A Border Effect in Political Mobilization?

Territorial Dependence and Electoral Turnout in National Election.

François Facchini,

Université de Reims, and Université Paris 1, LAEP

and

Abel François *,

Université de Strasbourg, LaRGE, and Telecom ParisTech, ESS Dep.

* : Corresponding author.

E mail : abel.francois@telecom-paristech.fr

Postal address: Abel François, Université de Strasbourg, Ensemble Saint Georges 47, avenue de la Forêt Noire F 67082 Strasbourg Cedex, France

Phone: 33 (0)6 23 53 67 08

Fax: 33 (0)9 59 98 14 38

Abstract:

This article puts forth a theory of territorial dependence to explain the local level of electoral turnout in national elections. Starting with the rational theory of voting, it distinguishes three sources of territorial dependence in the expected utility associated with the result of the election: geography, income and wealth. And it argues that the more "territorially dependant" voters are, the higher their expected satisfaction, and the more likely they are to cast their ballot. Thereafter, we demonstrate empirically that constituencies in which individuals are most dependent are also those with the highest turnout. Specifically, we find that constituencies with a foreign border and with a higher proportion of workers who commute abroad daily to work have a lower turnout. We then establish a border effect in political mobilization at the local level.

Key-words: electoral turnout; border effect; economics of turnout; territorial dependence; aggregate-level analysis

Title abbreviated: A border effect in political mobilization

INTRODUCTION

Despite processes of political and economic integration amongst states, national borders continue to significantly influence both political and economic activities. For instance, international economics highlights a "border effect" describing the fact that political borders pose significant obstacles to commercial transactions[1]. In political science, the influence of national borders is analyzed mainly through the diffusion of public policy between countries[2], especially in the framework of European integration. Borders thus appear as obstacles to the transnational convergence of public policies. Even if the negative impact of borders on public policies is studied, the influence on electoral behaviour remains rather neglected. This inattention can easily be explained by the fact that these behaviours are perceived as inherently national due to the national dimension of the vote.

However, if political activities are still national, other human activities are less and less so and increasingly transnational due to the aforementioned integration processes. As such, this study aims to verify whether electoral behaviour, especially participation, is affected by the extra-territoriality of citizens. In other words, the key issue is to comprehend if territoriality is a major determinant in electoral turnout.

Based on the rational calculus of voting, we specify the expected utility associated with election results using the notion of territorial dependence. Our thesis is that voters who are the least dependent on the spatiality of their government are also the least likely to turn out to vote in national elections. If individuals can avoid the consequences of political decisions at little cost, then politics will hold less interest for them and they will abstain from voting. In this case, the absence of territorial dependence explains abstention. On the other hand, the dependence of individuals with regards to public decisions, in terms of income or wealth, will increase their interest in political choices and encourage them to vote. We set out three sources of dependence: geography, income and wealth. Our predicted relationship between

voter dependence and electoral behaviour is then verified by an empirical study of voter turnout in the 1997 French legislative elections.

Taking into account potential spatial correlations between constituencies, the econometric estimations demonstrate that once standard determinants of electoral turnout are controlled for, higher turnouts can be observed in those constituencies in which there are more home-owners, more public sector employees or more people in publicly-financed jobs. It also shows that constituencies with borders and with a higher percentage of people commuting daily to work in neighbouring countries have lower turnouts. These last results establish a border effect in electoral turnout at a local level.

The originality of this study lies thus in the introduction of a territorial dimension to electoral turnout based on three detailed determinants and specifically on the geographic location of the constituency. In doing so, we follow the renewal in studies of electoral mobilization at the aggregate-level (see for instance Darmofal (2006)), since we highlight the influence of territorial context on voting behaviour. In particular, we demonstrate that there is a border effect in local electoral turnout related to the territorial dependence of the population.

The article that follows is divided into seven sections. In the next section, we briefly present the main principles of the rational theory of voting. Then, we set out our argument for the influence of territorial dependence on voter turnout. The fourth section details the three determinants of the dependence whereas the fifth deduces some empirical predictions about the electoral turnout. After a presentation of the election studied and of the statistical test in section six, section seven comments the estimated results confirming our predictions for the French 1997 legislative elections. The final section concludes by proposing some extensions of our results.

THE RATIONAL CALCULUS OF VOTING

Following the seminal work of Downs (1957) and the extensive literature on rational

voter turnout, the decision to cast a ballot can be represented as an economic calculation, taking into account the costs and the returns of the turnout[3]. The individual expected return (Ri) depends on four factors and can be expressed as follows

$$R_i = D_i - C_i + \pi B_i$$

The first element is the satisfaction the individual obtains by casting a ballot, independent of the election outcome (Di). This satisfaction is derived from a simple taste of voting, a sense of civic duty (Riker and Odershook (1968), Jones and Hudson (2000)) or the expression of political or partisan preferences (Fiorina (1976) Brennan and Lomasky (1993), Jones and Hudson (2000)).

The second element, which reduces the return, is the cost of participation (C) that includes both the cost of the act of voting and the opportunity cost of the time devoted to making decisions (Tollison and Willet (1973)), notably to obtaining information. These first two elements are connected with the election itself and with its result, and they are interdependent.

The third element is the rational individual's probability of being the decisive voter who switches the ballot results (π). This probability is not directly observable and depends on the size of the constituency and the degree of uncertainty of the election result. It influences the last element of the calculus.

The last element is the utility the individual obtains from the result of the election (B) (Filer and Kenny (1980)). The expected utility of the election result is generally defined as the utility obtained from the implementation of policies provided by the candidates. This rational theory of participation is the subject of a wide, theoretical and empirical scholarship.

In the analysis that follows, we endeavour to use the concept of dependence to explore the relationship between voters' turnout and their interest in the results of the election, i.e. in the public decisions implemented.

TERRITORIAL DEPENDENCE OF THE VOTERS

The hypothesis developed in this article is an extension of the economic analysis of voter participation. It renders the concept of the expected utility of the election more accurate by bringing into perspective the constraints that voters face. To present this idea, we put forth the term "territorial dependence" that is more neutral and allows us to take into account the losses and the gains of satisfaction. The more a voter's utility depends negatively or positively on public policy, the more interest he takes in the result of the election.

The constraint of public policy is not the result of a single deliberate choice. The dependence is the indirect consequence of multiple decisions made by the individual or by their family. Two examples can explain the indirect characteristic of dependence. When someone decides to become a police officer that person may have numerous reasons for doing so. But, consequently, it can be more or less anticipated that his income changes now depend on political decisions. In the same manner, when an individual decides to buy a home, one of the consequences is that his child's wealth will depend on the housing policy implemented. Therefore, many decisions increase or decrease more or less voluntarily an individual's dependence vis-à-vis public policies.

We speak of territorial dependence because it relies on the spatiality of the state given that states are defined by a spatial dimension: a given physical territory under one government. For this reason, the consequences of public decisions and of election outcomes are territorial. The expected utility of election results is thus delimited by the political borders defining the area in which the public decisions will be applied.

If the expected utility of election results is limited to a certain territory and if each individual is more or less dependent on this territory, we can logically contend that a dependent individual will be more motivated to vote, because he will be directly affected, positively or negatively, by the outcome of the election. The act of voting thus depends on an

individual's degree of dependence with regards to his territory. An individual whose mobility costs are very low and whose territorial dependence is high can always choose the spatiality of another state that suits him better and thus not participate in elections. Doing so, he votes with his feet (Tiebout, 1956). However, if mobility is too expensive, especially between two different countries, there is no longer a trade-off between exit and voice (Hirschman, 1970). Once the choice of exit is excluded, territorial dependence can explain the use of voice: the more "territorially dependent" voters are, the higher their expected satisfaction linked to election results, and the more likely they are to cast ballots.

THE DETERMINANTS OF TERRITORIAL DEPENDANCE

Based on our definition of territorial dependence, we need to define specific factors that make an individual more dependent on his territory and more interested by election results. We can distinguish three main kinds of determinants: geography, wealth and earnings. The identification of the first factor is more original than the two others determinants, which are more customary in the analysis of electoral turnout.

Dependence due to geography

Individuals who live closest to the national borders of a state can take advantage of institutional differences at little cost for several reasons. Firstly, their information costs are lower than those of individuals living far away from the borders. Indeed, they have better knowledge of tax laws, social laws, labour law, conditions of employment (wages), etc. Secondly, the learning and adaptation costs of individuals living near borders are lower because they have some knowledge of the institutions of the neighbouring country. Thirdly, due to the relatively low costs of moving and transportation, geographical closeness facilitates investments in both territories.

For these reasons, people living near borders are less captive of the spatiality of the state – and therefore of election results - than those in the heartland. They are less likely to be

interested in public decisions because they can always benefit from the advantages of different governments at little cost. The expected utility of a public decision is therefore even greater for voters who do not have the ability to take advantage, at little cost, of the economic opportunities provided in a neighbouring territory.

Dependence due to nature of wealth

Individuals possessing sizeable wealth are more interested in public decisions than individuals who have neither inherited nor built up any capital. This interest is even greater when their capital is immobile. The mobility of property depends partly on the nature of the goods possessed and partly on the regulatory and political controls on the movement of capital. Individuals whose property takes the form of real estate are thus more captive of political decisions, notably local ones, than those whose property is composed mainly of movable capital. Ultimately, the expected utility linked to public policies is all the more important to an individual who has inherited or possesses a large capital which he considers would be relatively costly to move outside the territory. This idea is quite similar to empirical results on the relationship between homeownership and participation (Filer et al., 1993 and Hoffman-Martinot 1994) and studies showing that less mobile people vote less (Wolfinger and Rosenstone, 1980).

Dependence due to the source of income

Individuals can earn wages by working in the public sector, in the private sector or in publically financed employment. People employed in the public sector and/or receiving state assistance are captive of the finance laws voted by elected representatives as their income depends directly on public decisions[4]. Thus, their utility associated with the election result is greater, encouraging them to vote. A certain number of studies, mainly empirical, have already demonstrated the higher levels of politicisation and of electoral turnout among public sector employees (for instance Blais *et al.* (1997), Frey and Pommerehne (1982), Bennett and

Orzechowski (1983), Jaarsma *et al.* (1986), Corey and Garand (2002)). The expected utility of public policy is therefore greater for individuals who are employed directly or indirectly by public authorities.

EMPIRICAL PREDICTIONS

Using the developments presented above, a certain number of observations can be made which have not yet been studied by voting theorists. We also demonstrate that citizens can make use of the institutional differences between states without "voting with their feet", without protest and without voting.

Our overall prediction is that individuals are more likely to vote in an election when they are dependent on the territory in which they live. Several more specific predictions can also be made concerning election turnout (table 1).

Insert table 1 about here

Thus, we can expect voters whose source of income comes from abroad, either through trade or through cross-border commuting, to vote less in national elections than those whose income originates entirely within the national territory (geographical dependence). Likewise, we can expect turnout to be higher amongst voters who derive their income from public policies, and lower amongst those who derive their income from the private sector. (dependence due to earnings). Lastly, we can expect voters possessing property (dependence due to wealth), especially when their capital is immobile, such as real estate, to be more likely to vote than other voters.

Furthermore, the effects of these three sources of dependence can be cumulative. For example, French farmers possess highly immobile capital (land), and their income, which depends largely on political decisions - through the Common Agricultural Policy -, originates mainly in France. We can therefore expect farmers to be highly motivated to participate in political decisions and notably in national elections.

These empirical predictions are all made at the individual level. Nonetheless, we can easily extend it to the aggregate level. The key issue is to find the proper measurement of the different types of dependence. We propose such measurements and the empirical validation of the prediction in the next section using the local results of the 1997 French legislative elections.

PRESENTATION OF THE EMPIRICAL ANALYSIS

Our empirical analysis is based on an econometric estimation of the determinants of voter turnout in the French parliamentary elections of 1997. Given the spatial characteristics of the data, we take into account the potential spatial autocorrelation using the appropriate methods.

Election and Data Description

The 1997 elections were chosen based on data availability. These national elections were the closest in time to the national census of 1998/1999. This was the first census in which the results were published at the level of electoral constituencies, providing new opportunities for empirical work[5]. Additionally, it is impossible to conduct a study of several different elections, because the other available census data is too remote in time and/or uses geographical definitions other than electoral constituencies.

We set out to explain the level of turnout, defined as the number of votes cast in proportion to the number of registered voters, in the constituencies in the second round of the elections. We study the second round rather than the first in order to avoid rendering the explanation of turnout too complex with considerations connected to the political supply in each constituency[6]. French parliamentary elections take the form of a uninominal majority voting system with two rounds. If no candidate wins more than fifty percent of the votes in the first round, all the candidates who have obtained more than 12.5% of registered votes (and not of expressed votes) take part in a second round. In the second round, the candidate who

obtains the relative majority is elected.

Out of the 577 existing parliamentary constituencies, we excluded the 22 constituencies corresponding to overseas territories and the 4 constituencies in Corsica, because of their socio-economic and political specificities. Another 7 constituencies were excluded because they had no second round since one of the candidates won an absolute majority in the first round. Finally, we also excluded those constituencies in which only one candidate was present in the second round[7]. Consequently, our sample contains 531 constituencies, in which two or three candidates competed.

Insert table 2 about here

In these 531 constituencies, the average number of voters is 68,840 and the average turnout[8], as a percentage of registered voters was 72% with a minimum of 55% and a maximum of 85% (table 2). It should be noted that the variance in the turnout level is rather low. For each constituency, we have accurate socio-demographic and economic information that allows us to measure the dependence.

Measuring Geographical Dependence

To measure the effect of territorial dependence on voter participation, we distinguished between the constituencies having none, one or two geographical borders[9] with neighbouring European countries (Belgium, Luxembourg, Germany, Switzerland, Italy and Spain)[10]. Thus, 12% of the constituencies in our sample have at least one border (table 3). We can note that the average level of turnout (simple or weighted by the size of the population of the constituency) is higher in constituencies with no border.

insert table 3 about here

However, these constituencies maintain more or less well-developed economic relations with their neighbouring countries. This can notably be due to the fact that political borders are sometimes drawn along the lines of physical frontiers, such as mountains, that

hinder exchanges. In these border constituencies, we have therefore taken into account the percentage of the working population that commutes daily to work outside the administrative region[11]. Thus, in constituencies with no borders, 3.65 % of the working population commutes outside the region every day, compared with twice as many (7.32%) in constituencies with one border and six times as many (23.75%) in constituencies with two borders.

Using this information, we built the *Commuters x Border* variable to measure the effect of territorial dependence on turnout. For constituencies with no borders, the variable takes the value of zero. For constituencies with one or two borders, it takes the value of the percentage of the working population commuting to work outside the region.

In the regressions, we firstly introduce two dummy variables indicating if the constituency has one or two borders (respectively *One Border* and *Two Borders*). Secondly, we introduce the interactive variable (*Commuters x Border*). Following our previous development, we expect this variable to have a negative impact on turnout.

Measuring Dependence Due To Income and Wealth

Two variables are used to evaluate dependence due to income. The first is the percentage of civil servants in the working population of the constituency (*PubEmp*); the second is the percentage of state-subsidized employees[12] in the working population (*SubEmp*). These two categories are the most exposed, in terms of income, to modifications in public policy. Consequently, we expect constituencies containing a higher percentage of these two categories to have a higher turnout.

We obtain an approximate estimate of the possession of immobile property through the percentage of homeowners in the constituency (*Owners*), and, *ceteris paribus,* we naturally expect the possession of real estate to encourage voter participation.

Because of its specificity (in terms of income, geography and wealth) we also included the category of farmers, which is, *a priori,* the most dependent socio-professional category.

Thus, the variable *Farmers* indicates the percentage of the population working in farming. On average, 3.02% of the working population works in this sector, with a minimum of 0% and a maximum of 18.42%. Logically, we expect that a high percentage of farmers increases turnout in a constituency.

Other Determinants of Turnout

The first factor which must be controlled for is the impact of unemployment on turnout which is done by including the variable *Unemp*[13]. There are several reasons why including this variable is important. Some of the French regions bordering other countries are currently going through a period of industrial restructuring (Nord-Pas de Calais, Ardennes, Lorraine, Franche-Comté). They consequently display demographic or economic specificities which have widely recognised effects on election turnout. For example, these zones have a high level of state-subsidized employment, the beneficiaries of which are naturally very interested in election results. In the same way, these regions suffer from relatively high levels of unemployment that have a negative impact on voter participation. It is therefore necessary to control for the effects of these specificities on turnout, both to correctly evaluate the impact of territorial dependence on turnout and to avoid any bias from the omission of variables.

The other variables[14] can be divided into two sets. The first set comprises factors connected to electoral campaigns; the second group gathers the socio-demographic characteristics of the constituency. Firstly, campaign expenditures enable us to take into account the intensity of the candidates' commitment to the electoral competition. After several tests, and following both theoretical postulates and the results of previous empirical studies (Fauvelle-Aymar and François (2005)), we have chosen to use the logarithm of total spending of candidates per registered voter (*LogSpendRV*). Indeed, the effect of candidates' spending should be positive, but the marginal return should decrease.

Secondly, in our model, we take into account the *Downsian closeness hypothesis*

(Downs (1957)), the impact of the expected closeness of the result on individuals' decisions whether or not to vote. Since we are studying the second round, we quantify the margin between the leading candidate and the runner-up in the first round of the elections that took place a week earlier (*Marge*)[15]. According to the literature (Fauvelle-Aymar and François (2006), and Indridason (2008)), the smaller this margin is in the first round, the higher the turnout is in the second round. Theoretically, the sign of this coefficient is therefore negative.

Thirdly, the variable *ThreeCand* controls for the composition of the choice of candidates in the second round, as it takes the value 1 when there are three candidates and 0 when there are only two candidates. As the presence of a third candidate increases the political choice available, we expect it to have a positive effect on turnout (François (2003)). As for the demography of the constituencies, we use the proportion of women in the total population (*Women*), and the proportion of 18 to 20 year-olds (*PopAge1820*) and over-60's in the total population (*PopAge>60*), given that there is a lower turnout among these two age groups.

Finally, the relationship to be estimated is quite similar to that form usually used in the literature (Gey (2006b)). Due to the spatial dimension of the sample, we must take into account the potential spatial dependence between the observations[16]. To do so, we use two common methods of estimation on spatial dependent data following the instructions suggested by Anselin and Hudak (1992). First, the spatial error model (SEM) treats spatial dependence as a nuisance in the error term of the estimation. Second, the spatially lagged dependent variable model (SLVM) sees spatial dependence as substance since in our case the turnout rate of a constituency is explained by the rate of other constituencies[17]. We simultaneously present the results obtained by both methods of estimation. To measure spatial dependence, we use a simple contiguity matrix in which the value 1 is assigned if two constituencies share the same border and zero otherwise[18]. The elements of this matrix are used in row-

standardized form. Since we use two measures of commuting and two estimation methods, we provide four estimations of the turnout.

ESTIMATIONS RESULTS

Table 4 illustrates results of the four estimations. It appears that the quality of the estimations is satisfactory and that the control for the spatial dependence is relevant. In each case, the estimated parameter of the spatial dependence is still statistically significant. Between the two methods, the SLVM gives estimations with better explanatory power. Nevertheless, we note that the results of the two methods are very close.

Insert table 4 about here

The variables used to measure the effect of dependence on turnout are all significant and have the expected sign. Firstly, constituencies with a higher proportion of homeowners (*Owners*) have higher turnout; that confirms the impact of patrimonial dependence. Secondly, constituencies with a high proportion of civil servants (*PubEmp*) or public-subsidized employment (*SubEmp*) also have higher turnouts. This appears to confirm the effect of dependence due to the nature of income.

Thirdly, the border has a strong effect on the turnout. Compared to constituencies without borders, those constituencies with a single border show a decrease in turnout of 0.7 or 1 percentage point depending on the method of estimation. And a constituency with two borders has the most significant decrease between 2.4 and 3 percentage points. Moreover, the daily commute to work in neighbouring countries (*Commuters x border*) has a negative and significant effect in the SLV model. An increase of one percent in the segment of the population working abroad in constituencies with at least one national border leads to a 0.1 percent reduction in turnout. The empirical analysis thus validates our predictions about the influence of territoriality on the decision whether or not to vote. This result highlights a border effect in electoral mobilization at the local level. In addition, the effects of cross-

border commuting cannot be explained by the neglected impact of the rate of unemployment (*UnEmp*), strengthening our conclusions. Indeed, the rate of unemployment has a strong influence on turnout of between -0.4 and 0.25 percentage points.

Finally, agricultural constituencies (*Farmers*), which accumulate positive turnout effects from all three forms of dependence, display a much higher rate of turnout than other constituencies. In any given constituency, the higher the proportion of the population working in the farming sector, the higher the turnout in national elections.

Our empirical results confirm the influence of territorial dependence on the political mobilization and a border effect in the electoral turnout in national elections.

CONCLUSION

This article demonstrates the effect of territorial dependence on the decision on whether or not to vote in national elections. It provides new insight into existing interpretations of the influence of patrimony and sources of income on electoral turnout and adds a geographical dimension that has, until now, been overlooked. More specifically, it demonstrates a substantial border effect on electoral mobilization: the constituencies with borders and with larger segments of the population who commute daily to work in neighbouring countries have lower electoral turnout. These results confirm our expected effects of dependence on electoral mobilization and reinforce the importance of geographical context on electoral behaviour.

This analysis could be pursued and developed through further empirical tests on local or European elections. At a local level, it is also likely that property-related dependence plays a very important role both in turnout and in political involvement, as the real estate value is very dependent on decisions concerning zoning and local government infrastructures. But, we question whether geographical dependence and the border effect are still present in local elections?

On the contrary, it is likely that European elections mobilise the voters who are most dependent on EU decisions, in other words border-dwellers, farmers, inhabitants of disadvantaged zones receiving European structural funds and the owners of movable capital.

REFERENCES

Aldrich, J. (1997). When Is It Rational to Vote? In *Perspective on Public Choice, a Handbook* ed., D. Mueller, pp.379-390. Cambridge: Cambridge University Press,

Bennett, J. and Orzechowski, W. (1983). The Voting Behaviour of Bureaucrats: Some Empirical Evidence. *Public Choice* 41, 271-283.

Bennett, C. (1991). What is Policy Convergence and What Causes it? *British Journal of Political Science*, 21(2), 215-233.

Blais, A. (2000). *To Vote or Not to Vote? The Merits and Limits of Rational Choice Theory.* Pittsburgh: University of Pittsburgh Press.

Blais, A. Blake, D. and Dion, S. (1997). *Government, Parties, and Public Sector Employees.* Pittsburgh: University of Pittsburgh Press.

Brennan, G. and Lomasky, L. (1993). *Democracy and Decision. The Pure Theory of Electoral Preference.* Cambridge (Mass.): Cambridge University Press.

Corey, E. and Garand, J. (2002). Are Government Employees more Likely to Vote?: An Analysis of Turnout in the 1996 U.S. National Election. *Public Choice* 38, 253-262.

Crozet, M. (2000). Mobilité du capital humain, localisation des activités et convergence des espaces européens, Economics PhD Dissertation, Paris, Université de Paris I Panthéon-Sorbonne.

Darmofal, D. (2006). The Political Geography of macro-level Turnout in American Political Development. *Political Geography* 25, 123-150.

Dhillon, A. and Peralta, S. (2002). Economic Theories of Voter Turnout. *Economic Journal* 112 (June), 332-52.

Donws, A. (1957). *An Economic Theory of Democracy.* New York: Harper et Brothers Publishers.

Fauvelle-Aymar, C. and François, A. (2005). Campaigns, Political Preferences and Turnout.

An Empirical Study of the 1997 French Legislative Elections. *French Politics* 2005(3), 49-72.

Fauvelle-Aymar, C. and François, A. (2006). The impact of closeness on turnout: An empirical relation based on a study of a two-round ballot. *Public Choice* 127, 469-491.

Feddersen, T. (2004). Rational Choice Theory and the Paradox of Not Voting. *Journal of Economic Perspective* 18(1), 99-112.

Filer, J. and Kenny, L. (1980). Voter Turnout and the Benefits of Voting. *Public Choice* 35, 575-585.

Filer, J. Kenny, L. and Morton, R. (1993). Redistribution, Income and Voting. *American Journal of Political Science* 37(1), 63-87.

Fiorina, M. (1976). The Voting Decision: Instrumental and Expressive Aspects. *Journal of Politics* 38(2), 390-413.

François, A. (2003). *Political Economy of Electoral Campaign Resources: Theoretical and Empirical Analysis*, Ph Dissertation University Paris 1 Panthéon-Sorbonne, unpublished.

Frey, B. and Pommerehne, W. (1982). How Powerful are Public Bureaucrats as Voters? *Public Choice* 38, 253-262.

Gey, B. (2006a). 'Rational' Theories of Voter Turnout: A Review. *Political Studies Review* 4, 16-35.

Gey, B. (2006b). Explaining Voter Turnout: A Review of Aggregate-Level Research. *Electoral Studies* 25, 637-663.

Gimpel, J. Morris, I. and Armstrong, D. (2004). Turnout and the Local Age Distribution: Examining Political Participation across Space and Time. *Political Geography* 23, 71-95.

Greene, K. and Nikolaev, O. (1999). Voter Participation and the Redistributive State. *Public Choice* 98(1-2), 213-226.

Hirschman, A. (1970) *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Harvard University Press

Hoffman-Martinot, V. (1994). Voter turnout in French municipal elections. In: Lopez-Nieto, L. (Ed.), *Local Elections in Europe*. Institut de sciences politiques I socials, Barcelona, pp. 13-42.

Indridason, I. (2008). Competition and Turnout: The Majority Run-off as a Natural Experiment. *Electoral Studies* forthcoming.

Jaarsma, B., Schram, A. and Van Winden, F. (1986). On the Voting Participation of Public Bureaucrats. *Public Choice* 48, 183-187.

Jones, P. and Hudson, J. (2000). Civic Duty and Expressive Voting: Is Virtues its Own Reward? *Kyklos* 53(1), 3-16.

McCallum, J. (1995). National Borders Matter: Canada-US Regional Trade Patterns",

American Economic Review, 85(3), 615-623.

Mueller, D. (2003). *Public Choice III*. Cambridge (Mass.): Cambridge University Press.

Riker, W. and Ordeshook, P. (1968). A Theory of the Calculus of Voting. *American Political Science Review* 62, 25-43.

Struthers, J. and Young, A. (1989). Economics of Voting. Theories and Evidence. *Journal of Economic Studies* 16(5), 1-43.

Tiebout, C. (1956). A Pure Theory of Local Expenditures. *Journal of Political Economy* 64(5), 416-26.

Tollison, R. and Willet, J. (1973). Some Simple Economics of Voting and Non-Voting. *Public Choice* 16, 59-72.

Ward, M. and Gleditsch K. (2008), Spatial Regression Models, *Quantitative Applications in the Social Sciences*, 155.

Wolfinger, R. and Rosenstone, S. (1980), *Who Votes?* New Haven: Yale University Press.

[1] See McCallum (1995) for a first empirical contribution to the study of the border effect, and Crozet (2000) for an empirical analysis of European countries.

[2] For a survey of policy diffusion and convergence, see Bennett (1991)

[3] For a recent survey of the literature, see Geys (2006).

[4] The issue here involves the source of voters' income, not the impact of wage levels on voter participation (Filer *et al.* (1993), Greene and Nikolaev (1999)), which is based on other arguments.

[5] As there is no yearly update of this census at a constituency level, we assume that the differences observed between constituencies are stable between 1997 and 1999.

[6] For an economic analysis of voter participation in the first round of these elections, see Fauvelle-Aymar and François (2005), and François (2003).

[7] This situation arises when two candidates from the same block (left-wing or right-wing) have obtained enough votes to go through to the second round, and the candidate in second place has respected the coalition agreement and withdrawn in favour of the other.

[8] The statistical description of the variables is given by the appendix 1.

[9] The list of these constituencies can be obtained on request.

[10] As we have already excluded overseas territories from our sample, borders with non-European countries are not taken into account.

[11] This is not the precise percentage of the population working abroad but an approximation, based on the assumption that in border constituencies most of the people working outside the region actually work abroad. There are 21 administrative regions in metropolitan France (excluding the island of Corsica).

[12] The category of subsidised jobs corresponds to a specific contract offered by public administrations or non-profit organizations for the long-term unemployed.

[13] Defined as the share of the working population without a job.

[14] Appendix 1 presents the statistical characteristics of the variables.

[15] The precise definition chosen takes into account the multi-party nature of the election, and is expressed by

$$Marge = \frac{V_1 - V_2}{\sum_i V_i}$$

[16] Indeed, the OLS estimation of model with spatial effects is irrelevant. If the model takes the form of a spatial error model, the OLS method gives inefficient estimators. And if the model takes the form of a spatially lagged dependent variable model (SLVM), the OLS estimation gives both inefficient and biased estimators.

17 For a more accurate discussion, see Ward and Gleditsch (2008).

17 There is no numeric information on the geographic definition of the French legislative constituencies due to the complex redistricting done in 1987.

Table 1: Empirical predictions: electoral turnout and dependence

Origin of dependence	geography		income		wealth	
	national	foreign	state	market	mobile	immobile
Predicted effect on electoral turnout	+	-	+	-	-	+

Table 2: Turnout in the second round of the 1997 legislative elections (531 constituencies)

	mean	s.d.	min	max
Turnout	71.73	4.36	55.29	84.9

Table 3: Turnout in the constituencies with borders

	Nb of obs.	Percent of turnout[a]	Percent of people daily commuting aboard to work [a]
no borders	466	71.97	3.65
	87.76 %	72.17	3.59
1 border	59	70.50	7.32
	11.11 %	70.41	7.54
2 borders	6	65.35	23.75
	1.13 %	65.26	24.31
overall	531	71.73	4.29
	100%	71.90	4.28

(a): the first line in the "turnout" and "commuting" columns gives the simple mean of turnout, the second line gives the weighted mean (by population size)

Table 4: Estimations of turnout at the second round of the 1997 French legislative elections (N=531)

Dep. variable: turnout (% of registered voters)	SEM	SLVM	SEM	SLVM
Indep. var.	coefficient (se)	coefficient (se)	coefficient (se)	coefficient (se)
LogSpendRV	0.64 (0.47)	0.74 (0.47)	0.70 (0.47)	0.85 (0.46) *
ThreeCand	2.19 (0.31)***	1.77 (0.29) ***	2.24 (0.31) ***	1.79 (0.29) ***
Marge (1st round)	-0.10 (0.02)***	-0.10 (0.02) ***	-0.10 (0.01) ***	-0.10 (0.02) ***
Women	-0.29 (0.15) *	-0.06 (0.13)	-0.26 (0.15) *	-0.07 (0.13)
PopAge1820	-0.11 (0.19)	-0.56 (0.15) ***	-0.11 (0.19)	-0.54 (0.15) ***
PopAge>60	0.04 (0.06)	-0.11 (0.04) **	0.04 (0.05)	-0.09 (0.04) **
Farmers	0.18 (0.07) ***	0.26 (0.06) ***	0.19 (0.07) ***	0.25 (0.06) ***
Owners	0.10 (0.02) ***	0.09 (0.01) ***	0.11 (0.02) ***	0.09 (0.01) ***
PubEmp	0.09 (0.04) **	0.07 (0.03) **	0.10 (0.02) **	0.06 (0.03) **
SubEmp	1.18 (0.29) ***	0.99 (0.22) ***	1.12 (0.28) ***	0.94 (0.21) ***
UnEmp	-0.38 (0.06) ***	-0.25 (0.05) ***	-0.36 (0.06) ***	-0.25 (0.05) ***
None border	-	-	-	-
One border	-0.94 (0.44) **	-0.68 (0.33) **	-	-
Two borders	-2.38 (1.12) **	-2.99 (0.94) ***	-	-
Commuters x border	-	-	-0.03 (0.03)	-0.08 (0.02) ***
Intercept	79.50 (7.76) ***	36.11 (7.23) ***	77.53 (7.71) ***	36.07 (7.20) ***
Rho	-	0.52 (0.03) ***	-	0.52 (0.03) ***
lambda	0.69 (0.04) ***	-	0.70 (0.04) ***	-
Tests (chi²) of rho or lambda =0:				
Wald test	354.3 ***	231.9 ***	365.7 ***	237.2 ***
Likelihood ratio test	199.7 ***	174.2 ***	198.0 ***	177.8 ***
Lagrange multiplier	222.3 ***	202.6 ***	209.4 ***	209.5 ***
Log likelihood	-1169.33	-1182.04	-1172.29	-1182.41
Variance ratio	0.43	0.71	0.42	0.71
*** means the coefficient is statistically significant at the 1 percent level, ** at the 5 percent level and * at the 10 percent SEM : spatial error model ; SLVM : spatially lagged dependent variable model				