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Strategic voting in local elections: evidence from Portugal (1979–2013)

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ABSTRACT

Do voters behave strategically in local elections? Does democratic experience influence voters' capacity to behave strategically? Is there a relation between education and voters' capacity to anticipate the mechanical effects of electoral statutes and adapt their behaviour accordingly? Using an original data set covering the complete democratic period, this paper studies strategic voting at the local level in Portugal. Using an ecological inference approach, we contribute to a vast body of literature on strategic voting by testing whether theories developed for national contexts travel to local contexts. Our findings suggest that (1) voters consistently defect to non-viable lists to support viable lists; (2) democratic experience helps voters to learn how to maximize their utility; and (3) education is important for voters' ability to identify a strategic setting.

1. Introduction

Electoral systems provide voters with incentives to behave strategically (Duverger 1954; Taagepera and Shugart 1989; Cox 1997). As rational agents, voters react to institutional incentives, adopting a strategic behaviour in order to maximize the utility derived from their vote (Evans and Heath 1993). The range of situations in which it may be optimal to vote for a party that is not one's preferred option is broad.

This paper deals with strategic voting at the local level. We aim to understand whether theories developed for national elections travel to those at the local level (Cox 1997). The paper focuses on the Portuguese local elections to answer three intertwined questions. Do voters behave strategically at the local level? Have voters become more strategic with democratic experience? Is there a relation between education and voters' capacity to anticipate the mechanical effects of electoral statutes and adapt their behaviour accordingly?

Portuguese local elections offer a good institutional setting to deal with these questions, and to contribute to our knowledge on strategic voting. In Portugal,

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municipal governments have a "strong local leader working in a hierarchic local political system but in a context of weak local government" (Pilet et al. 2009, 398). There are three reasons that make Portugal an interesting case. First, the electoral statutes at the local level conjugate majoritarian and proportional elements in the election of the Municipal Council (Jalali 2014). This makes for a *sui generis* set of rules that has been overlooked in the extant literature. Second, Portuguese municipalities vary significantly in terms of education rates, which allows us to test the impact of this important covariate in interaction with strategic considerations. Third, Portugal has been a democracy for over 40 years now. Our paper allows us to test whether theories on learning effects, originally developed for East and Central Europe (Tavits and Annus 2006), also travel to South European cases, which had different paths to democratization and party system building (Van Biezen 2003).

Our argument is that, similar to national electoral contexts for which extensive evidence exists (Alvarez and Nagler 2000; Blais, Young, and Turcotte 2005; Gschwend 2007a; Bargsted and Kedar 2009), voters react to electoral statutes and adapt their behaviour at the local level. Specifically, voters recall parties' performance at time $t-1$ and, using this information, they form beliefs and expectations (Cox 1997) about parties' electoral viability at time t. With that information, electors defect from non-viable lists to avoid "wasting" their vote supporting parties that have no chance of winning seats at elections.

Further, we expect strategic behaviour to be moderated by cognitive resources (Converse 1972) and experiential learning effects (Tavits and Annus 2006; Selb 2012). The former should have an impact in voters' capacity to form correct beliefs and expectations about party viability. In return, political parties competing in municipalities with higher levels of education should expect an increase on voters' strategic coordination. Experiential learning reflects the moderating effect of democratic experience in voters' capacity to understand who is leading and who is trailing in the elections.

Our findings suggest that local elections operate similarly to other contexts. Voters vote strategically by forming expectations on electoral viability based on past performance. Our results point to an increased level of strategic voting in municipalities with highly educated populations. In addition, we find that democratic experience plays an important role in moderating strategic behaviour.

2. Strategic voting: mechanical and psychological effects of electoral rules

Duverger's work on the political effects of electoral laws makes a conceptual distinction between mechanical and psychological effects (Duverger 1954). Two types of mechanical effects are to be expected. Plurality electoral systems facilitate the concentration of votes on the two main candidates, leading to a bipartisan party system. In contrast, proportional systems

facilitate the representation of minorities and often lead to more fragmented party systems (see also Riker 1986).

Psychological effects are a result of the anticipation by voters and elites of the mechanical effects of electoral statutes (Blais and Carty 1991). Strategic voting is a typical example of how voters adapt their behaviour once they understand the rules of the game. Cox defines strategic voting as a situation in which a voter

> whose favourite candidate has a poor chance of winning, notices that she has a preference between the top two candidates; she then rationally decides to vote for the most preferred of these two top competitors rather than her overall favourite, because the latter vote has a much smaller chance of actually affecting the outcome than the former. (Cox 1997, 71)

Cox's definition hinges on two assumptions. First, voters have only short-term rationality, that is, they only care about the outcome of the forthcoming election. Second, voters share common beliefs and expectations (Cox 1997, 73). Specifically, not only do voters form beliefs about the distribution of preferences among the electorate, but they also have expectations about the electoral fortune of the candidates. Consequently, "all voters share a common expectation about which lists are leading, which are trailing, which are in the running for the last seat to be allocated" (Cox and Shugart 1996, 307). As a result, these two propositions compel voters to avoid wasting their vote, either by supporting a candidate that does not stand a chance in being elected or, conversely, by casting a vote for a candidate who will surely win (Lago 2008).

In plurality electoral systems, where $M = 1$, electors have incentives to defect from small parties and concentrate their votes on the two candidates with a perceived chance of winning the constituency race, making $M + 1$ the threshold of viable candidates (Cox 1997). There is a wealth of empirical evidence illustrating how voters choose to vote strategically under these electoral statutes. Niemi, Written, and Franklin (1992) find that one in every six voters in the British elections votes strategically, particularly in those constituencies with marginal seats (see also Alvarez, Boehmke, and Nagler 2006).

In proportional systems, where $M > 1$, Duverger's original proposition underlined the lack of incentives for strategic voting. The comparative literature, however, indicates that incentives to vote strategically are not completely absent under proportional systems, albeit the incentives to vote strategically will depend largely on the district magnitude (Leys 1959; Sartori 1968). Cox suggested that when $M > 5$ strategic voting should fade out due to the high information requirements to vote strategically. However, looking at Portuguese general elections, Gschwend finds that, despite the significant variation in district magnitude, "strategic voting is

observable across all electoral districts" (Gschwend 2007a, 29).[1] Similarly, Lago (2008) finds evidence suggesting that Spanish voters behave strategically even in high magnitude districts, because voters know "whether (minor) parties have previously gained at least one seat in a given district" (Lago 2008, 44).

3. Strategic voting: moderating factors

Mechanical and psychological effects of electoral statutes are not the sole determinants of strategic behaviour. In a recent contribution, Selb (2012) illustrates how those effects are often conditioned on several important factors, in particular cognitive resources and experiential learning.

Cognitive resources play an instrumental role in helping voters build correct beliefs and expectations. Cox (1997) suggests that voters rely on readily available information from the public sphere, particularly opinion polls and newspaper analyses. These cues help them overcome their status as cognitive misers with not only unreliable political information, but also a lack of incentives to acquire it (Lupia and McCubbins 1998; Fiske and Taylor 2013). In addition to the information gathered for the current election, voters recall, even if imperfectly, previous electoral results. Gschwend equates this with an "electoral history heuristic" (Gschwend 2007b, 3), according to which voters and parties alike learn from the cumulative history of electoral results.

The extent to which voters have access to political information is shaped not only by their motivation, but also by their ability (Luskin 1990). As Lau and Redlawsk (2001) compellingly demonstrated, the capacity of voters to use cognitive heuristics to correctly inform their vote is a function of their levels of sophistication. Voters with more cognitive resources are in a better position to process information, to understand partisan cues and, ultimately, form correct beliefs and expectations about the campaign trail (Popkin 1991). As a result, more educated voters should be more likely to understand the mechanical and psychological effects of electoral statutes and to adapt their behaviour accordingly by voting strategically.

Experiential learning, understood as the process of learning by doing, with successive iterations adding further cumulative knowledge, also plays a key moderating role in strategic voting. In Fey's words, "the reasoning Duverger offers for his law is a dynamic story in which voters over time, gradually abandon an unpopular party in larger numbers until no support remains" (Fey 1997, 142). Learning to vote strategically entails two conditions. First, voters need to have sufficient information to form rational expectations about parties' likely support to understand whether they will

[1]District magnitude in Portugal ranges from 2, in Portalegre, to 50, in Lisbon.

be wasting their vote. This poses a challenge for voters who are not used to acquiring and processing political information. Second, political parties need to identify the competition equilibria that will help them to send the necessary cues to voters. In most cases, in the first years of democracy, there is an explosion in the number of political parties that subsequently fades away as the competition patterns stabilize and the party system is institutionalized (Mair 1997).

In recent years, several scholars have looked at the learning dynamics of strategic voting. Duch and Palmer show that, for the case of Hungary, "democratic citizens are not only sufficiently well informed to respond to wasted-vote situations, but also that their responses exhibit a rather sophisticated weighting of the costs and the benefits associated with strategic behaviour" (Duch and Palmer 2002, 91). This result is echoed in Tavits and Annus (2006) cross-sectional account on the role of democratic experience on strategic voting in post-communist democracies. The authors argue that voters in new democracies may have difficulties behaving strategically because they do not have sufficient information to generate shared beliefs and expectations.

4. Portuguese local elections

Portugal held free and fair local elections for the first time in 1976. Since then, elections have been regularly held ever since every four years[2] in 308[3] municipalities. Similar to other European countries, local government in Portugal is "characterized by a dual power structure" (Denters 2006, 271), consisting of two bodies with separate origin and survival. The Municipal Council (*câmara municipal*, headed by the mayor) is the local level executive, which wields significant power over fiscal policy, human resources, and implementing geographically targeted economic benefits (Martins and Veiga 2013). The Municipal Council also includes councillors, to whom the mayor may choose to delegate powers. The Municipal Council meets regularly and is perceived as the most important body of local government by far (Jalali 2014).

The Municipal Assembly's (*assembleia municipal*) main function is to represent the interests of minorities and, at the same time, provide an institutional arena where presidents of the *freguesias* (parishes) can voice their concerns in the governance of the municipality. By and large, the Municipal Assembly is a powerless body (Magone 2010), lacking "the traditional instruments of executive oversight by a deliberative body (either the power to overthrow the executive or to block laws)" (Magalhães and Moreira 2007, 158). The

[2]From 1976 until 1985, local elections were held every three years. Since 1987, elections have been held every four years.

[3]Until 1979 there were 304 municipalities in Portugal. Four more municipalities have been created ever since: Amadora, Trofa, Odivelas, and Vizela.

Municipal Assembly meets during irregular intervals (traditionally four to five times a year), which explains why is perceived as so inconsequential.[4]

The power asymmetry between the two municipal bodies is not devoid of consequences. In the context of Portuguese local elections, the Municipal Council is regarded as a first-order election while the Municipal Assembly is perceived as having second-order traits (Freire 2004). The Municipal Council is the local executive, with important powers, heightening its relative importance. Consequently, adding to the mechanical and psychological incentives reviewed below, the perception that there are important differences in what is at stake further reinforces strategic behaviour. In second-order elections, voters are freed to support smaller parties, which incentivize sincere voting in line with our argument (Heath et al. 1999).

The nature of the electoral system has mechanical and psychological consequences. On the mechanical effects, the electoral system of Portuguese municipalities has traditionally been described as closed-list proportional representation (PR) using a D'Hondt method (Freire 2004). There is, however, a specificity that makes the Municipal Council election *sui generis*. The mayor is elected using a first-past-the-post system, with the head of the most voted list being elected for a fixed-term position with only a plurality of votes. The councillors of the Municipal Council are subsequently elected using a pure PR list system.[5] Jalali argues that such an electoral arrangement turns the electoral statutes into a de facto majoritarian system. Consequently, a better description of the electoral law for local elections is "first-past-the-post plurality for the election of the local mayor and closed-list proportional representation (PR) for the election of the municipal councillors" (Jalali 2014, 239).

On the psychological effects, Jalali argues that the "the existence of a plurality element […] may generate incentives for strategic voting" (Jalali 2014, 239). Such psychological effects are derived from voters' perceptions that only two candidates are viable. Ultimately, "although people vote in closed lists, campaigns revolve around the mayoral candidates" (Freire 2004, 61), which creates incentives for a two-horse race and for voters to act strategically. The incentives created by the electoral rules should motivate voters to behave differently in the two elections.

For local elections in Portugal, voters receive two ballots[6] to elect the municipal bodies: one for the Municipal Council and another for the Municipal

[4]The exception to this being Lisbon and Porto, where the Municipal Assembly meets on a more regular basis, at least once a month.

[5]In Portuguese local elections, post-electoral coalitions are common and have relatively low transaction costs in that there are significantly less ideological constraints than at the national level (Camões and Mendes 2008). For example, in 2013, in Loures, the Communists coalesced with the Social-Democrats (right-wing). If the mayor fails to coalesce and form a majority with opposition parties, a minority government controls the Municipal Council, with *ad hoc* coalitions based on policy-seeking considerations from opposition parties.

[6]Additionally, voters have a third ballot to elect officials at the parish level (*junta de freguesia*).

Assembly. Voters can then either cast a straight-ticket vote by supporting the same party on both elections, or they can choose to split their ticket and vote for different parties in each election. In this analysis, we examine whether this latter split-ticket behaviour can be seen as a form of strategic voting. The classic definition of strategic voting is when an individual switches to vote for a larger party given that their most preferred choice is at risk of not being represented in parliament (e.g. Alvarez and Nagler 2000; Blais, Young, and Turcotte 2005). In the context of the Portuguese local elections, this would be understood to occur when voters to defect from non-viable parties in the salient elections in order to concentrate their votes on viable lists.

5. Hypotheses

In what follows, we explore several hypotheses of why voters should behave strategically by defecting from non-viable lists in the Municipal Council election, while still voting for non-viable lists in the Municipality Assembly.

Our first hypothesis argues that voters will be able to anticipate the mechanical effects of the electoral statutes in Portuguese local elections and vote strategically. Such anticipation happens because voters are able to form beliefs and expectations about who is leading and who is trailing in the electoral competition (Cox and Shugart 1996). In the Municipal Council's de facto first-past-the-post system, voters will identify the two viable lists, that is, $M + 1$, and defect from non-viable parties to concentrate their votes on those lists (Cox 1997). Conversely, in the Municipal Assembly's closed-list PR system, voters will cast an expressive vote by supporting their preferred party. In addition to the electoral incentives, the important power asymmetry between the two bodies provides further incentives for electors to vote sincerely for the Municipal Assembly. Consequently, we expect voters to split their ticket in Portuguese local elections to maximize the utility derived from their vote.[7]

> H1: If voters anticipate the mechanical effects of the electoral statutes, the patterns of split-ticket voting should be consistent with non-viable parties receiving higher vote shares in the less important election (i.e. Municipal Assembly).

As previously mentioned, the expectation that voters will react to mechanical and psychological incentives of the electoral status will be subjected to two important moderating effects: cognitive resources and experiential learning.

Voters' cognitive resources are instrumental for the formation of correct beliefs and expectations about the upcoming election, which, in turn, are indispensable for strategic behaviour (Cox 1997). Portugal is a highly asymmetric country. There are municipalities where the median voter is highly educated, while, in others the median voter has poor levels of education (Rodrigues

[7]It should be noted that split-ticket voting may come about for non-strategic reasons. For instance, voters could deviate from a straight ticket just to cast a protest vote. In this case, split-ticket voting is not strategic.

2011). In Oeiras, for example, the most educated municipality in the country, 53.6% of the adult population held a high school diploma or college degree.[8] Conversely, in the same year, there were 182 municipalities (out of 308) where less than 25% of the population had achieved a similar level of education.

We expect those differences to have consequences at the polls. Cognitive resources, or lack thereof, should play a moderating effect in voters' capacity to behave strategically. Municipalities with higher levels of education will display higher levels of strategic behaviour. Essentially, voters will defect from non-viable parties in the Municipal Council to support viable lists with a real winning chance. We organize this intuition in the following specification.

H2: Municipalities with higher education levels will show higher levels of split-ticket voting, particularly for non-viable lists.

Experiential learning also plays a moderating effect in strategic behaviour in local elections. Voters learn by doing. Voters identify the $M + 1$ viable candidates primarily by recalling cumulative information about past elections (Gschwend 2007b). Additionally, voters rely on campaign information provided in the media to help them rank candidates during the campaign period. Our expectation is that democratic experience will have a moderating effect on strategic behaviour in Portuguese local elections mostly because voters needed time to learn the rules of the game and effectively coordinate.

When local elections were held for the first time in Portugal, in 1976, voters had only limited experience of participating in competitive elections and none at the local level.[9] They did not have any experience in consuming political information and inferring party cues (Lupia and McCubbins 1998). Also, in the first decades of democracy, there were no opinion polls available for local elections, which increased the costs of having readily available information on the campaign trail.[10] Finally, in the first decade after the democratic transition, the Portuguese party system was still in flux (Lobo 2001, 643), which has consequences for the electoral market of elite-voter coordination (Cox 1997).

Each new election adds a further iteration to the cumulative knowledge that voters have about electoral history in Portuguese local elections. It also increases the likelihood that voters will behave strategically by supporting one of the two viable candidates for the Municipal Council and voting sincerely for the Municipal Assembly.

[8]Data from the National Bureau of Statistics (Instituto Nacional de Estatística), 2013.
[9]The first free and fair elections in Portugal were held on 25 April 1975.
[10]Only in 1991 did it become lawful to publish opinion polls in the last month leading up to the election. Polling data are available only for the three most recent years of elections (2005, 2009, and 2013). We run our models controlling for whether or not polling information was available in a specific municipality 100 days before the elections. Polling information seems to have a positive effect on split-ticket voting in general, but a negative effect on split-ticket voting for larger parties, which is in line with our argument that split-ticket voting is indeed a result of strategic coordination. However, the existence of polling information has no impact on our substantive conclusions.

The more experienced voters become, the higher the likelihood they will form correct beliefs and expectations about the parties' performance in local elections. Those effects, however, should be non-monotonic. As time goes by, the marginal effect of one more election on the capacity of voters to coordinate should decrease (Tavits 2008; Selb 2012). In practice, this means that our expected moderating effect of democratic experience for strategic behaviour should be stronger in the first few years of democracy, and slowly decrease over time.

H3: As more election cycles have occurred, the more non-viable lists should receive higher vote shares in the Municipality Assembly than in the Municipal Council, with this effect fading away with time.

6. Methods, data, and variables

6.1. Estimating the dependent variable

Split-ticket voting can be measured at the individual level as well as at the aggregate-level. Surveys represent an optimal access point for individual-level motivations. Nonetheless, self-reports have several caveats, some of which are particularly relevant for this paper. First, surveys suffer from respondent bias, a problem that has been extensively debated in the US literature on voting behaviour (Wright 1990; Burden and Kimball 2004). A second disadvantage of survey data is its focus on individuals, which makes cross-municipality variation virtually impossible to gauge, unless there are representative samples of the population for all municipalities (Gschwend, Johnston, and Pattie 2003). As it happens, in the Portuguese case, there are no electoral surveys available at the local level.

To study electoral behaviour at the municipal level,[11] scholars need to make use of aggregate-level electoral results. Aggregate-level data, however, cannot be used directly without further manipulation, due to the ecological fallacy problem (Robinson 1950). More precisely, a simple net measure of split-ticket voting, calculated by taking the difference between the votes gained by one party in the two elections, Municipal Council and Municipal Assembly, would only account for a minimum level of split-ticket voting. Indeed, such a measure would not account for both intra- and inter-party cross-voting among parties at the same time (King 1997).

To avoid the methodological problems described above, the dependent variable of this paper is estimated using the Rosen et al. (2001) method. This method represents an extension to multi-party settings of the seminal ecological inference method proposed by King (1997) that was first developed for two-party contests. The model put forward by Rosen and co-authors extends King's (1997) method by allowing for the study of split-ticket voting in elections with more than two parties.

[11]The functional equivalent to a cross-district in other institutional contexts.

The Rosen et al. (2001) method estimates flows of votes across parties between the Municipal Council and the Municipal Assembly elections. For each party, it provides the amount of straight and split-ticket voting across the two elections. For illustration purposes consider the case of the Socialist Party (PS). If the party has 20% of split-ticket, it means that 20% of those who voted for the party in the Municipal Council supported a different party in the Municipal Assembly. Hence, the measure captures the share of voters that have abandoned the party supported in the Municipal Assembly election to vote for a different party in the Municipal Council. Consequently, the PS retains 80% of the vote across the two elections, which corresponds to their total of straight-ticket voting (see the appendix for further discussion of this method).[12]

For the estimations, we employ aggregate electoral results at the parish level, the lowest level of aggregation for which electoral data are available in Portugal. The Rosen et al. (2001) method calculates an average of straight and split-ticket voting at the municipal level. The unit of analysis in our models is the party at the municipal level. Hence, the dependent variable in our models is the percentage of split-ticket voting that each party receives on the total of votes received by that party in the Municipal Council election. Our study covers all parties in all municipalities, for a total of 10 elections (1979–2013).

6.2. Independent variables

We built several variables to test our hypotheses. First, we create a Top 2 variable, which takes a value of 1 when the party ranked first or second in the previous Municipal Council election, and 0 otherwise. Such a variable identifies the two top contenders according to past electoral results at time $t - 1$, equating the type of information available to voters at time t when they make their choice about the electoral fortunes of parties. The expectation is a negative effect on split-ticket voting given that the two viable parties are expected to receive lower levels of split-ticket voting.

The second variable of interest is Education. We measure this variable at the municipal level as the percentage of the adult population (15 years or more) with a high school diploma or higher. Information on this variable

[12]There are other methods available to estimate split-ticket voting using aggregate-level data. Elff, Gschwend, and Johnston (2008) propose a maximum entropy approach, which requires the use of survey data that are not available for the Portuguese case. Alternatively, Goodman (1953) and Greiner and Quinn (2009) propose methods based on aggregate data only. We tested the latter on a sample of our data and compared the results with the Rosen et al. (2001) method. For that, we compared values of the Root Mean Squared Error (Root-MSE). Root-MSE ranges from 0 to 1, where 0 means that values estimated using one method are identical to the values obtained using another method. Conversely, higher values of Root-MSE indicate more divergent results. Our analysis indicates that Root-MSE values are generally small, which means that results do not differ substantially across methods. This result echoes previous findings in other countries (De Sio 2009).

has been retrieved from the National Statistics Office (INE) using census data. Election-year specific values have been estimated by assuming an average annual growth at the municipal level.

Our third variable of interest is Democratic Experience. This variable is calculated by measuring the number of years elapsing between 1979, our first year of analysis, and time *t*, the election-year of the observation. In order to capture the non-linear relationship between democratic experience and strategic voting, the variable is logged.

Several control variables are included. Margin of Victory measures the competitiveness of the municipal race as the difference in percentage points between the first and the second most voted parties at $t-1$. Our expectation is that competitiveness should have a positive effect on strategic voting (Bawn 1999; Reed 1999). Smaller differences between the two contenders in a municipality in past elections will bring an additional incentive for voters to split their ticket, because fewer voters would be willing to waste their vote. Another important variable is the Number of Parties running in each municipality, which helps us control for the independence of irrelevant alternatives. In a multi-party competition setting, our expectation is that strategic voting is observable irrespective of the specific competition structure of a municipality. For illustration purposes, consider Municipality_a, where five parties compete, and Municipality_b, where only four parties present lists to municipal elections. In those two elections, voters have different ranges of choices, leading to a purely mechanical inflation of strategic voting, for which we control by using this variable.

Finally, since 2001, non-partisan actors were allowed to run in the municipal elections. Hence, we also include a control variable for Independents, which takes a value of 1 for those municipalities in which at least one of the contenders is of non-partisan nature, and 0 otherwise. Our expectation is for the existence of independent candidates to be negatively correlated with strategic voting, because they introduce noise in the decision-making process. The appendix provides descriptive statistics for all variables employed in the analysis.

7. Analysis

We start our foray into split-ticket voting in Portuguese local elections by providing some descriptive patterns. Figure 1 shows percentages of party-level split-voting (on the total of the party vote in the Municipal Council) at the municipal level as estimated by the Rosen et al. (2001) method. Figure 1(a) presents split-ticket voting levels for all parties across election-years. Strategic voting remained stable over time with a more pronounced increase in 2013. Figure 1(b) depicts levels of split-ticket across all years of election by party. Smaller parties – Left Bloc/Bloco de Esquerda (BE), Christian Democrats/Centro Democrático e Social (CDS), and Communist Party/Partido Comunista

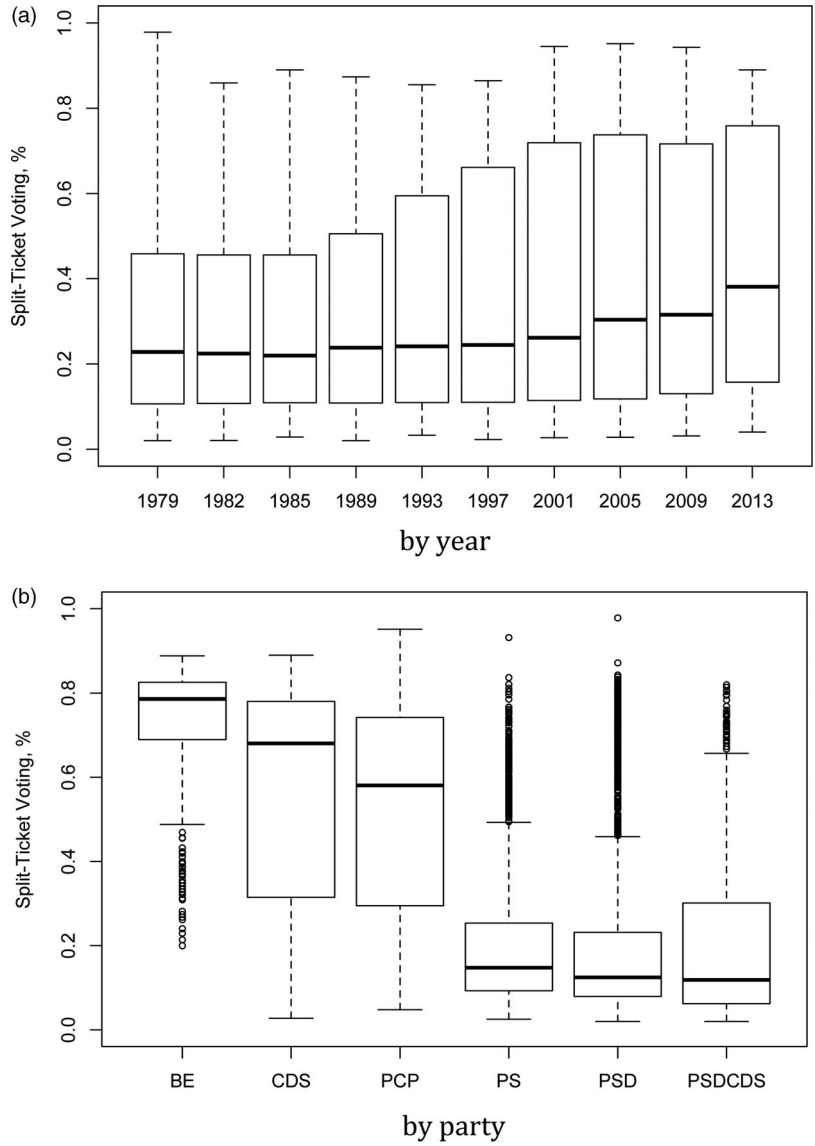

Figure 1. Split-ticket voting (%), (a) by year and (b) by party.

Português (PCP) – receive much higher levels of split-ticket voting when compared to their bigger counterparts, Socialist Party/Partido Socialista (PS), Social Democrat Party/Partido Social Democrata (PSD), and PSD–CDS.[13]

Figure 2 further investigates these patterns by differentiating viable from non-viable lists over time. Figure 2(a) illustrates that viable lists have split-

[13]For analytical purposes, we included the cases in which PSD and CDS coalesced in this category.

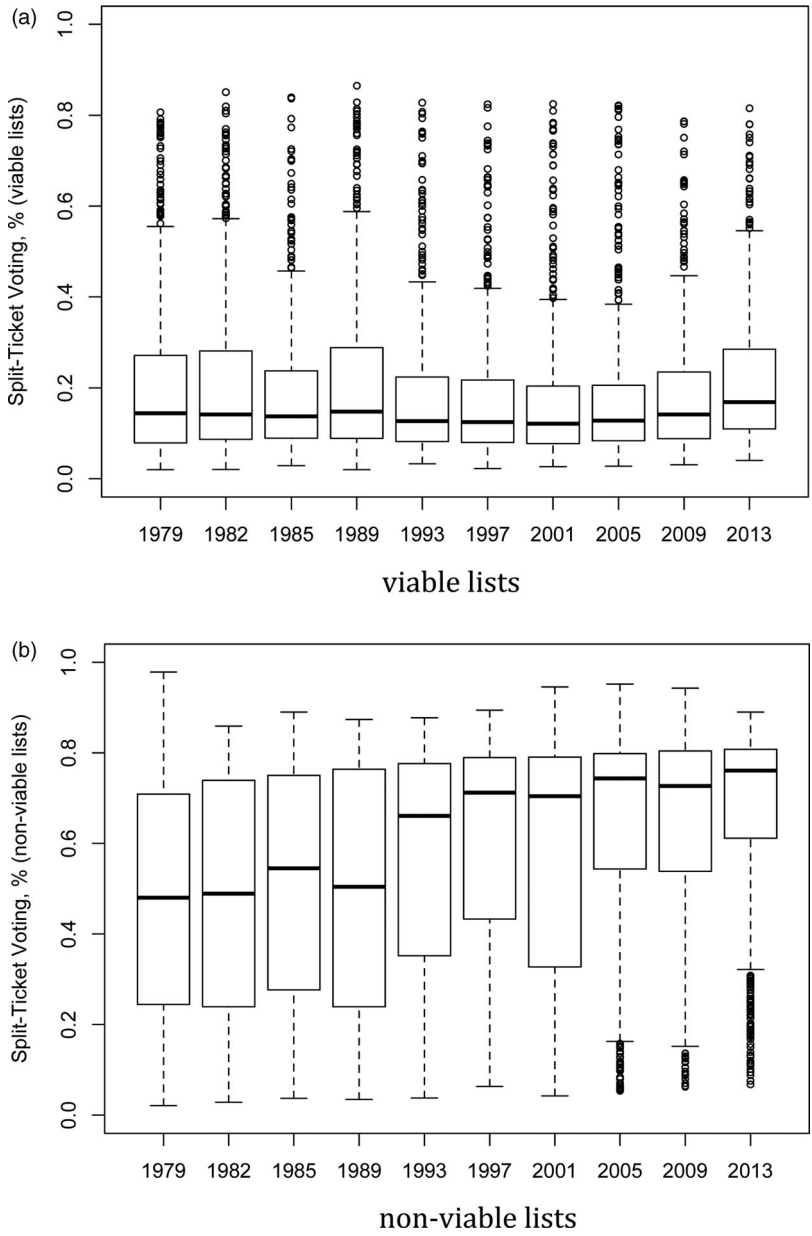

Figure 2. Split-ticket voting (%), by years ((a) viable versus (b) non-viable lists).

ticket voting levels below 20% of their party vote. In contrast, Figure 2(b) suggests that non-viable lists, including those that are not only traditional losers in the Municipal Council election but also perceived as having weak prospects in the campaign trail, are usually characterized by levels of split-ticket

Table 1. Explaining party-level split-ticket voting: weighted least square regression.

Dependent variable: party-level split-ticket voting, %						
	All years (Model 1)	Pre-2001 (Model 2)	Post-2001 (Model 3)	All years (Model 4)	Pre-2001 (Model 5)	Post-2001 (Model 6)
Top 2	−0.317***	−0.271***	−0.380***	−0.165	−0.202*	0.445
	(0.050)	(0.047)	(0.074)	(0.088)	(0.087)	(0.556)
Education	0.797***	1.408***	0.786***	0.727***	1.193***	0.790**
	(0.165)	(0.379)	(0.221)	(0.199)	(0.330)	(0.283)
Democratic Experience (Log)	−0.068*	−0.061	0.049	−0.012	−0.016	0.133
	(0.027)	(0.038)	(0.150)	(0.037)	(0.051)	(0.158)
Margin of Victory	−0.137**	−0.109	−0.107	−0.152**	−0.098	−0.105
	(0.047)	(0.106)	(0.064)	(0.052)	(0.115)	(0.067)
Number of Parties	−0.005	−0.014	−0.006	−0.005	−0.015	−0.013
	(0.013)	(0.017)	(0.017)	(0.013)	(0.019)	(0.017)
Independents			−0.006			−0.008
			(0.048)			(0.052)
Top 2 × Education				0.085	0.482	0.296
				(0.521)	(1.059)	(0.664)
Top 2 × Democratic Experience (Log)				−0.094	−0.078	−0.397
				(0.061)	(0.060)	(0.285)
Constant	0.803***	0.759***	0.554*	0.714***	0.717***	0.403
	(0.088)	(0.086)	(0.266)	(0.080)	(0.091)	(0.318)
N	10,832	6206	4626	10,823	6206	4626
R-squared	0.527	0.446	0.573	0.535	0.449	0.579
AIC	−7492.692	−3897.599	−3875.782	−7663.622	−3928.650	−3929.691
Log-Likelihood	3752.346	1954.800	1944.891	3839.811	1972.325	1973.845

Notes: All parties included; parties not running at time $t-1$ receive a 0 on the Top 2 variable.
Standard errors in parentheses:
*$p < .05$.
**$p < .01$.
***$p < .001$.

voting considerably above 40%. Importantly, the evidence suggests that, for non-viable lists, levels of split-ticket voting remain stable across the first couple years of elections with a sharp increase in split-ticket levels after the 1989 election. Subsequently, this effect stabilizes after further electoral cycles.

Table 1 contains the results for several multivariate models estimating the determinants of strategic voting in Portuguese local elections. Recall that our dependent variable measures the percentage of split-ticket voting by party on the total of party votes at the municipal level, as estimated by the Rosen et al. (2001) method. Because the dependent variable is constituted by estimates, we employ a Weighted Least Squares (WLS) regression model. In the WLS framework, observations (estimates) are weighted by the inverse proportion of the estimates' standard error. Consequently, observations with more precise estimates of ticket splitting, and lower standard errors, are ascribed greater weight in the regression model.[14]

[14]The use of WLS is recommended in the methodological literature (Adolph et al. 2003), and commonly used for regression models using ecological inference estimates as dependent variable (King 1997; Burden and Kimball 1998).

Our party-level observations of split-ticket voting are measured at the municipal level. Hence, it is likely that scores within each municipality may not be independent. To account for this, standard errors are clustered by municipality. Also, as shown in the appendix, for all specifications presented in Table 1 substantive results remain unchanged if (1) two-sided tobit models are estimated to account for a dependent variable censored at 0 and 1, and (2) a beta regression model is used to account for the fact that the dependent variable is measured as a proportion.

Model 1 in Table 1 includes all elections and all parties. First, H1 is supported: the two parties that have received the highest percentage of votes in the previous election-year (Top 2 variable) are characterized by much lower levels of split-ticket voting compared to parties that are non-viable. These results show that at time t voters tend to defect those parties that performed poorly in the Municipal Council election at time $t-1$. According to our argument, this happens because voters do not want to risk wasting their vote on candidates that have low chances of winning, based on past electoral performance. Such behaviour suggests that there is an important similarity on how voters process political information and make decisions at the national and local levels (Cox 1997).

Turning to the effect of Education on voters' capacity to make consistent beliefs and expectations about the campaign trail, evidence suggests that in Portuguese local elections, political parties competing in municipalities with a higher percentage of population with a high school diploma are more likely to arrive at a decision to split their vote, all else equal. This finding offers further evidence to the vast body of literature on the effect of cognitive resources on political behaviour. Specifically, it shows that education makes an important difference for voters' capacity to understand the mechanical effects of electoral statutes. When it comes to Democratic Experience, results suggest a very small negative impact in only one of our models. However, it is important to note that our expectation is that both education and democratic experience influence split-ticket voting differently, depending on a given party's electoral viability. More precisely, we expect that if cognitive resources and experience heighten strategic behaviour, they should be associated with lower levels of split-ticket voting for viable parties, and higher levels of split-ticket voting for non-viable ones. These expectations are tested below.

Model 2 in Table 1 estimates the same model for pre-2001 elections only. Also, in column 3, there is a post-2001 specification, including a control variable for Independents. In 2001 there were relevant changes in the party system, with the consolidation of a new party (BE), and the opportunity for independents to run as candidates for local elections. Models 2 and 3 show that results are robust to the pre- and post-2001 differentiation. The overall effects of Top 2 and Education remain almost unchanged. In substantive

terms, this means that, after the changes in the party system that took place in 2001, viable lists are characterized by having even lower levels of split-ticket voting. The variable Independents is devoid of consequences for split-ticket voting. Model 3 suggests that patterns of voting are not simply a consequence of supply-side factors, that is, the number and type of parties contesting the election, but rather a result of strategic coordination by voters. In other words, even with the introduction of additional and non-partisan candidates, voters still identify opportunities to act strategically.

We turn to a direct test of H2 and H3 by taking a closer inspection of the effect of Top 2, moderated by the other two main covariates, Education and Democratic Experience. Our expectation is that both experience and cognitive resources have a different effect on those parties that voters perceive as viable (Top 2 = 1) compared with those parties that are perceived as non-viable (Top 2 = 0). Models 4–6 in Table 1 fit specifications in which Education and Democratic Experience are interacted with the Top 2 variable. In order to get a better sense of the interaction terms, Figure 3 shows the marginal effect of Top 2 on split-ticket voting by Education levels (left panel) and by Democratic Experience (right panel).

The left-hand panel of Figure 3 shows the marginal effect of Top 2 according to the levels of Education. The positive slope suggests that, when compared to non-viable lists, the two viable lists tend to obtain slightly higher levels of split-ticket voting, as the levels of education increase. The difference between the two categories is only statistically significant below the .3 threshold. In substantive terms, this means that, in more educated municipalities, education is less relevant for explaining the difference between viable and non-viable lists. In those cases, where the municipality is characterized by a highly educated population, other intervening factors may be at work.[15] Overall, this confirms our theoretical intuition that cognitive factors exert a moderating effect on split-ticket voting.

Finally, we look at the effects of Democratic Experience for viable and non-viable lists. The negative slope in the right-hand panel of Figure 3 indicates that, when compared to non-viable lists, the two viable lists tend to obtain lower levels of split-ticket voting as democratic experience increases. Interestingly, however, the effect is statistically significant only after the first three election-years. Starting in 1985, voters began to adapt their behaviour to react to the mechanical incentives of the electoral systems, which means that it took three electoral cycles (1976, 1979, and 1982), for voters to learn how to behave strategically. These results confirm our theoretical expectations in H3.

[15]Further note that the share of third-party support, that is, those parties obtaining less than 5% or less than 10% of the vote at $t-1$, has a negative impact on the dependent variable but it does not affect our substantive conclusions.

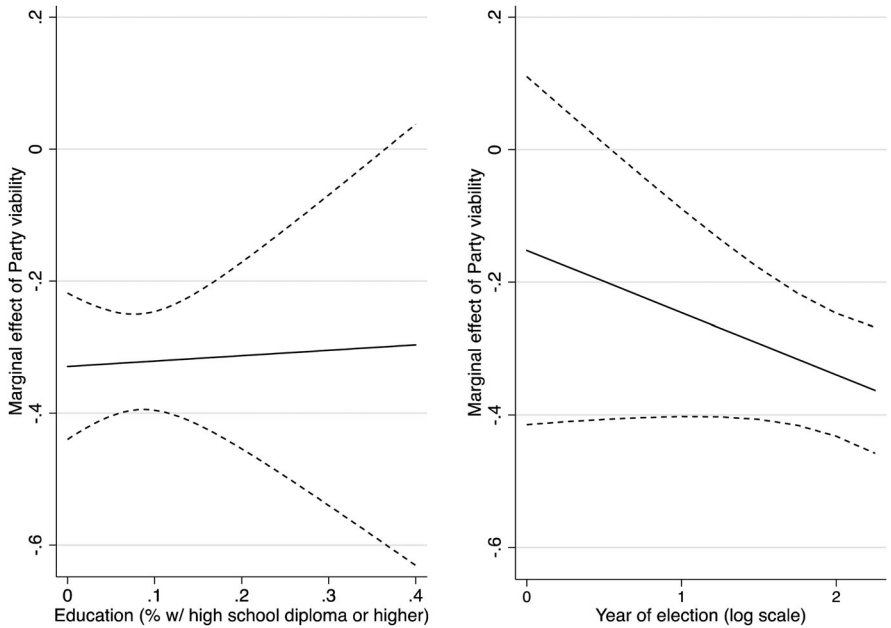

Figure 3. Split-ticket voting (%), by years (viable versus non-viable lists).

Remaining control variables behave as expected. For all models in Table 1, we control for the Margin of Victory. It is reasonable to expect that, when the municipal race at time $t-1$ was more competitive, that is, a smaller difference between the votes garnered by the winner and the runner-up, voters will be even more likely to behave strategically at time t. Our empirical results confirm our expectations. Finally, we control for the Number of Parties running in each municipality,[16] because it is reasonable to expect that the larger the number of contenders, the higher the incentives for split-ticket. This variable, however, fails to reach conventional levels of statistical significance.[17]

8. Conclusion

In this work, we explored the patterns and the determinants of strategic voting in local elections. Specifically, we dealt with the Portuguese local elections to build on the extensive evidence at the national level. We were primarily motivated by the scarcity of work dealing with strategic voting at the local level. Portugal offers an interesting institutional setting to make an appraisal of how voters behave at the local level and whether they answer to the same mechanical incentives as they do at the national level.

Using an original data set at the party-level covering all Portuguese municipalities from 1976 until 2013, we make three contributions to the literature. First, we show that Portuguese voters have common beliefs and expectations about the candidates' likely electoral fate (Cox 1997), which help them create transitivity rankings of who is leading and who is trailing. Empirical evidence suggests that voters use that information to adapt their behaviour accordingly and act strategically. Those parties that performed better at time $t-1$, and are perceived at time t as the two main contenders for the Municipal Council, have lower levels of split-ticket. Conversely, parties that are perceived as non-viable have higher levels of split-ticket. Our paper makes a contribution for the comparative study of strategic voting by showing that theoretical assumptions and expectations developed for national level elections (Cox 1997) also apply to local elections. Voters apply similar decision-making rationales, irrespective of the level of government they are electing.

Our second contribution is to show that the effects of mechanical and psychological incentives are moderated by cognitive resources and

[16]All models in Table 1 include all parties at time t, even those that did not run in election at time $t-1$. For those parties, the Top 2 variable takes a value of 0, under the assumption that voters have no information regarding their electoral viability. Consequently, in the decision-making process, voters treat them as non-viable lists. Further tests were conducted, in which this assumption was relaxed, by dropping from the analysis all parties that did not run at time $t-1$, with no effect on our substantive conclusions.

[17]In addition, in the appendix we run a model specification at the suggestion of a reviewer to check for the robustness of our results to variation in Municipal Assembly size. Results show that our results are robust to the inclusion of this variable.

experiential learning. Evidence suggests that cognitive resources help voters in acquiring and processing information. As a consequence, parties competing in municipalities with higher levels of education have higher levels of split-ticket. This difference is particularly striking for non-viable lists, which witness an increase in defection among highly educated municipalities.

Finally, corroborating Tavits and Annus (2006) findings for Central and Eastern Europe, our paper finds that experiential learning plays a role in voters' capacity to behave strategically. Voters learn by doing. Our empirical evidence suggests that, as more electoral cycles have transpired, the higher the levels of split-ticket voting, particularly for non-viable lists. However, the magnitude of this effect is to be appreciated after a couple of years of elections and it seems to fade over time.

Overall, this paper constitutes a first foray into a systematic investigation of strategic voting in local elections, uncovering the decision-making process behind voters' decisions to cast a split-ticket. Evidence suggests that local elections have similar dynamics to national elections, providing yet another piece of evidence on the travelling capacity of the model developed by Cox (1997).

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No potential conflict of interest was reported by the authors.

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Appendix. Strategic voting in local elections: evidence from Portugal (1979–2013)

Rosen et al. (2001) method

The Rosen et al. (2001) method reports estimates of party-level splitting by municipality. As an example, values for the 2013 election for the municipality of Lisbon are shown in Table A1. The rows of the table represent the share of the party vote in the Municipal Assemble (MA), while the columns represent the share of the party vote in Municipal Council (MC). Starting from the first row, Table A1 should be read in the following way: people who voted for the BE on the MA elections cast about 26% of the vote for the BE party in the MC (straight vote). Still reading the first row, on average about 18% of the BE supporters split their ticket toward the PCP, 16% toward the coalition PSD–CDS, about 21% to the PS party and roughly 19% toward other parties. By row, the sum of the cell entries excluding the straight-vote estimate are then used as dependent variable in the analyses conducted in the paper. Hence, for the specific example of the BE party, the amount of split-ticket voting for the BE party for the municipality of Lisbon is equal to about 0.73, meaning that about 73% of

the voters that have supported the BE at the MA elections have then chosen another party in the MC elections.

Table A1. Estimated straight and split-ticket voting, Lisbon 2013 (row %).

	Party supported in the MC elections				
Party supported in the MA elections	BE	PCP	PSD–CDS	PS	Others
BE	0.265	0.177	0.160	0.211	0.186
	(0.026)	(0.023)	(0.017)	(0.052)	(0.004)
PCP	0.058	0.738	0.041	0.077	0.086
	(0.011)	(0.052)	(0.007)	(0.029)	(0.012)
PSD–CDS	0.022	0.017	0.910	0.016	0.035
	(0.004)	(0.003)	(0.015)	(0.003)	(0.005)
PS	0.063	0.050	0.043	0.775	0.069
	(0.005)	(0.006)	(0.008)	(0.016)	(0.003)
Others	0.239	0.184	0.224	0.167	0.187
	(0.022)	(0.023)	(0.044)	(0.048)	(0.005)

Notes: Key to parties: BE (Left Bloc/Bloco de Esquerda), PCP (Communist Party/Partido Comunista Português), PS (Socialist Party/Partido Socialista), PSD–CDS (Social Democrat Party/Partido Social Democrata–Christian Democrats/Centro Democrático e Social). Standard errors in parentheses.

Descriptive statistics

Table A2. Basic descriptive statistics.

Variable	*N*	Mean	SD	Min	Max
Split	10,832	0.360	0.273	0.019	0.979
Top 2	10,832	0.526	0.499	0	1
Democratic Experience (Log)	10,832	1.785	0.515	0.693	2.398
Education	10,832	0.123	0.089	0.005	0.536
Independents	10,832	0.061	0.239	0	1
Margin of Victory	10,832	0.210	0.153	0.001	0.920
Number of Parties	10,832	4.290	1.046	2	10

Additional models controlling for Municipal Assembly (MA) size

Table A3. Empirical results controlling for the MA assembly size.

Dependent variable: party-level split-ticket voting, %			
	All years (Model 1)	Pre-2001 (Model 2)	Post-2001 (Model 3)
Top 2	−0.316***	−0.300***	−0.407***
	(0.049)	(0.046)	(0.084)
Democratic Experience	−0.015**	−0.033***	−0.036***
	(0.005)	(0.006)	(0.007)
Education	0.902**	1.239***	1.320***
	(0.259)	(0.292)	(0.320)
Margin of Victory	−0.130**	−0.203***	−0.215***
	(0.046)	(0.037)	(0.047)
Number of Parties	−0.007	−0.002	−0.004
	(0.014)	(0.012)	(0.013)
MA size		−0.010***	−0.013***
		(0.001)	(0.002)
Top 2 × MA size			0.005
			(0.003)

(*Continued*)

Continued.

Dependent variable: party-level split-ticket voting, %			
	All years (Model 1)	Pre-2001 (Model 2)	Post-2001 (Model 3)
Constant	0.777***	1.032***	1.116***
	(0.072)	(0.070)	(0.100)
N	10,822	10,822	10,822
R-squared	0.527	0.569	0.573
AIC	−7475.802	−8479.521	−8585.768
Log-Likelihood	3743.901	4246.761	4300.884

Standard errors in parentheses:
*$p < .05$.
**$p < .01$.
***$p < .001$.

Additional models: beta and tobit regression

Table A4. Comparison of regression techniques.

Dependent variable: party-level split-ticket voting (%)			
	All years		
	(WLS)	(Tobit)	(Beta)
Top 2	−0.317***	−0.317***	−0.312***
	(0.050)	(0.050)	(0.035)
Democratic Experience (Log)	−0.068*	−0.068*	−0.147**
	(0.027)	(0.027)	(0.052)
Education	0.797***	0.796***	0.419***
	(0.165)	(0.165)	(0.043)
Margin of Victory	−0.137**	−0.137**	−0.141*
	(0.047)	(0.047)	(0.067)
Number of Parties	−0.005	−0.005	−0.091
	(0.013)	(0.013)	(0.085)
Constant	0.803***	0.803***	1.152***
	(0.088)	(0.088)	(0.209)
N	10,832	10,832	10,832
Log-Likelihood	3752.346	179,794.656	227,139.636
AIC	−7492.69	−359,588.312	−454,277.273

Notes: For beta regression model, the table shows marginal effects when all dummy variables are set at their mode and continuous variables at their mean; using the betafit command in Stata.
Standard errors in parentheses:
*$p < .05$.
**$p < .01$.
***$p < .001$.