *ABSOLUTE CLOSENESS* using the seats obtained by the two top lists is not a crucial decision: there is only one municipality where the list ranked third has obtained at least one seat.
8. The authors thank an anonymous referee for his suggestion on this respect. See also Grofman and Selb (2009) on indexes of political competition in the context of multi-member election races.
9. In 26 cities, no candidate was elected in the first round. In these cases, the vote share for the last elected candidate was set at 50%. In three cities, all the candidates were elected in the first round. In these cases, the vote share for the first non-elected candidate was set at 50%.
10. In two cities, candidates were not elected even though they received a vote share greater than 50.0%. This resulted from a mistake made by the mayor (who organizes the election) when computing the number of votes necessary to be elected. This is why the maximum for the variable *FIRSTNONELECTED* is 50.1% in Table A2 in the supplemental data online, and not 50.0% as it should be.

REFERENCES

Andersen, J. J., Fiva, J. H., & Natvik, G. J. (2014). Voting when the stakes are high. *Journal of Public Economics*, *110*, 157–166. doi:10.1016/j.jpubeco.2013.10.003

Ashworth, J., Geys, B., & Heyndels, B. (2006). Everyone likes a winner: An empirical test of the effect of electoral closeness on turnout in a context of expressive voting. *Public Choice*, *128*, 383–405. doi:10.1007/s11127-005-9006-8

Barzel, Y., & Silberberg, E. (1973). Is the act of voting rational? *Public Choice*, *16*, 51–58. doi:10.1007/BF01718806

Becquart-Leclercq, J. (1976). *Paradoxes du pouvoir local*. Paris: Presses de la FNSP.

Blais, A. (2000). *To vote or not to vote?* Pittsburgh: University of Pittsburgh Press.

Carlin, R. E., & Love, G. J. (2013). What's at stake? A veto-player theory of voter turnout. *Electoral Studies*, *32*, 807–818. doi:10.1016/j.electstud.2013.03.001

Cassette, A., Farvaque, E., & Héricourt, J. (2013). Two-round elections, one-round determinants? Evidence from the French municipal elections. *Public Choice*, *156*, 563–591. doi:10.1007/s11127-012-9913-4

Cox, G. W. (1988). Closeness and turnout: A methodological note. *Journal of Politics*, *50*, 768–775. doi:10.2307/2131467

Cox, G. W., & Munger, M. C. (1989). Closeness, expenditures, and turnout in the 1982 U.S. House elections. *American Political Science Review*, *83*, 217–231. doi:10.2307/1956441

Downs, A. (1957). *An economic theory of democracy*. New York: Harper & Row.

Dubois, E., & Ben Lakhdar, C. (2007). More on the seasonal determinants of turnout: Holidays and French presidential elections. *French Politics*, *5*, 144–159. doi:10.1057/palgrave.fp.8200123

Eggers, A. C. (2015). Proportionality and turnout: Evidence from French municipalities. *Comparative Political Studies*, *48*, 135–167. doi:10.1177/0010414014534199

Fauvelle-Aymar, C., & François, A. (2006). The impact of closeness on turnout: An empirical relation based on a study of a two-round ballot. *Public Choice*, *127*, 461–483. doi:10.1007/s11127-005-9004-x

Fauvelle-Aymar, C., & François, A. (2015). Mobilization, cost of voting and turnout: A natural randomized experiment with double elections. *Public Choice*, *162*, 183–199. doi:10.1007/s11127-014-0212-0

Geys, B. (2006). Explaining voter turnout: A review of aggregate-level research. *Electoral Studies*, *25*, 637–663. doi:10.1016/j.electstud.2005.09.002

Grofman, B., & Selb, P. (2009). A fully general index of political competition. *Electoral Studies*, *28*, 291–296. doi:10.1016/j.electstud.2009.01.010

Hoffmann-Martinot, V. (1992). La participation aux élections municipales dans les villes françaises. *Revue française de science politique*, *42*, 3–35. doi:10.3406/rfsp.1992.404274

Hoffmann-Martinot, V., Rallings, C., & Thrasher, M. (1996). Comparing local electoral turnout in great Britain and France: More similarities than differences? *European Journal of Political Research*, *30*, 241–257. doi:10.1111/j.1475-6765.1996.tb00676.x

Indridason, I. H. (2008). Competition and turnout: The majority run-off as a natural experiment. *Electoral Studies*, *27*, 699–710. doi:10.1016/j.electstud.2008.05.006

Kirchgässner, G., & Meyer Zu Himmern, A. (1997). Expected closeness and turnout: An empirical analysis for the German general elections, 1983–1994. *Public Choice*, *91*, 3–25. doi:10.1023/A:1004968816775

Kirchgässner, G., & Schimmelpfennig, J. (1992). Closeness counts if it matters for electoral victory: Some empirical results for the United Kingdom and the Federal Republic of Germany. *Public Choice*, *73*, 283–299. doi:10.1007/BF00140923

Lancelot, A. (1968). *L'abstentionnisme électoral en France*. Paris: Armand Colin.

Michelsen, C., Boenisch, P., & Geys, B. (2014). (De)centralization and voter turnout: Theory and evidence from German municipalities. *Public Choice*, *159*, 469–483. doi:10.1007/s11127-013-0061-2

Nevers, J.-Y. (1992). La participation aux élections municipales dans les communes rurales. Unpublished working paper. Retrieved from https://halshs.archives-ouvertes.fr/halshs-00261801.

Panagopoulos, C. (2011). Social pressure, surveillance, and community size: Evidence from field experiments on voter turnout. *Electoral Studies*, *30*, 353–357. doi:10.1016/j.electstud.2010.10.005

Riker, W. H., & Ordeshook, P. C. (1968). A theory of the calculus of voting. *American Political Science Review*, *62*, 25–42. doi:10.2307/1953324

Rosenthal, H., & Sen, S. (1970). Participation électorale et conjoncture politique (application de la technique des régressions multiples aux élections de 1962). *Revue française de science politique*, *20*, 545–556. doi:10.3406/rfsp.1970.393239

Rosenthal, H., & Sen, S. (1973). Electoral participation in the French Fifth Republic. *American Political Science Review*, *67*, 29–54. doi:10.2307/1958526

Tullock, G. (1968). *Toward a mathematics of politics*. Ann Arbor: University of Michigan Press.