

# Entry Barriers to Political Markets and Strategic Voting<sup>1</sup>

Enrique García Viñuela  
Universidad Complutense de Madrid  
[garciavi@der.ucm.es](mailto:garciavi@der.ucm.es)

Joaquín Artés  
Universidad Complutense de Madrid  
[jartes@der.ucm.es](mailto:jartes@der.ucm.es)

## Abstract

Strategic voting has been extensively studied in mass elections. Many empirical papers that estimate strategic voting capture voter's incentives to behave strategically with variables that describe constituency characteristics in the previous election. The use of lagged variables is potentially problematic as they do not reflect constituency incentives at the time voting decisions are made and also are likely to be correlated with current error terms, biasing the estimates. In this paper we suggest a new measure of strategic incentives suitable for proportional representation systems that avoids some of the problems associated with lagged variables. We employ the new measure to examine the extent of strategic behavior in the 2008 Spanish general election and find that it was around 2.4 per cent of the votes cast. We argue that this estimate is a conservative one as we control for elite mobilization in the constituencies, which is unusual in the literature on strategic voting that uses regression based methods.

**Key words:** Strategic Voting, Proportional Representation Systems, Elite Mobilization, Spanish elections.

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## **Introduction**

Downs (1957: 48) considered “irrational” (that is, not utility maximizing) to vote for a party if it had no chance of winning. This implication of the economic theory of the vote has been extensively researched in mass elections since the early 1990s. Many empirical papers that analyze strategic voting using microdata capture voter’s incentives to behave strategically with measures of constituency characteristics during the previous election, such as lagged parties’ vote shares. The use of lagged variables is potentially problematic since they do not reflect existing conditions in the constituencies and may produce biased parameter estimates as they are likely to be correlated with current error terms. In addition most of the literature employs variables that are not well suited for multi-member districts. In this paper we propose a new measure of strategic incentives that is appropriate for proportional representation systems and avoids some of the problems derived from the inclusion of lagged constituency characteristics in the voting function. We applied the new variable to investigate the extent of strategic behavior in the Spanish general election of 2008 and find that it was around 2.4 per cent of the national vote. We argue that this estimate is a conservative one as we control for party activity in the constituencies, a feature which is rare in papers on strategic voting based on regression methods. Controlling for party effort implies that voters who abandon their hopeless first choice party to vote for a less preferred party with a better chance of winning a legislative seat due to the campaign activities in the constituency of the second party are excluded from our estimate.

The paper is organized as follows. In the next section we review the variables employed by the literature to capture constituency conditions that influence voters’ strategic behavior. Section 3 presents an alternative measure of strategic incentives which consists on the effective barrier that minor parties have to meet to enter the national legislature. This measure is built with contemporary information and solves some of the problems originated by the use of lagged variables. Section 4 is devoted to data and statistical methods. In Section 5 we present the empirical evidence and discuss the results. Finally we summarize the conclusions.

## Measures of Strategic voting in previous literature

Empirical papers on strategic voting have computed its prevalence using different measures depending on the researchers' approach, data availability and the characteristics of the political system under study (see Table 1). The most frequently analyzed is the British political system and especially the 1983 and 1987 general elections in which the presence of the Alliance (between the Liberal and the Social Democratic parties) as an alternative to the Conservatives and Labour heightened the opportunities for strategic behavior. Johnston and Pattie (1991) examine the two elections capturing incentives for strategic voting through a variable defined as the difference in the vote share of the incumbent party in the previous election minus the sum of the vote shares for the other two parties also in the previous election. The sign for this variable should be negative in the presence of strategic voting as the smaller the margin of victory of the incumbent party candidate in the last election, the greater the incentives to vote strategically. Alvarez and Nagler (2000) analyze the 1987 elections using two variables to capture strategic incentives in the constituencies. The first measure is defined as  $W1iL = |\max(C, A) - L|$ , where C, A and L are the vote shares in each district in the previous election of the Conservatives (C), the Alliance (A) and the Labour party (L). Their second measure is defined as  $W2iL = 1/|C - A|$ , implying that the smaller the difference between the Conservatives and the Alliance the bigger the incentive to behave strategically. Alvarez, Boehmke and Nagler (2006) use similar variables to study the 1987 and 1997 British elections.

[TABLE 1 ABOUT HERE]

The three papers mentioned above use lagged vote shares to construct their variables of interest. Employing lagged vote shares to capture strategic incentives is problematical for at least two reasons. The first one is that lagged measures do reflect past conditions in the constituencies and therefore may not capture incentives to vote strategically at the time voting decisions are taken. Secondly, as lagged variables may incorporate the effect of strategic voting in the previous election, they may bias the estimates of strategic voting in the current election.

Several papers have studied British elections using measures that do not rely on lagged constituency characteristics to capture strategic incentives. For example Niemi, Whitten and Franklin (1992), utilize the distance from contention as their main variable to study the 1987 election. They define it as the difference between the percent of votes obtained in the constituency by the most preferred candidate and the lowest among the share of votes of the two candidates that lead the race. Constituency vote shares in the upcoming election expected by voters or predicted by public opinion polls would be a proper measure to construct their variable. Lacking this information, Niemi, Whitten and Franklin (1992), following Crain (1978) and Black (1978), employ the actual constituencies' outcomes in the 1987 election.

Lanoue and Bowler (1992) also use contemporary constituency incentives to analyze voting behavior in the 1983 and 1987 elections. They propose two variables. The first, marginality, reflects how safe a district is for a given party. This variable is a dummy scored 1 if the percent of votes required to defeat the incumbent candidate is 5 per cent or less (0 otherwise). The second variable is a dummy which takes the value 1 if the preferred party candidate of a voter is expected to be in the third place in her constituency in the upcoming election (0 otherwise). As pre-electoral polls including such information are rarely available at constituency level, Lanoue and Bowler utilize the actual results from the current election as a proxy.

While the use of parties' vote shares from the current election avoids some of the problems originated by lagged variables, they are far from satisfactory. On the one hand they are not known by voters before the election and therefore their validity to capture strategic incentives relies on the assumption of voter's perfect foresight. On the other hand the use of contemporaneous vote shares introduces an endogeneity bias in the estimates as the electoral outcome and the voting decision are determined simultaneously.

An additional drawback which affects both the anticipated and the lagged measures mentioned above is that they have been devised for single member district plurality systems and are not well suited for proportional representation democracies. In PR systems a party that is third in the polls or that is very far from the vote shares of the two leading parties may still attain a legislative seat in a large constituency where many

representatives are elected. To capture this circumstance, studies such as Lago (2005, 2008) and García Viñuela and Artés (2009, 2010) use measures that take into account district magnitude alone or in addition to differences between vote shares in the constituencies. García Viñuela and Artés (2010) analyze the Spanish general elections of 2000, 2004 and 2008. The variable of interest in their study is the electoral distance between the two main Spanish parties on the left, measured as the difference in the vote shares of the two parties in each constituency in the previous election normalized by district magnitude. This variable seems appropriate to analyze strategic voting in proportional representation systems as it incorporates the number of representatives to be elected in each constituency. However it also employs lagged vote shares and therefore suffers from the same shortcomings as the lagged variables employed in the research of British elections.

Lago (2005, 2008) studies Spanish general elections from 1979 to 2000 with four different measures for strategic incentives. Two of them are built only with contemporary information: the first is a dummy scored 1 for constituencies that elect 5 or more representatives and 0 otherwise; the second is the number of representatives to be elected in each constituency. These variables do not suffer from any of the econometric problems mentioned above as they use neither lagged information nor information unavailable for the voter before the election. However nominal barriers to political representation do not take into account the number of parties running for seats in each constituency, making them imprecise proxies of current incentives to vote strategically. A potential improvement upon the measures based on district magnitude would be to take into account the effective barriers of entry in each constituency, such as the number of votes a party needs to win a seat in a multimember constituency. In the next section we describe such a measure.

### **Effective entry barriers as an incentive to vote strategically**

According to the discussion in the previous section, a good variable to capture strategic incentives in proportional representation systems should: 1) Reflect differences in constituency incentives to vote strategically; 2) avoid the use of lagged vote shares and vote shares from the upcoming election, since they are unknown to the voter; and 3)

take into account only information accessible to the voter before the election. One such variable could be built using individuals' expected vote shares in the forthcoming election from pre-electoral survey data or aggregate predicted vote shares from opinion polls at the constituency level. As such information is not commonly available in many countries, we propose a variable which reflects contemporary constituency characteristics: the effective threshold of representation (*thref*), which is the share of the vote that allows a party to attain its first seat in a constituency.

The effective threshold of representation can be computed from the values of the threshold of inclusion and the threshold of exclusion. The former is the minimum share of popular support a party needs to gain a seat under optimal conditions in the distribution of votes in the constituency. For the d'Hondt rule, the threshold of inclusion (*thrinc*) can be calculated from the following formula:

$$thrinc = \frac{100}{M + p - 1}$$

where *M* is the number of seats to be allocated in the constituency and *p* the number of parties competing for those seats.

The threshold of exclusion is the maximum vote share that may not be enough to gain a seat under the most unfavorable circumstances. For the d'Hondt allocation rule, the threshold of exclusion (*threxc*) does not depend on the number of parties running in the constituency:

$$threxc = \frac{100}{M + 1}$$

where *M*+1 is the number of viable party lists in a district of size *M*.

When a party reaches the threshold of inclusion in a constituency it may be awarded a seat while the seat is guaranteed when it passes the exclusion threshold. The exact value of the effective threshold is somewhere between the lower and the upper limits. In the absence of specific information about the distribution of votes, Taagepera and Shugart (1989: 116-7, 274) define the effective threshold as the mean value of the upper and lower thresholds:

$$thref = \frac{50}{M + p - 1} + \frac{50}{M + 1}$$

Since the number of representatives to be elected (M), the seat allocation formula and the number of parties running in the district (p) are information known before the election is held, thref is a predetermined variable.

The effective threshold of representation has several advantages compared to alternative measures. First, it is suitable for proportional democracies. Second, it reveals incentives to vote strategically at the time voting decisions are taken, not a few years before, as lagged variables do. Third, it avoids potential bias in the estimates created by lagged measures of vote shares which may incorporate the effect of strategic voting in the previous election. Fourth, it is computed from information available to voters before the election is held. Fifth, it is free from the endogeneity problems generated by the use of actual vote shares from the current election. Finally, it is more accurate than district magnitude, which does not allow for the number of parties running in the constituency.

An additional advantage of this variable is that it has a clear interpretation in terms of strategic voting. As Taagepera (2002: 399) states, “Implicit thresholds are a measure of the openness of the system to small parties”. Therefore effective thresholds can be seen as entry barriers to political representation. A high threshold will make more difficult for minor parties to achieve a legislative seat, so we expect minor party sympathisers in the constituency to switch their vote to more viable parties as the effective threshold of representation raises. That is, we expect the coefficient of the thref variable to be negatively signed for supporters of minor parties.

### **Empirical estimation**

We use the effective threshold of representation to estimate the amount of strategic voting in the Spanish general election of 2008. Spain is a good setting to test the strategic voting hypothesis. There are at the national level two major parties (the

conservative Popular Party, PP, and the socialist party, PSOE)<sup>2</sup> and at the left of the PSOE a smaller party, the United Left (IU). The fact that the vote distribution of the IU is widely dispersed creates an incentive for its electorate to support the PSOE in those constituencies where the IU is unable to win a legislative seat. This incentive is exacerbated by the impact of four characteristics of the Spanish electoral system. First, district magnitude (the number of seats per district) is small: its mean value is 7 seats and its distribution is highly skewed: almost 80% of the constituencies elect 7 or less deputies<sup>3</sup>. Second, the d'Hondt formula which translates votes into seats in the lower legislative house (Congreso de los Diputados) favors large parties and parties with a geographically concentrated electorate. Third, there is no mechanism at the national level to redress the disproportionalities created by the allocation formula in the constituencies. Fourth, the electoral law stipulates a threshold of representation at the district level of 3% of the formal votes (i.e., overall votes excluding those that are blank or incorrectly filled out), preventing any party with a share of the vote below the legal threshold from attaining a seat in the constituency<sup>4</sup>.

### *Procedure*

We compute the number of strategic voters using a two stage simulation procedure based on Alvarez and Nagler (2000). In a first stage we estimate a probit model of electoral choice which includes among the explaining factors the effective threshold of representation. From this estimation we predict the vote choice of each respondent in our sample. In the second stage of the analysis we compute again the predicted vote choice of the same individuals using the coefficients from the first stage estimation but simulating that constituencies' conditions change and the only incentive to vote strategically is the one created by the existence of the 3% legal threshold<sup>5</sup>.

Since we model the vote choice of the Spanish leftish electorate our dependent variable consists of two categories: voting for the PSOE (the base outcome) and voting for the

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<sup>2</sup> The PSOE held office from 1982 to 1996 and since 2004; the PP from 1996 to 2004.

<sup>3</sup> Spain is divided into 52 legislative constituencies (provincias). District magnitude variation is among the largest in Europe (Monroe and Rose, 2002). It ranges from 1 (in Ceuta and Melilla, small enclaves in the North African coast) to 35 in the province of Madrid.

<sup>4</sup> The features enumerated fit what Rae, Hanby and Loosemore (1971) call "the gate-keeping properties" of electoral systems.

<sup>5</sup> Madrid and Barcelona are the only constituencies with values of the effective thresholds below 3%.



IU<sup>6</sup>. Apart from the strategic incentives variable, we include four types of covariates in the first stage. A first group consists of voter's socio-demographic characteristics such as age, gender, occupation, marital status, education, religiosity, subjective social status, level of electoral information and perception of the household and the national economy<sup>7</sup>. A second group of covariates tries to capture voters' political preferences through their opinion of political leaders (a proxy for their perceived ability) and the relative ideological distance between the individual voter and the two national parties on the left (the PSOE and the IU). The third group of variables consists of a direct measure of party effort, defined as the number of campaign rallies organized by the PSOE apparatus in each constituency during the electoral campaign. We incorporate this covariate because research has shown that campaign activity influences voter behaviour (Green and Krasno, 1988; Johnston et al., 1989; Johnston and Pattie, 1991, 1995 and 1997; Pattie et al., 1995; Denver and Hands, 1997; Criado, 2008). In addition part of the literature (Galbraith and Rae, 1989; Cox, 1997: 98; 1999; Lago, 2005: chapter 6; 2008) attributes strategic voting to the campaign efforts made by the beneficiary party. A measure of party effort is needed therefore to separate voters' response to the strategic conditions they confront in the constituencies from behaviour brought about by the activities of party elites. Finally we include two regional dummies to control for the differences in the structure of party competition in the Basque Country and Catalonia, where the votes cast for nationalists' parties range from a fourth to a third of the overall vote in both regions<sup>8</sup>. All the individual and aggregate variables in the model are described in the Appendix.

## *Data*

Data to estimate the probit model came from three sources. For individual level data (voters' demographic characteristics and political preferences) we use a face to face

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<sup>6</sup> We have estimated also a multinomial probit with three options for the dependent variable: vote for the PSOE, vote for the IU and abstention, to take into account the abstention prone Spanish leftist electorate. The estimates of this alternative specification for the IU voters (available from the authors) are basically the same so we report the coefficients of the binomial probit.

<sup>7</sup> Ideally we want to control for all the personal characteristics of voters which may explain their choice to support the IU versus the PSOE.

<sup>8</sup> Catalonia and the Basque Country are the only Spanish regions (Comunidades Autónomas) where the PSOE and the PP are not the dominant parties. The IU also meets competition in those regions from leftist parties which do not run nationwide.

postelectoral survey conducted by the Spanish Center for Social Research (CIS: Centro de Investigaciones Sociológicas) that sampled 6083 individuals a month after the 2008 election. The CIS surveys use a stratified random sampling design meant to be representative of the Spanish population of eligible voters. They are the largest and most systematic surveys on political behaviour and attitudes in Spain and have been widely employed in electoral research. Election outcomes from the 50 constituencies<sup>9</sup> were taken from the Spanish Ministry of the Interior, the government department in charge of collecting and publishing election returns. We evaluate the intensity of parties' mobilization efforts by the number of campaign rallies in the constituencies, similarly to Herr (2002), Shaw (1999) and Jones (1998)<sup>10</sup>. The number of rallies was compiled by the authors from information published by the two Spanish leading newspapers (*El País* and *El Mundo*) in the 30 days previous to the election.

### *Econometric problems*

The incorporation of the number of campaign rallies among the covariates is a challenge for the econometric estimation because this variable is likely to be endogenous and thus bias the coefficients. We deal with this problem following the two stage residual inclusion (2SRI) procedure suggested by Terza, Basu and Rathouz (2008) to address endogeneity in models in which the probability of an outcome is a non linear function of the explanatory variables. In the first stage we estimate a reduced form equation for the presumably endogenous PSOE electoral mobilization measure. To predict the number of the PSOE campaign rallies we use as instruments the number of votes that the PSOE would have needed to win the last seat in the constituency in the previous (2004) election, a dummy for those constituencies that changed the number of representatives to be elected in the 2008 election and finally the number of campaign rallies organized by the PP. In choosing these instruments we assume that parties allocate campaign effort with the goal of either attaining a new seat or avoid losing one they already have in those constituencies where the difference in votes to the marginal seat is small or the

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<sup>9</sup> The single member constituencies of Ceuta and Melilla were removed from the analysis because they are not sampled in the CIS post-election surveys.

<sup>10</sup> An alternative measure of candidate or party effort used in the literature (Jacobson, 1978, 1990; Green and Krasno, 1990; Johnston and Pattie, 1991; Criado, 2008) is campaign spending in the individual constituencies. We could not use the expenditure measure because Spanish parties do not provide this information disaggregated at the constituency level.

representatives elected vary due to changes in the district's population. As the PSOE and the PP are the main contenders for legislative seats in most constituencies, the campaign activities of the two parties are interdependent.

In the second stage we use the residuals from the reduced equation as an additional covariate together with all the other explaining factors, including the number of the PSOE campaign rallies. The residual term included in the estimation of the vote choice model serves two purposes in the 2SRI procedure. First, it allows us to test for endogeneity by looking at the significance of its coefficient. Secondly, in case of endogeneity, it corrects the potential bias yielding consistent estimates of the parameters.

The application of this method to our data produced very good results for the first step model, which supports the choice of instruments. The test of over identifying restrictions also supports the choice of instruments: the Amemiya-Lee-Newey minimum chi square statistic yielded a p-value = 0.42. However the coefficient of the first stage residual in the second stage regression was far from conventional significance levels (p-value = 0.45). We take this result as evidence of the absence of an endogeneity bias in the original model and therefore report only the coefficients of the simpler model in which endogeneity was not dealt with.

## **Results**

Table 2 displays the probit coefficients of the vote choice model. The default category is voting for the PSOE, therefore all the coefficients should be interpreted in relative terms; that is, as increasing (if positive) or decreasing (if negative) the probability of voting for the IU compared to voting for the PSOE. The model correctly classifies 93% of the votes reported in our sample of 1592 voters.

[TABLE 2 ABOUT HERE]

Some researchers in the field of strategic voting find systematic effects of education (Felsenthal and Brichtha, 1985; Galbraith and Rae, 1989; Niemi, Whitten and Franklin,

1992; Blais, Young and Turcotte, 2005) while others do not (Lanoue and Bowler, 1992; Heath and Evans, 1994; Duch and Palmer, 2002; Choi, 2009). Choi claims that voters' information, a proxy for their interest in the election, is more relevant to predict strategic behaviour than the level of formal education and that the impact of education fades away when the information variable is controlled for. Our results provide no evidence that the propensity to vote strategically is related either to voters' formal education or their level of information. As the probit coefficients show, we find some evidence of sociotropic logic at the polls and class based voting, like Torcal and Chhibber (1997): The favorable opinion about the performance of the national economy increases significantly the vote for the PSOE, the governing party since 2004. On the contrary, support for the IU turns out to be more likely among self identified lower class voters, although somehow inconsistently not among those who report earnings below median income.

We incorporate in the model two variables to capture political preferences: voters' assessment of party leaders and the distance between the ideology of the voter and the two national parties on the left<sup>11</sup>. As expected, a good opinion of the PSOE leader affects negatively voting for the IU. But as the ideological distance of the voter relative to the PSOE and the IU widens, voting for the IU becomes more probable. This finding supports the role that the spatial model of politics ascribes to ideological proximity in party choice; a feature repeatedly emphasized by the growing literature on the behavior of Spanish voters (Gunther and Montero, 1994; Torcal and Chhibber, 1997; Maravall and Przeworski, 2001; Fraile, 2005; Lago, 2005; González y Bouza, 2009; Fraile and Lewis-Beck, 2010).

The estimated parameter of the electoral mobilization variable is highly significant (p-value = 0.000) and has the predicted negative sign, indicating that campaign efforts of the Socialist Party apparatus are effective in persuading potential IU supporters to vote for the PSOE instead of voting for the IU. The inclusion of the mobilization measure among the explaining factors allows us to separate the effects on voting behaviour motivated by party campaigning and by the strategic incentives that voters face in their

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<sup>11</sup> The ideological gap variable is computed as the difference in the ideological scale between the distance of the voter and the mean placement of the PSOE and the IU, according to all the respondents in the CIS survey. Both distances are taken in absolute values. For more details see the Appendix.

constituencies. Our results show that strategic voting still exist when elite activity in the individual constituencies is accounted for. The variable that captures constituency incentives exerts a highly significant influence ( $p\text{-value} = 0.001$ ) on IU electors and operates in a direction consistent with the hypothesis that higher entry barriers to political representation at the district level (as measured by effective thresholds) weaken the probability to vote for small parties, like the IU. To check for interaction effects we estimated also the full probit model adding an interaction of the strategic incentives measure and the mobilization variable. If the theory that attributes strategic voting to elite efforts is correct, we should expect a positive and significant coefficient of the interactive term. That is, we ought to observe more mobilization activities in those constituencies with higher effective thresholds, where the potential for strategic voting is greater. Actually what we find is that the coefficient of the interactive term is positive, but far from being significant ( $p\text{-value} = 0.48$ ) while the rest of the coefficients remain stable<sup>12</sup>. So our evidence does not support the view that strategic voting is a response to elite efforts.

The coefficients of the probit regression in Table 2 are used to predict the number of effective and sincere votes for both parties. We call effective voters those who are predicted to choose a particular party under the current incentives in the constituency and sincere voters those predicted to vote for a party when the effective threshold of representation is simulated to be 3 per cent (the legal threshold or minimum vote share a party needs to be taken into account in the distribution of seats in the constituency) in those constituencies where it exceeds the 3% level. The difference between the sincere and effective voters for a party yields the number of strategic voters.

[TABLE 3 ABOUT HERE]

In Table 3 we present the results of the simulation procedure. The off diagonal elements of the table are the relevant ones as they refer to individuals who are predicted by the model to be sincere voters of the IU (that is to say, individuals for whom the IU is their first preference party), but whose final choice was to vote for the PSOE (that is, they are effective voters of the PSOE). Table 3 shows that 78 sincere IU voters in the sample are

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<sup>12</sup> The results are available from the authors.

effective PSOE voters. The distribution of these strategic voters by district magnitude is as follows: 43 (55%) are at constituencies with 5 or less deputies, 32 (41%) at constituencies which elect between 5 and 10 deputies and the remaining 3 (4%) at constituencies with more than 10 representatives. This result shows that strategic voting is possible in large districts, as Lago (2008) sustains, but it seems to be far less frequent, as theoretically expected. A further analysis of the socio-demographic characteristics and preferences of the strategic voters found in our sample reveals that they correspond closely with those of the average IU voter: a man of middle age (in the early 40s), with an education close to secondary school level, not religious, who belongs to a lower middle class social status and locates himself in the ideological scale between the IU and the PSOE<sup>13</sup>.

According to our research, in the 2008 election the IU lost 47% of its electoral base due to what may be called autonomous strategic voting (that is, a choice at the polls motivated by voters' evaluation of the conditions they confront in their constituencies). Thus some 860,000 IU supporters switched their votes to the PSOE because their favorite party had no realistic chance of overcoming the established barriers to gain representation in their constituencies. Rates of strategic defection of the magnitude experienced by the IU are not exceptional. Alvarez et al. (2006: 14) find that among the British electors who had the opportunity to vote strategically 43% did so in the 1987 election and 64% in the 1997 election.

[TABLE 4 ABOUT HERE]

In Table 4 we show the estimated extent of strategic behavior in the 2008 Spanish general election using different measures for the strategic incentives variable. The purpose of this table is to compare the results of our preferred measure to those obtained when the same model is estimated with variables similar to the ones employed by the empirical literature. The probit coefficients of the four strategic incentives measures have the predicted signs and are significant at least at the 5% level. The estimated extent

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<sup>13</sup> The mean ideological placement on the 10 points left- right scale of the major national Spanish parties was 2.4 for the IU, 4.0 for the PSOE and 7.8 for the PP, according to respondents to the 2008 CIS pre-election survey. The respondents' self-placement mean was 4.6. IU supporters who voted for the PSOE located themselves at point 2.7 in the scale, as the average IU voter.

of strategic voting ranges from 1.4 to 2.9 depending on the variable used. As shown in the table, we obtain more strategic votes with the two contemporary information variables than with the two variables based on lagged constituency characteristics from the previous election. Relative to our favourite measure, the effective threshold, the underestimation of strategic behavior by lagged variables ranges from 9% to 38%.

[TABLE 5 ABOUT HERE]

In a comparative perspective the 2.4% of strategic voting we find using the effective threshold variable is in the lower half of the range of estimates reported by the literature listed in Table 5. In order to evaluate this result is worth noting that our estimate does not compute as strategic voting the influence of elite mobilization on voters' turnout. Moreover our estimate is a conservative one because we restrict the analysis to the IU, the biggest victim of strategic defection, ignoring the voting choice of the electorate of nationalist and regional leftish parties. It seems plausible that some sincere supporters of these parties might have abandoned them at the polls for strategic motivations. And similar incentives were at work for the electors of small rightwing parties to vote strategically for the PP. Unfortunately there are not enough observations in the post-election survey to estimate reliably the behaviour of those smaller party sympathizers.

## **Conclusion**

This research shows that strategic behaviour at the polls was a relevant phenomenon in the 2008 Spanish general election. Its aggregate amount was at least 2.4 per cent of the votes cast and it was clearly detrimental for the United Left. Almost half of the eligible voters for whom the United Left was the preferred party ended up voting for the Socialist Party for strategic reasons. Since we control for campaign effort in all the probit regressions, the number of strategic votes we find is a conservative one and cannot be attributed to elite mobilization in the constituencies. This paper contributes to the existing literature on strategic voting by using an incentives measure that is suitable for proportional representation systems and does not depend on anticipated constituency outcomes or lagged vote shares. We find some evidence that incentive variables based on lagged information underestimate the extent of strategic voting behaviour.

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## Appendix: Variable description

Individual variables<sup>14</sup>:

\**age*: respondent's age in years.

\**class*: self-identified social class status: upper or middle-upper class=0, middle class=1, middle-lower or lower class=2.

\**countryeco*, *familyeco*: respondent's assessment of the performance of either the national economy (*countryeco*) or his/her household (*familyeco*). Both are coded 0 if the economic situation is perceived as bad or very bad, 1 if neither bad nor good, and 2 if good or very good.

\**education*: illiterate=0, primary education=1, high school=2, university education=3.

\**earnings*: monthly family earnings categorized as 0 if the respondent's family earnings are between 1,200 and 1,800 €, 1 if below and 2 if above.

\**gender*: female=0, male=1.

\**information*: respondent's level of information about election related matters: poor=0, middle=1, high=2.

\**notsingle*: dummy =0 if the respondent is single, 1 otherwise.

\**ps-iugap*: distance between the respondent self-placement in the ideological scale ( $x_i$ ) relative to the mean placement assigned by all the respondents to the PSOE ( $x_{PSOE}$ ) and the IU ( $x_{IU}$ ). It is computed as:

$$|x_i - x_{PSOE}| - |x_i - x_{IU}|$$

The ideological scale is a 1 to 10 left-right scale, where 1 means extreme left and 10 extreme right.

\**iuleader*: respondent's evaluation of the leader of the United Left on a scale ranging from 0 (very bad) to 10 (very good).

\**psleader*: respondent's evaluation of the leader of the Socialist Party in a scale ranging from 0 (very bad) to 10 (very good).

\**occupation*: housewife=0, student=1, unemployed=2, retiree=3, employed=4.

\**religion*: atheist=0, not practicing believer=1, practicing believer=2.

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<sup>14</sup> The survey questionnaire, the response code for the individual variables and the details about the sampling procedures are available at the Center for Social Research (CIS) website: [www.cis.es/cis/openm/ES/1\\_encuestas](http://www.cis.es/cis/openm/ES/1_encuestas).

*\*vote*: respondent's reported choice in the 2008 general election: 0 if voted for the Socialist Party (PSOE), 1 if voted for the United Left (IU).

Aggregate variables:

*\*Cat*: dummy =1 if the constituency is in the Autonomous Community of Catalonia, 0 otherwise.

*\*Eusk*: dummy =1 if the constituency is in the Basque Country Autonomous Community, 0 otherwise.

*\*districtsizechange*: dummy =1 in those districts where the number of seats change in the 2008 election, 0 otherwise.

*\*psmarginal*: number of additional votes (as a percent of the PSOE votes in the constituency) the PSOE would have needed to gain the last seat in each constituency in the 2004 election; 0 if the PSOE gained the last seat.

*\*ppmarginal*: number of additional votes (as a percent of the PP votes in the constituency) the PP would have needed to gain the last seat in each constituency in the 2004 election; 0 if the PP gained the last seat.

*\*psmobilization*: number of constituency visits by the Socialist candidate for Prime Minister and other senior party leaders to held rallies or similar events in the four weeks previous to the election.

*\*ppmobilization*: number of constituency visits by the Popular Party candidate for Prime Minister and other senior party leaders to held rallies or similar events in the four weeks previous to the election.

*\*thref*: effective threshold of representation at the constituency level, defined in section 3 of the paper.

**Table 1. Variables used in the literature to capture strategic voting**

<i>Paper</i>	<i>Variable</i>
<i>Johnston and Pattie (1991)</i>	$CDIF = C - (L - A)t - 1$ $LDIF = L - (C - A)t - 1$
<i>Niemi, Whitten and Franklin (1992)</i>	Distance from contention: $PFPV - (P1V - P2VS)$
<i>Alvarez and Nagler (2000)</i>	$W1iL =  \max(C, A) - L t - 1$
<i>Alvarez, Boehmke and Nagler (2006)</i>	$W2iL = 1 /  C - A t - 1$
<i>Blais, Nadeau, Gidengil and Nevitte (2001)</i> <i>Blais, Young, Turcotte (2005)</i>	Voters perception of the probability of a party winning in a constituency
<i>Garcia Viñuela and Artés (2010)</i>	$Diff =  PSOE - IU t - 1 / M$
<i>Garcia Viñuela and Artés (2009)</i>	$Diff =  PSOE - IU t - 1$
<i>Lanoue and Bowler (1992)</i>	Marginality: dummy scored 1 if the vote change required to defeat the incumbent is less than 5% of the constituency vote.  Third: dummy equal 1 if the first choice party ends up in third place in the current election and 0 otherwise.
<i>Lago (2005, 2008)</i>	$Cox = 1$ if $M$ is $\leq 5$ $M$ Representation = 1 if IU did not attain a parliamentary seat in the district in the previous general election Votes = number of votes that the PSOE would have needed to obtain an additional seat in the district in the previous general election, defined as $1 /  votes $ $Diff =  PSOE - IU t - 1$

*Notes: Definitions:*

*C:* votes of the Conservatives at the constituency level.

*L:* votes of the Labour party at the constituency level.

*A:* votes of the Alliance at the constituency level.

*PFP:* expected vote share of the preferred party in the constituency.

*P1V:* vote share of the front runner party in the constituency.

*P2VS:* vote share of the runner up party in the constituency.

*PSOE:* vote share of the PSOE in each constituency.

*IU:* vote share of the IU in each constituency.

*M:* district magnitude.

*t:* time of the current general election.

*t-1:* time of the previous general election.

**Table 2. Spanish 2008 Election. Probit Coefficients**

	Coefficient	Standard Error
age	0.0002	0.0068
gender	0.1398	0.1319
occupation_1	0.4834	0.4159
occupation_2	0.0741	0.3134
occupation_3	0.0307	0.3281
occupation_4	0.0826	0.2776
education_1	0.3679	0.4653
education_2	0.2360	0.4858
education_3	0.5270	0.48997
class_1	0.3384	0.2974
class_2	0.7617**	0.3204
not single	-0.1390	0.1617
religion_1	-0.3094**	0.137
religion_2	-0.9890***	0.3099
information_1	-0.0769	0.1512
information_2	-0.4716	0.3212
countryeco_1	-0.1333	0.1439
contryeco_2	-0.5078**	0.2111
familyeco_1	-0.0837	0.1888
familyeco_2	0.1579	0.2101
earnings_1	-0.4790**	0.2416
earnings_2	-0.1478	0.1728
psleader	-0.4748***	0.0448
iuleader	0.2807***	0.0337
psoe-iugap	0.3227***	0.0486
thref	-0.1111***	0.0326
mobilization	-0.4281***	0.117
Cat	-0.3186	0.2054
Eusk	0.2846	0.2649
Constant	1.4058	0.7923

Probability of voting for the PSOE is the base outcome.

Correctly predicted: 93.4%; LR chi2 (29) = 423; Prob > chi2 = 0.0000; Pseudo R2 = 0.43; N = 1592.

Significance levels: \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001



**Table 3. Predicted strategic votes for the PSOE from IU supporters in the 2008 Spanish general election.**

	Sincere IU voters	Sincere PSOE voters	Effective totals
Effective IU voters	87	0	87
Effective PSOE voters	78	1427	1505
Sincere totals	165	1427	1592

Note: Cell entries are the estimated number of respondents in each post-election survey whose effective choice was the row party and whose sincere choice was the column party. Row values are those predicted by the unrestricted model of vote choice. Column values are the numbers predicted by the constrained model, when we simulate that the effective threshold of representation is equal to the legal threshold in those constituencies where it is  $> 3$ .

Valid sample size (N=1592) in Table 3 is the number of cases left after dropping from the CIS original sample (N=6083) all respondents with missing information on any variable.

**Table 4. Strategic incentives measures and extent of strategic voting in the 2008 Spanish general election.**

Variable	Information	Coefficient	IU strategic totals	% of IU+PSOE vote in the sample (N= 1592)	Estimated percent of the national vote <sup>^</sup>
thref	contemporary	-0.11***	78	4.9	2.35 %
M	contemporary	+2.20*	97	6.1	2.92 %
iuseat	lagged	-2.65**	71	4.4	2.14 %
sharedif	lagged	-2.23*	48	3.0	1.45 %

(<sup>^</sup>) Share of the PSOE vote plus the IU vote in the national vote = 48%.

thref: effective threshold of representation (Simulation: thref = 3 if thref  $> 3$ ).

M: number of legislative seats per district (Simulation: M = 35, the largest district magnitude).

iuseat: dummy scored 0 if IU gained a legislative seat in the constituency in the previous election, 1 otherwise (Simulation: iuseat = 0).

sharedif: difference between the vote shares of the PSOE and the IU at the constituency level in the previous election divided by district magnitude (Simulation: sharedif = 0).

Significance levels: \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

**Table 5. Summary of the Estimated Extent of Strategic Voting**

<b>Paper</b>	<b>Country</b>	<b>Year</b>	<b>Strategic voters</b>
Cain (1978)	Britain	1970	15%
Galbraith and Rae (1989)	Britain	1987	11%
Johnston and Pattie (1991)	Britain	1983-1987	4%, 6%
Lanoue and Bowler (1992)	Britain	1983-1987	5.8%, 6.6%
Niemi, Whitten and Franklin (1992)	Britain	1987	17%
Evans and Heath (1994)	Britain	1987	9%
Blais and Nadeau (1996)	Canada	1988	6%
Blais et al (2001)	Canada	1997	3%
Felsenthal and Brichta (1985)	Israel	1981	12%
Kriesi (1998)	Switzerland	1995	16%
Abramson et al. (1992)	US	1988	13.50%
Duch and Palmer (2002)	Hungary	1997	13.60%
Alvarez and Nagler (2000)	Britain	1987	7.20%
Alvarez and Nagler (2006)	Britain	1987, 1997	9%, 11%
Merolla and Stephenson (2007)	Canada	1988-2000	2.30%
Herrman and Pappi (2008)	Germany	1998, 2000	3%, 1%
Choi (2009)	India	2004	19%
Lago (2005)	Spain	1979-2000	<1%
Garcia Viñuela and Artés (2009)	Spain	2000-2008	2.5% - 10.3%