Strategic voting in young democracies

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Abstract

Do voters make active attempts to change election results by placing strategic votes? While existing work by Abramson et al. or Alvarez and Nagler has largely corroborated the presence of strategic voting in the UK, there is still little empirical evidence of such voting behavior occurring outside the UK, in countries with less clear-cut party systems and different electoral rules. A unique arrangement of electoral rules in the Czech Republic has allowed us to create a quasi-experimental design with a robust test for strategic behavior. By using Bayesian modelling of vote combinations within electoral precincts, we are able to estimate the behavior of individual voters in two simultaneous elections with different rules, where the theory of strategic voting predicts vote-splitting based on a perceived chance to win. We are thus able to evaluate one of the fundamental propositions of strategic voting literature in a heretofore unexplored setting.

1 Introduction

Are voters influenced by strategic incentives in making decisions as to how will they cast their ballot? Since the 1990s, the empirical work supporting strategic voting has made this concept one of the focal points of election studies.

While much research of Strategic voting behavior has focused on the highly structured political systems of the US, UK and Germany (primarily Alvarez – Nagler 2000, Alvarez – Boehmini – Nagler 2006, Gschwend 2004), other countries have been left behind. This would not, of course, be an issue, if there were no relevant differences between old and new democracies or, if these differences were merely temporary, a state of initial turmoil with the underlying mechanics being equal. However, as Mainwaring and Zoco (2007) show, the time period at which party systems developed in may in various countries determine the way the function, perhaps for protracted periods of time. In young democracies, strategic incentives are more difficult to translate into actionable choices – less political information is disseminated and the fluid and complex party system may not allow voters to place meaningful strategic votes. A general question then arises: Is strategic voting of a large extent that has been observed in the older democracies a mechanic that is being developed in the newly democratized countries? Or, is it a specific that will, if at all, attain at most a low level of significance at best marginal? To test this proposition, we must turn to the methods, which allow the measurement of strategic voting.
Alvarez and Nagler (1997) distinguish between three types of methodologies intended to test for strategic voting in an election. One is based on an analysis of aggregate data, where individual voters’ behavior is inferred from district-level vote shifts. Second, surveys have been conducted asking voters directly whether strategic incentives played a role in their decisions. Lastly and mainly, Alvarez and Nagler suggest a number of routes to a direct measurement of strategic voting.

The aggregate-level inference still remains the primary measure of strategic voting even expanding the research outside of Westminster-type plurality elections (see Albecu – Ioniţă – Mateescu 2012 or Shvetsova – Cox 1998), perhaps based on the relative straightforwardness of the calculations involved. Indeed, most research outside UK and Germany has been reproducing the aggregate-level measurement with all of its strong underlying assumptions. Since decades ago however, quantitative researchers have been sceptical of research limited to aggregate-level correlation. A difference in the total number of votes that could have been caused by voting based on a strategic incentive, is often as likely a result of a transition based on other unobserved considerations. Even if a large number of districts can be used as individual observations, transitions based on non-strategic incentives can create a pattern suggesting a mechanic of strategic voting.

Self-reporting strategic incentives is, of course, problematic, as making insincere choices based on the expectations of election results can easily be seen as unethical. There is also the issue of voter recollection and the well-researched over-reporting of voter turnout (see Belli - Moore - VanHoewyk 2006 or Bernstein - Chadha - Montjoy 2001).

Direct measurement both sounds as and is the best possible method of identifying strategic voting behavior. All methods of direct measurement are, however, not created equal. Much research falling under this methodology has tried to interpret survey data involving self-reported preferences and contrast them with self-reported votes. Such an approach retains many of the issues of self-report pointed out above, adding at the same time the issue of variability among districts (see Wright 1990). Survey-based research rarely involves a large enough sample to allow control of inter-district differences. The exceptions to this rule have been mostly based in research using exit poll data where voters are asked about their previous votes, where the character of the other election is used to determine strategic incentives to exhibit a specific transition pattern.

An alternative to survey research lies in the various methods of ecological inference. The general term describes various measures intended to traverse the aggregate-individual threshold, in this case between district-level data and individual-level behavior. In most electoral systems, this threshold is difficult or even impossible to cross and even the most sophisticated ecological inference model cannot produce useful results. In specific situations however, where data from more than one kind of election is available simultaneously, or almost so, it is possible to use it to some benefit (see Gschwend 2004).

While such quantitative techniques have been successful in measuring individual behavior using data from a single set, in this case we need to merge multiple sets of data that were collected with a significant amount of time between each other. In these cases, the current techniques of ecological inference have but limited applicability, as they cannot fully account
for changes in population that happen over time, either from natural change, travel, or from changes in administrative boundaries (compare King 2004).

As a result, to be able to describe voting behavior accurately enough to observe the possible indications of strategic voting, we need to look for situations where voting in two different elections, each with a different level of strategic incentive, happens at or nearly at the same time. These are opportunities for a kind of “ticket-splitting”, a type of voting where, out of multiple votes cast at the same time, some go to a different candidate than others. In two different elections, even if they take place at the same time, a voter of course typically chooses from two different sets of candidates or parties. Still, the mechanics of choice are similar to traditional examples of ticket-splitting and if both a sincere and a strategic vote is possible in both elections, we can reasonably expect a pattern of strategic voting to present itself, if indeed this type of electoral behavior takes place in the area. The situation we describe, although rare, fortunately occurs. Specifically and importantly to our paper, it occurs repeatedly every four years in the Czech Republic.

If we limit the scope of the term ‘strategy’ in strategic voting to a conscious attempt to get one’s own, single candidate or party elected, we can generally discern three types of strategic incentive. In a First past the post system, there is a strong incentive to follow prediction of candidate chances and to pick a preference from a few people most likely to win. In runoff elections, there is a good chance that one’s preferred candidate will at least make the cut to the second round, but the incentive not to waste your vote by placing it for a longshot candidate, even if he is your first preference, is still present. In electoral systems that are based on proportional representation however, there mostly remains the electoral threshold, either specific, or a variant, so-called natural threshold. Voters are therefore expected to limit their choices to those candidates and parties that are at least likely to make it over the threshold. Even so there is a general consensus that proportional representation systems offer the least amount of strategic incentive (see Moser - Scheiner 2009).

Each time the Czechs elect their regional representatives (14 regions being the second level of local administration in the country), certain parts of the country also get to elect their national-level representatives for the Czech Senate. The elections happen at the same time in one third of all electoral precincts in the country (since one third of senators are elected every two years) and the total number of voters for each precinct is therefore the same.

The Czech regional representatives are elected by a proportional representation system with a simple d’Hondt formula and the only limit to proportionality, as well as the greatest incentive to vote strategically, lies in the election threshold of 5% of votes cast. On the other hand, Czech senators are elected in a two-round runoff system where, provided no candidate receives 50% or more of the total votes cast, the two candidates with the most votes advance into the second round. Here, if voters have a strong enough preference, there is good reason to vote strategically.

Therefore if strategic voting truly occurs even in a newly developed political system as the one in the Czech Republic, there is every reason that it should be observed in the way people split, or do not split, their tickets between regional council and Senate elections.

To this we posit that voters’ sincere preferences, best represented by a vote in PR based elections, do not translate into a vote for a candidate in the plurality system, if the preferred
Candidate has a low chance of reaching the second round and that the level of strategic voting thus observed increases in time.

2 Data

In total, there were four occasions where the elections of regional assemblies and national senators have been held at the same time after the Senate was established in 1996 and the regions in 2000.

Even though we use all voting data that exist in these elections on the smallest possible level of aggregation that, is some 14,000 electoral precincts (one precinct is usually identical to one polling station that corresponds to several streets or a small village), there are limitations to our data. For one, in the Czech capital, Prague, the regional assembly is not present, as municipal-level representatives fill their administrative role there. Therefore, about a tenth of the senatorial elections in the country take place in the area of Prague without corresponding regional elections and cannot be included in our research.

Also, many senatorial districts are split into parts that lie in different regions. As a result, we are actually working not with senatorial districts themselves, but rather with district-region unified areas. While this increases the number of our cases to a small degree, it also leads to some districts being left out, as they are split into areas with so few precincts that the application of ecological inference techniques would yield inaccurate results.

On each occasion there were on average 24 areas which fit our requirements of having both elections held at the same time and containing at least the minimum number of a hundred electoral precincts. Table 1 presents the number of cases for each election year.

Table 1: Overview of relevant areas and elections

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of electoral districts included</th>
<th>Number of electoral districts not meeting requirements</th>
<th>Total number of cases (district-region unified areas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>22</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>2004</td>
<td>23</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>2008</td>
<td>22</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>2012</td>
<td>23</td>
<td>4</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Authors based on data from Czech Statistical Office.

The data we use to estimate voters sincere preference in the runoff election system also deserve some comment. Simply said, we created a large matrix of candidates and party lists that have run in Czech elections in the past. All non-independent candidates and party lists are linked to a political party or a coalition of parties that legally put these candidates or party lists into the race. In our matrix therefore, we were able to determine whether any pair of a candidate and a party list was nominated by the same political party. This linkage then serves as a basis upon which we determine whether a sincere vote took place or not. If a voter chose a candidate for the Senate and a list for his regional representation which had been nominated by the same
political party or, which had had a common element in the coalition of parties that nominated
them, we consider that vote to be sincere.

3 Methods

Information on the real structure of ticket splitting in two concurrent elections is always
irreversibly lost and cannot be retrieved. It can, however, be approximately reconstructed using
two groups of methods. The first group contains methods based on direct surveying of a
random sample of voters. There are three types of these surveys: pre-election surveys, exit
polls and post-elections surveys. They differ in who is being surveyed and how. If the
respondents are selected randomly, results of the survey closely approximate the actual
unobserved social reality. This makes survey methods optimal strategies for ticket splitting
research in most situations.

There may, however, be serious problems with surveying voters: In pre-election surveys,
there is always a share of respondents who are not certain about their future electoral behavior
and may change political preferences after surveying. Exit polls do not provide any information
about previous electoral behavior of people who do not participate in the given elections since
it is conducted in polling stations. And all surveys obviously run into the risk of respondents
providing incorrect or intentionally misleading answers.

There were no surveys conducted before or during the elections we study that would
allow us to reconstruct the structure of ticket splitting. This forces us to utilize the second
group of methods for estimating this structure – statistical modelling. The specific model used
in this paper is a hierarchical Bayesian model of ecological inference (Rosen et al. 2001). The
model uses aggregate data to draw inferences about individual behavior. It consists of three
steps. In the first step, a suitable probabilistic distribution of values of unobserved variables is
selected using distributions of values of observed variables. In this case, the observed variables
are shares of votes for political parties and candidates and the unobserved variables are values
in a contingency table of ticket splitting in the two elections.

It is assumed that values of the unobserved variables follow the multidimensional
Dirichlet distribution. It is a very general distribution that likely covers all actual distributions
in social reality. In the second step, each territorial unit representing one data point is given an
interval where a value of an unobserved variable must necessarily fall given the values of the
observed variables. For example, if a political party gained 35 votes in the regional elections
and a candidate gained 53 votes in the senatorial elections in a hypothetical electoral precinct,
it is possible to determine that the share of voters who supported both the party and the
candidate cannot be lower than 0 % and higher than 66 % of all voters that supported the
candidate (35 divided by 53 is 66 %).

In the third step, all values within this interval are assigned a probability of being the true
value according to the Dirichlet distribution. Its statistical parameters are determined using
distributions of the observed variables via the Bayes Theorem (see the formal description of
the model in Rosen et al. 2001 and Lau et al. 2007 and further literature on ecological inference
- King 1997, King et al. 1999, King et al. 2004). The model used in this paper is commonly
applied to reconstruct individual behavior from aggregate data in a variety of political science

An output of this method is a table. Variable $v_0$ denotes the share of non-voters in elections $t$. Variables $v_1$ to $v_{i-1}$ denote shares of $i-1$ relevant parties or candidates in these elections and variable $v_i$ the share of votes for other parties or candidates. Variable $s_0$ denotes the share of non-voters in elections $t+1$, $s_1$ and $s_{j-1}$ denote shares of $j-1$ relevant parties or candidates in these elections and $s_j$ denotes the share of votes for other parties or candidates. Variables denoted $\beta_{00}$ to $\beta_{ij}$ are unobserved quantities of all possible combinations of electoral behavior. The table does not include first-time voters, as well as voters who died between the two elections, voters who lost the right to vote etc. Since their quantities are usually unknown it is necessary to omit them.

Table 2: The output of a hierarchical Bayesian model of ecological inference

<table>
<thead>
<tr>
<th>Elections $t$</th>
<th>Non-voters</th>
<th>Party 1</th>
<th>Party 2</th>
<th>...</th>
<th>Party $i-1$</th>
<th>Other parties</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-voters</td>
<td>$\beta_{00}$</td>
<td>$\beta_{10}$</td>
<td>$\beta_{20}$</td>
<td>...</td>
<td>$\beta_{i-10}$</td>
<td>$\beta_{00}$</td>
<td>$s_0$</td>
</tr>
<tr>
<td>Party 1</td>
<td>$\beta_{01}$</td>
<td>$\beta_{11}$</td>
<td>$\beta_{21}$</td>
<td>...</td>
<td>$\beta_{i-11}$</td>
<td>$\beta_{10}$</td>
<td>$s_1$</td>
</tr>
<tr>
<td>Party 2</td>
<td>$\beta_{02}$</td>
<td>$\beta_{12}$</td>
<td>$\beta_{22}$</td>
<td>...</td>
<td>$\beta_{i-12}$</td>
<td>$\beta_{21}$</td>
<td>$s_2$</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Party $j-1$</td>
<td>$\beta_{0j-1}$</td>
<td>$\beta_{1j-1}$</td>
<td>$\beta_{2j-1}$</td>
<td>...</td>
<td>$\beta_{i-1j-1}$</td>
<td>$\beta_{ij-1}$</td>
<td>$s_{j-1}$</td>
</tr>
<tr>
<td>Other parties</td>
<td>$\beta_{0j}$</td>
<td>$\beta_{1j}$</td>
<td>$\beta_{2j}$</td>
<td>...</td>
<td>$\beta_{i-1j}$</td>
<td>$\beta_{ij}$</td>
<td>$s_j$</td>
</tr>
<tr>
<td>Total</td>
<td>$v_0$</td>
<td>$v_1$</td>
<td>$v_2$</td>
<td>...</td>
<td>$v_{i-1}$</td>
<td>$v_i$</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Authors.

Validity of the model is determined by measuring a match between the contingency table estimated by the model and by an electoral survey. The most extensive research on this subject to date was conducted by Lucas Leemann a Philipp Leimgruber (2009) who compared estimates of religious affiliation of voters in 113 Swiss referenda produced by six statistical models. The match between the model and a survey can be calculated using so called index of similarity. It is a sum of absolute values of differences between a survey ($\beta_{ii}$) and the model ($\beta_{ii}$) divided by two and subtracted from zero:

$$S = 1 - \frac{\sum_{i,j} |\beta_{ij}^\text{survey} - \beta_{ij}^\text{model}|}{2}.$$

Table 3 presents values of this index for several models of voters’ transitions between two parliamentary elections in the Czech Republic between 1996 and 2010. The transitions were estimated using municipal-level data (some 6,300 territorial units). The estimates are compared with results of the SC&C exit polls in 1998, 2002, 2006 and 2010 (see Gregor 2014 for further details).
Table 3: Accuracy in using hierarchical Bayesian model of ecological inference

<table>
<thead>
<tr>
<th>Voters’ transitions</th>
<th>Raw index</th>
<th>Standardized index</th>
<th>Contingency table size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parliamentary elections 2006 and 2010</td>
<td>89.4%</td>
<td>2.29</td>
<td>56</td>
</tr>
<tr>
<td>Parliamentary elections 2002 and 2006</td>
<td>89.0%</td>
<td>2.27</td>
<td>42</td>
</tr>
<tr>
<td>Parliamentary elections 1996 and 1998</td>
<td>88.6%</td>
<td>2.11</td>
<td>64</td>
</tr>
<tr>
<td>Parliamentary elections 1998 and 2002</td>
<td>83.7%</td>
<td>1.94</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: Authors, using data from Czech statistical office.

Raw values of the index are not comparable across models because the size and shape of the contingency table are not the same. The smaller the table, the more likely it is to correctly place a voter into a correct cell of the table at random. To compare the values, they must be standardized by the size of the contingency table. The standardized index informs whether the statistical model is more accurate than a “model” of uniform distribution of voters across the contingency table.

To study strategic voting in the Czech Republic, we have used the ecological inference model described above to construct a matrix of estimates of the proportions of people that voted for a certain party in the regional council elections and picked a candidate of a different party in the elections to the Senate.

The unit of observation is therefore a ticket split within a single district-region unified area. In total, we can observe 3186 ticket-splitting patterns that, take place in a situation where both sincere and strategic voting is possible. Although our data is technically individual, no information is lost by using the merged category of a ticket-splitting pattern. All of our variables take their values at this level. We are therefore able to construct an ordinary least squares linear model of dependence, which attempts to explain the relative size of voter transitions using a measure of perceived candidate advantage, and an indicator of sincerity of the vote, whilst controlling for the strongly collinear actual election results.

As per the dependent variable, the proportion of voters that split their ticket in a certain way is calculated with a basis in the number of votes for a party in the proportional representation elections. As we assume that the regional elections reveal voters’ sincere preferences, we attempt to explain the choices of people that have or have not voted for their assumed sincere preference in the senatorial elections that offer strategic incentives.

The main independent variable, i.e. the perceived chance of a candidate to win, or at least to make it to the second round, is a simple relative difference between the final vote percentage of the candidate that was actually voted for, and the final vote for the assumedly preferred candidate. While we would prefer to determine relative candidate strength as perceived by the voters before the election, a retrospective measure based on results fits into the framework of measurement put forward by Cox (1997).

Our measure of sincerity of voting is limited to a simple binary variable that takes the value of 1 when the senatorial candidate is linked to a party running for the regional assembly by any entity among those that nominated them, and 0 where no such linkage exists.

To determine whether a change in the observed mechanisms happens overtime, we put together an extra model that includes interactions with dummy variables for each election year involved.
4 Results and discussion

Table 4: Linear models of ticket splitting

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sincere preference</td>
<td>.402</td>
<td>.394</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.006)</td>
<td>(.005)</td>
<td></td>
</tr>
<tr>
<td>Candidate advantage</td>
<td></td>
<td>-.020</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.014)</td>
<td></td>
</tr>
<tr>
<td>Sincere preference * year (dummy)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>.448</td>
<td>.448</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.012)</td>
<td>(.012)</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>.359</td>
<td>.359</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.010)</td>
<td>(.010)</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>.435</td>
<td>.435</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.010)</td>
<td>(.010)</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>.357</td>
<td>.357</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.010)</td>
<td>(.010)</td>
<td></td>
</tr>
<tr>
<td>Candidate advantage * year (dummy)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>-.035</td>
<td>-.035</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.026)</td>
<td>(.026)</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>-.030</td>
<td>-.030</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.022)</td>
<td>(.022)</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>-.013</td>
<td>-.013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.019)</td>
<td>(.019)</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>.003</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.024)</td>
<td>(.024)</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.597</td>
<td>.647</td>
<td>.647</td>
</tr>
</tbody>
</table>

Note: unstandardized regression coefficients are shown, with standard errors in brackets. In models 2 and 3 we control for the actual voting result (collinear with the measure of candidate advantage). N = 3186.
Source: Authors.

Table 4 presents our findings in three linear models. The first model suggests that our choice of an indicator of sincere preference was to a large extent correct. A large proportion of the variation in voting behavior between the two types of election can be explained by answering a simple question: Do the parties and candidates involved have a common entity among the parties and movements that nominated them? This finding provides evidence that much of the voting in Czech senatorial elections does indeed correspond to a pattern of voting for a sincere preference.

In model number 2, we include our measure of perceived candidate advantage. While our measure is imperfect, it is likely that had voters been making considered expectations as to who has a better chance to win, these would translate into a preference for the more successful candidate, even if success is measured retrospectively. No such preference is however observed. If we control for the actual election result of the senatorial candidate, which is of course collinear to our measure of perceived advantage, the measure takes on a negative, if any relation with the size of the ticket split.

These results vindicate to a large extent our choice of research design. It is quite possible that although using inferred individual-level data, we could not find any evidence of strategic voting, an aggregate-level technique applied to the very same initial dataset might show a strategic pattern within the election result. Such a pattern may be caused by various other mechanisms. Our results are, however, difficult to misinterpret.

The fact that even our crude measure of sincere choice accounted for much of the models’ variance even with a relatively high number of cases shows that, voters preferences can be explained using relatively simple measures. It is doubtful however that, voters are truly guided by the information on who nominated the candidates. A more sophisticated measure,
taking into account the actual public interaction between candidates and parties and the level of such interaction could prove a much better predictor of ticket-splitting patterns.

Model 3 includes interaction variables for each of the election years, showing in part how the explanatory mechanism we have built has changed in its function over time. Reading the coefficient levels for sincere preference interactions, we see no clear trend but rather a fluctuation between high and low values of B while the standard error remains mostly the same. In relative candidate strength interaction, we see a slight decrease in the absolute value of B, but the explanatory value of the variable remains the same. In the limited timeframe of available data, we observe no development towards a clearer strategic voting pattern.

To answer our initial question, are voters influenced by strategic incentives in making decisions as to how will they cast their ballot? For the Czech Republic at least, it would seem that voters either intentionally follow their preferences notwithstanding the chances of their preferred candidate to succeed, or that they simply lack the necessary information to make strategic decisions. Our findings provide some evidence to the claim that in a political system without the established political and media structures, i.e. in a new or young democracy, patterns of strategic voting, if they arise at all, take a long time to constitute themselves.

References


