PARTY COMPETITION AND ELECTORAL TURNOUT

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Abstract

Duverger's Law and Hypothesis establish a connection between the number of parliamentary parties and the electoral system: single-member constituency systems with first-past-the-post criterion of winning are likely to lead to two-party systems, while in proportional representation systems one should expect a multitude of parties being represented in the parliament. With regard to electoral turnout, it seems that FPTP system is in general associated with lower turnout than the PR ones, but there is considerable over time and space variation in these turnout figures. Our focus is on the possible effect that the closeness of the race has on turnout in FPTP and PR systems. One would, a priori, expect that the closer the race, the more interest the voters have in the electoral outcome and, hence, the higher the turnout. Resorting to the Finnish municipal and British parliamentary elections data, we shall assess the tenability of this expectation. We shall divide the municipalities and constituencies, respectively, into clusters representing relatively homogeneous support distributions over the main competing parties and determine whether the turnout values differ essentially in high competition settings from those observed in low competition ones. We shall also discuss various measures of competition and the robustness of our findings when the measures are varied.

1 Introduction

Democratic form of government presupposes a reasonable consonance between the governmental policies and the opinions of the electorate. In direct

democracy the consonance is achieved through public debate and electoral involvement in decision making concerning policies to be adopted. In representative forms of government the electoral input is limited to electing representatives whose task is to make or control the policy decisions. Either way, a link is supposed to exist between popular opinion and government decisions.

In many Western democracies the link has been weakened over the past decades, not because of the governments' unwillingness to respond to popular opinions, but due to the apparent lack of interest of the electorate to express their opinions. The overall trend in electoral turnout has been declining in many countries of Western and Northern Europe. In fact exceptions to this are mainly to be found in countries where voting is compulsory.

In this paper we shall focus on explanations of the act of voting, i.e. answers to the question of why people cast their vote. This question is rather fundamental in understanding politics and collective behavior in general. Indeed, it has often been seen as crucial test of what is known as the rational choice theory (RCT, for brevity); if the theory is incapable of providing a plausible rational explanation for the act of voting, the theory based on rationality assumption has to be abandoned.

The task of explaining the decline in turnout is of course related to that of accounting for the fact that people participate in elections. If one finds a set of conditions or factors that explains why people vote in general, one might look for the explanation of the lowering turnout in those conditions or factors as well. Perhaps their presence has become less frequent over time or some new conditions have diminished their causal efficacy.

One of the considerations that is sometimes equated with the RCT account of the act of voting is the perceived impact one's vote would likely have on the electoral outcome. The more likely one's vote is to change the outcome, the more stronger is the incentive to vote. Consider the well-known expression in voter calculus (Downs 1957; Tullock 1968):

$$R = PB - C \tag{1}$$

where R is the reward from the act of voting, P is the probability of the vote changing the outcome to the one favored by the voter, B is the benefit from the favored outcome and C is the cost of voting. The standard argument is that since P for any individual voter in any real world election is bound to be minuscule, no matter high much value B the voter attaches to his/her favored outcome, C is almost certain to exceed PB. Therefore, the reward is bound to be negative, whence the act of voting is not rational in the expected utility maximization sense.

We shall evaluate this argument more fully in the penultimate section of this paper, but for now we focus on some of its implications. To wit, if the argument is correct, then the following statements would hold:

- By voting the voter increases the probability of his/her favorite outcome from the what it would have been had he/she (hereinafter she) not voted, ceteris paribus.
- The closer the election, the more likely the voter is to vote rather than abstain.

The former statement pertains to properties of voting schemes, while the latter is an empirical claim regarding voter behavior. We shall discuss these statements in turn.

2 Voting procedures and incentives

The very rationale of holding an election or "going to the people" as the British are accustomed to saying, is that the more support a party, candidate or alternative receives from the voters, the more likely it or she is to win. From the voter's point of view, the more he/she cares about the outcome of the election, the stronger incentive she has to express her views by voting for her favorite. Thus, to the extent that people do not show up at the polls, it can be argued that they are not really interested in the electoral outcomes. Indeed, this explanation has often been heard. The explanation has, however, a hollow ring to it if it turns out that the likelihood of a candidate, party or alternative winning does not always increase with the increase of her or its support among the electorate. Yet, many texts on voting systems reveal that there are systems in which the rationale of going to the people necessarily holds, and others in which it doesn't hold.

2.1 Systems that encourage voting

Fortunately, many commonly used voting systems are monotonic, i.e. satisfy the participation axiom which says that whenever a candidate or alternative wins in an electorate, it should also win when its support is increased, provided that no other changes occur in the electorate. As an example of monotonic system, consider the first-past-the-post (FPTP) system: every voter has one vote and the candidate who receives the largest amount of votes is the winner. Surely, this system is monotonic.

Another monotonic system is the Borda Count. This system takes individual preference rankings as inputs and turns these into collective preference

rankings. Given a profile over k alternatives $a_1, \ldots, a_k$, this is done by first encoding the preference ranking of voter i into vector with k components

$$v_i = (n_{1i}, \ldots, n_{ki})$$

where n_{1i} denotes the number of alternatives ranked lower than a_1 in i's ranking, n_{2i} the number of alternatives ranked lower than a_2 in i's ranking etc. Summing over voters gives:

$$B = \sum_{i \in N} v_i = (B_1, \ldots, B_k)$$

which is the vector of Borda scores of alternatives.

To see that the Borda Count is monotonic, consider a vector of Borda scores and see what happens to it if any voter or group of voters decides to rank the winner higher than they did originally. This would mean that the winner's score becomes now larger than it was since some voters now rank more alternatives below it than originally. In particular, no other alternative than the winner gets a higher score than originally. Hence, after the change the original winner remains the winner.

Consider now another theoretical property that is directly pertinent to turnout, viz. the participation axiom mentioned above. It states that in terms of electoral outcomes no voter group is ever better off by abstaining than by voting according to its preferences, ceteris paribus (i.e. other voters' behavior remaining the same). It is clear that FPTP system satisfies the axiom since by voting for its first ranked alternative can never bring about worse outcome than by not voting at all. Of course, it may be the case that abstaining is accompanied with no change in the outcome, but the point of the axiom is that abstaining not result in a better outcome from the abstainer's point of view.

Equally obvious is the conclusion with regard to the Borda Count. By voting according to one's preferences one cannot bring about worse outcome than by abstaining. Thus, both FPTP and Borda Count satisfy the participation axiom and are monotonic. In this sense they both encourage voting.

2.2 Systems that do not encourage voting

There are, however, also systems that may respond in counterintuitive ways to preference modifications. Non-monotonic systems may, by definition, respond to an increased support of a winner by turning it into a non-winner. Consider the widely used plurality runoff system and the following profile over three alternatives $\{a, b, c\}$(Table 1) (Nurmi 1999, 57).

34% of voters	35% of voters	31% of voters
a	b	c
c	c	b
b	a	a

Table 1: Non-monotonicity of plurality runoff

In plurality runoff system each voter votes for one alternative. If some alternative is voted for by more than 50% of the voters, it is elected. Otherwise, there will be a second round of vtoting where two largest vote-getters are confronted with each other. Whichever of these two gets more votes, is elected.

In the profile of Table 1 -assuming that voters vote according to their preferences - a second round is needed since none of the alternatives is supported by more than half of the electorate. In the second round a and b are faced with each other, whereupon will be elected since the 31% of the voters whose most preferred alternative is not present will presumably vote for b. Hence, b is elected.

Suppose now that b had somewhat more support to start with so that 4% of voters had the preference bac rather than acb. Hence the largest groups would be bca (35%) and cba (31%). Thus, b and c would be present in the second round, where c would win. This shows that additional support may turn winners into losers in plurality runoff. In other words, plurality runoff is nonmonotonic.

It is also vulnerable to the no-show paradox (Fishburn and Brams 1983), i.e. does not satisfy the participation axiom. Table 2 illustrates this (Nurmi 2002, 95). Assuming again that the voters vote according to their preferences, the second round contestants will be a and b, whereupon a wins. This is the worst outcome for 49% of the voters. By abstaining the group consisting of 47% of the voters may bring about a runoff contest between a and c. This will, then, be won by c. Hence, the outcome is better for the abstainers than the one that results from their voting according to their preferences.

Plurality runoff is by no means the only system that violates monotonicity and participation axiom. Another well-known example is the single transferable vote (STV) which in the context of single-winner elections is known as Hare's system. When the number of alternatives is three, the behavior of STV is identical with that of plurality runoff. Therefore, the above examples also demonstrate that Hare's system is nonmonotonic and vulnerable to no-show paradox.

No-show paradox occurs when a group of voters can improve upon the

26% of voters	47% of voters	2% of voters	25% of voters
a	b	b	c
b	c	c	a
c	a	a	b

Table 2: No-show paradox

voting outcome (from their own view-point) by abstaining from what it would be if they voted according to their preferences and everything else remained the same. A strong no-show paradox occurs when the abstainers not only improve upon the outcome but achieve their best outcome (i.e. first-ranked alternative) by abstaining (Pérez 2001, Saari 1989, Saari 1995). The strong version of the paradox is obviously more dramatic than the earlier one. Fortunately, none of the systems commonly used in elections is vulnerable to the strong no-show paradox. However, the quite common parliamentary voting procedure known as amendment procedure may lead to a strong version of the paradox.

2.3 Some results

Monotonicity and participation axiom are intuitively compelling requirements of voting systems. Indeed, one could go as far as to maintain that it is to be expected that in systems violating these requirements the turnout is lower than in those satisfying them, ceteris paribus. The problem is ascertaining this expectation is that ceteris are not paribus, i.e. a number of different factors enter into voter calculus and the design of electoral systems. Especially noteworthy is the fact that, in addition to monotonicity and participation axiom, there are several intuitively plausible requirements one could impose on a voting system. Unfortunately, some of these are incompatible with the two desiderata just mentioned.

Three incompatibility results are particularly worth mentioning. First one is Moulin's (1988). It states that all Condorcet completion systems are vulnerable to no-show paradox whenever the number of alternatives exceeds three. Condorcet completions are systems that result in the choice of the Condorcet winner when one exists in a preference profile. If one deems a Condorcet winner a plausible choice - which many people do - then Moulin's result is of negative nature in showing that one cannot find Condorcet completions that would necessarily avoid no show paradoxes.

More recently, Pérez (2001) has been able to extend Moulin's incompatibility result to nearly nearly all Condorcet completions and the strong version

of the no show paradox. In other words, almost all Condorcet completions can lead to strong no show paradoxes. The only exception is the maxmin method (Kramer 1977) which is not used in election settings.

Since Condorcet winner is determined on the basis of pairwise comparisons with simple majority rule determining the winner in each comparison, it could be argued that resorting to higher than simple majorities might give a way to escape no show paradoxes. Holzman's (1988/89) result, however, pretty much eliminates this possibility. It states that in order to avoid no show paradox one must insist on very high majority threshold, viz. at least $(k-1)/k$. With this or higher majority rule one can be assured that no show paradox is not encountered.

3 Does closeness count?

In principle one could expect that in systems vulnerable to no show paradox the turnout in lower than in systems satisfying the participation axiom for the nearly tautological reason that the latter provide voters with the assurance that under no circumstances can they do harm to their own interests by voting instead of abstaining. Yet, even a cursory glance at empirical data suggests that systems vulnerable to no paradox do not in general have lower turnout rates than systems invulnerable to it. If one compares, for example, turnout data from the Finnish presidential elections, which for a couple of decades have been conducted using the plurality runoff system, and from the British parliamentary elections (FPTP), the former seem to be accompanied with higher rather than lower turnout rates than the latter.

Obviously, the electoral system has many other properties than vulnerability to no show paradox. FPTP is known to be accompanied with relatively small number of parties or candidates, while plurality runoff system encourages cnadidates with relatively small support to enter the race. After all, it is easier to be first or second than first in terms of electoral support. If FPTP leads to two-party system, as it according to Duverger's Law does, then the candidates may be tempted to converge to the median in order to capture as large a share of votes as possible. This may, in turn, lead to a setting where voters have difficulty in finding meaningful differences between them. Consequently, the turnout may get low because of the perceived similarity of the candidates' policy stands.

What about the closeness of the election? In other words, does the difference in the variable P in equation (1) explain turnout differences? Perceived probability of making a difference in outcomes would provide a reasonable RCT explanation for the act of voting. We shall look at evidence from two

support for the largest party	parlimentary elections 2003	municipal elections 2000	number of municipalities
$< 25\%$	69.8%	59.4%	7
$25 - 29.9\%$	69.9%	58.1%	51
$30 - 39.9\%$	69.6%	60.9%	121
$40 - 49.9\%$	69.2%	63.2%	94
$50 - 59.9\%$	69.7%	63.9%	97
$60 - 69.9\%$	72.6%	66.8%	33
$70 - 79.9\%$	75.0%	69.5%	20
$> 80\%$	77.3%	72.0%	7

Table 3: Turnout in Finnish elections. Source: Bengtsson 2004

very different political systems, the British and Finnish ones. The former is based on majoritarian principles, while the latter is a proportional representation system. We start with the latter.

3.1 Finnish municipal elections

In an effort to find out factors accounting for variation in turnout in Finnish parliamentary elections of 2003 and municipal elections of 2000, Bengtsson (2004) compares two explanatory hypotheses, one emphasizing the contextual factors, i.e. the socio-economic circumstances under which the voters live, and the other looking at voting as an act of choice. The following table (Table 3) summarizes the turnout data from municipalities with various levels of support for the largest party (Bengtsson 2004, 9). The last column refers to the number of municipalities that belong to each largest party support category in the municipal elections of 2000.

The share of votes given to the largest party is certainly a fairly good indicator of the tightness of the political competition prevailing in a municipality. We shall present a somewhat more detailed indicator shortly, but before doing that let us observe that Bengtsson's table seems to suggest nearly an inverse relationship between the level of competition and electoral turnout both in parliamentary and municipal elections. Especially marked is the high turnout in municipalities where one party gets more that two thirds of the votes. Rather than competition it seems that a lack thereof explains differences in turnout.

The share of votes to the largest party is, however, somewhat crude measure of political competition. In the following section we shall augment Bengtsson's analysis with somewhat more detailed descriptive methodology.

3.2 Clusters of party support

In determining the nature of political competition within a constituency, one crucial piece of information is the distribution of support over the parties within the constituency. It is often intuitively easy to discern similar distribution patterns in various constituencies. Some are characterized by strong and equal support of the main parties with relatively small support for the other parties. In other constituencies, there may be one dominant party with competitors trailing far behind. It would be nice to have a method that would recognize support distribution patterns so that one could classify constituencies into clusters of support distribution so that within each cluster the constituencies would be very similar differing considerably from constituencies of other clusters.

Using the clustering methodology applied by Aleskerov and Alper (2000) to analyze the performance of branches of Turkish banks Aleskerov and Nurmi (2003) analyze seven most recent municipal elections in Finland in order to found out distribution patterns that would best describe the competitive situation of each election and of each constituency. Of 400+ municipalities and seven elections, it turns out that 87 patterns are needed to classify the support distributions in clusters that are optimal in the sense of providing best classification of data (the ratio of within cluster variation to between cluster variation is minimal).

For the analysis of turnout data it seems relevant to consider clusters characterized by intensive competition, i.e. relatively small support difference between largest parties, and clusters dominated by one party. If closeness of competition is to have importance to voting decisions, it makes sense to consider lagged process so that one looks at how competition at election t affects turnout at election t+1.

We singles out two support patterns which we think describe relative tough competition setting. In both clusters of municipalities the average support difference between two largest parties is less than 10%. The clusters differ mainly with regard to which parties are largest: in one of them it is Social Democratic Party (SDP), and in the other it is the Center Party (KESK).

In 10 clusters characterized by small or nearly nonexistent competition, the average difference in support between the dominant party and the runner up is more than 20% units and in each one of them the dominant party's votes share exceeds 50%. Our preliminary findings are presented in Tables 4 and 5.

cluster no.	average turnout at t	next election turnout (t+1)
3	72.4	69.8
10	73.9	73.8

Table 4: Turnout in Finnish clusters with tough competition

cluster no.	average turnout at t	next election turnout (t+1)
1	75.8	74.6
4	74.9	74.7
9	77.1	75.5
11	77.2	76.8
31	77.1	78.9
32	76.4	76.3
33	72.7	73.1
40	77.3	77.4
58	76.9	78.2

Table 5: Turnout in Finnish clusters with one party dominance

3.3 British elections

The Finnish evidence of the possible influence of the competition situation on the turnout seems to contradict the Downsian voter calculus. But what about other countries? Does this observation extend to majoritarian systems as well? To answer the latter question we looked at the clusters of party competition in three most recent British parliamentary elections (Aleskerov and Nurmi 2003). We analyzed three clusters of tough party competition and compared those clusters with three one party dominant clusters. The results are in Tables 6 and 7.

cluster no.	average turnout at t	next election turnout (t+1)
5	75.5	72.3
7	69.0	64.8
8	68.3	62.5

Table 6: Turnout in British clusters with tough competition

cluster no.	average turnout at t	next election turnout (t+1)
1	62.3	56.3
2	70.1	65.8
4	72.8	69.7

Table 7: Turnout in British clusters with one party dominance

4 Rational choice theory under attack

The preceding observations can be viewed as evidence for the contextual theory of voting and against choice theoretic approach. One might even be tempted to say that the data we have discussed constitute a refutation of RCT. But what would be the RCT explanation for voting? Briefly the following: an individual votes if she prefers voting to not voting. Rationality in the thin sense is simply acting in accordance to one's preferences. When certain conditions concerning preference relations are satisfied, the choice of the preferred alternatives can be seen as maximizing individual utility. Utility maximization does, however, not constitute an explanation, i.e. it does not make sense to say that rational people vote in order to maximize their utility. Rather, it can be said that they vote because they prefer voting to not voting and their preference can (under some conditions) be represented in terms of a utility function. This, of course, begs the question of why people prefer voting to not voting. One possibility is that those who vote do so because they think that by so doing they contribute to the outcome they prefer to the one ensuing from their no voting. This is the common view of what RCT explanation of the act of voting amounts to. As we just pointed out, the view is incorrect insofar as it equates rationality with an instrumental view of voting.

Our view is that there is no incompatibility between the view that people are rational choosers and the assumption that they deem voting as something inherently valuable regardless of one's probability of casting a decisive vote. There is also no incompatibility between contextualistic interpretations and choice theoretic view. Even rational choosers may succumb to pressure towards uniformity in strongly homogeneous political environments. Indeed, the act of not voting might be directly utility decreasing because of various social sanctions inposed on non-voters.

In short we do not deem the above observations as tests of RCT. What they show, in our opinion pretty conclusively, is that Downsian voter calculus is misleading: the probability of changing the outcome is not the only consideration in the voter calculus. Nor are costs related to going to the polls

solely relevant.

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