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Mandate and paternalism: A theory of large elections ☆

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ABSTRACT

We propose a game theoretic costly voting model of large elections that incorporates the assumption that mandate matters. This innovation is motivated by empirical evidence that US Representatives with larger victory margins on average vote in a more partisan manner. If voters are paternalistic, this new model predicts strictly positive limiting turnout rates as the population grows arbitrarily large. The model also preserves stylized comparative statics results of costly voting models, including the underdog effect and the competition effect. Finally, we develop an innovative computational strategy to solve the model for large, finite, electorates and show that our results are not only qualitatively, but also quantitatively relevant.

1. Introduction

It is natural to think of elections as winner take all contests. Be it a ballot for a member of parliament or a presidential election, we typically believe that the winner will have her own way, while the loser will have no say. Consequently, it is equally customary in voting theory to model elections as winner take all tournaments, where only the candidate who receives the most votes wins the prize. However, in reality elections are more complex and mandate plays a role in shaping the policy implemented by the winner. This notion has received attention in the political science literature and various explanations for the presence of a mandate effect have been put forward.[1] In this paper we argue that the policies adopted by elected politicians are closer to the "center" when their margin of victory is smaller and more "extreme" when their seats are won with a landslide victory. We present empirical evidence from US Congressional voting records in support of this thesis and propose a new theory of large elections that takes mandate into account. While one may be tempted to think of the winner take all assumption as an innocuous simplification, we show that a small deviation from the standard approach generates different and more realistic predictions.

One of the differences generated relates to the "paradox of voting", first identified by Anthony Downs (1957) in the original formulation of his rational choice theory. In a two-candidate winner take all election in which citizens pay a cost to vote, turnout rate is predicted to quickly converge to zero as the electorate grows. The paradox remains whether it is cast in

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[1] See Smirnov and Fowler (2007) for a survey.

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decision theoretic terms, as in Downs, or in game theoretic terms used by recent authors (Ledyard, 1981, 1984; Palfrey and Rosenthal, 1983, 1985). Notably, the assumption that the policy implemented depends on the margin of victory provides a substantial step towards the resolution of the paradox of voting. We show that, under this more realistic assumption, turnout converges to zero at a drastically slower rate than under the winner take all assumption. If we further assume that voters are paternalistic — i.e., they derive spillover benefits from the impact that a policy has on other individuals — our model delivers a strictly positive limiting turnout rate as the size of the electorate grows without bound.[2] In other words, the paradox of voting disappears. Conversely, turnout converges to zero in a winner take all framework even with paternalistic voters.

This positive limiting turnout result is driven by a delicate balance between the significance of one vote on the mandate and the magnitude of the paternalism spillover. The rates at which these two effects converge to zero and infinity, respectively, balance out in equilibrium, prompting a positive proportion of the electorate to vote. We demonstrate that this positive proportion need not be one. We show that, given any policy rule (a mapping from vote share to policy outcome), the limiting turnout is strictly less than one whenever voters' paternalism falls below some threshold.

Further characterizing the equilibrium, we show that under mild symmetry assumptions (so that supporters of neither party are ex-ante more motivated to vote), we obtain the "underdog effect" — that members of the minority party turn out to vote at higher rates than those of the majority; as well as the "competition effect" — that closer elections generate higher turnout.[3] These effects have been well-documented, both in laboratory experiments and empirically in large elections (Levine and Palfrey, 2007; Shachar and Nalebuff, 1999; Blais, 2000). However, theoretical predictions for such effects have been notoriously difficult to derive in game theoretical models of large elections (Taylor and Yildirim, 2010). This is largely due to the fact that most of these models predict zero turnout in large elections, thereby stripping off the possibility for meaningful limiting turnout analysis. Our ability to predict strictly positive turnout in large elections enables us to generate these predictions matching stylized empirical findings in a game theoretical framework without reliance on preference for voting or coordination devices.

The limiting results are of interest not because the population is indeed infinite, but because the limiting case is an approximation of a large election. For this reason we also take a numerical approach to solve models of large, finite elections. This has typically been computationally hard due to the need for computing binomial probabilities. We overcome this difficulty through the concentration properties of binomial distributions (cf., Hoeffding, 1963), which allow us to drastically reduce the number of terms to be computed. On a technical note, given that our computational method is not specific to smooth policy rules, we believe that it might be useful for other researchers in this field. We use this approach to provide the solution to our model for a population of 75 000 voters and for several policy rules and different parameters. This exercise is useful in three ways. First, we show that the limiting turnout is an excellent approximation (to the fourth decimal digit) of the turnout with a finite electorate of this size. Second, the exercise allows us to check our theoretical predictions against empirical observations. We calibrate the policy rule using the aforementioned US Congressional voting data and calculate the predicted turnout using our model. Under plausible preference parameters, the predicted turnout rates fit well with the empirical observations. Third, we highlight the crucial role of relaxing the winner take all assumption. Computing the outcome for a relatively close election (which favors the winner take all rule), we calculate the turnout rate under a proportional policy rule with a low paternalism factor and find that, under a winner take all policy rule with 75 000 voters, the paternalism required to achieve the same turnout rate is 200 trillion times higher.

The game theoretic literature on costly voting is extensive.[4] Nonetheless, the prediction that turnout converges to zero as the size of the electorate grows has remained typical.[5] Part of the literature has attempted to overcome this result by assuming a preference for the act of voting itself (Riker and Ordeshook, 1968). We maintain that voting is instrumental. Another part of the literature assume the existence of some coordination mechanism (such as a leader who can mobilize supporters) that effectively reduces the voting game to one with a small number of players (Harsanyi, 1977, 1992; Morton, 1991; Shachar and Nalebuff, 1999). One notable example is the "ethical voter" model by Feddersen and Sandroni (2006), in which a proportion of the voters receive a benefit for following the voting strategy that would be adopted by a social planner whose party preference is aligned with hers.[6] In this strand of literature, voters within the same party do not interact strategically among themselves. Our model departs from this setting by assuming that all voters interact with each other strategically, thereby allowing voters within the same party to free-ride on each other.

Two concurrent and independent papers by Evren (2012) and Myatt (2012) tackle the paradox of voting by introducing uncertainty to a winner take all election with paternalistic voters.[7] Evren introduces uncertainty over the proportion of other-regarding voters. Myatt, on the other hand, introduces uncertainty over the beliefs on voters' party alliance. These

[2] To be precise, by "strictly positive limiting turnout rate" we mean that the proportion of potential voters who turn out is bounded away from zero — as opposed to the case where the absolute number of voters is bounded away from zero, but the proportion goes to zero.

[3] The terms underdog effect and competition effect are introduced by Levine and Palfrey (2007).

[4] See, for instance, Campbell (1999), Börgers (2004), Goeree and Grosser (2007), Krasa and Polborn (2009), Krishna and Morgan (2012). The empirical implications of the pivotal voter model in small elections have been examined by Coate et al. (2008). There are also information aggregation voting models that analyze voters' participation. See McMurray (2013).

[5] E.g., see Taylor and Yildirim (2010).

[6] Coate and Conlin (2004) use a version of this model to explain turnout in the Texas liquor referenda.

[7] Paternalism also appears in Feddersen and Sandroni (2006) in the sense that an ethical voter projects her preferred election outcome onto the entire measure of voters. Myatt (2012) does not incorporate paternalism in his basic model, but his Proposition 7 considers paternalistic voters.