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1 February 2016

Online at <https://mpa.ub.uni-muenchen.de/69171/>

MPRA Paper No. 69171, posted 4 February 2016 05:31 UTC

The cyclical social choice of primary vs. general election candidates: A note on the US 2016 presidential election

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Abstract. The manner in which US presidential elections are organized make them ripe for empirical manifestations of the “voting paradoxes” identified by social choice theorists. This note illustrates the general point with polling data involving the two leading Democrats and the three leading Republicans at the beginning of the 2016 presidential primaries, suggesting that all five candidates may be alternatives in one or more cyclical majorities, i.e., where no candidate cannot be beaten by at least one other candidate.

Key words: Social choice; Condorcet paradox; Borda paradox; US presidential election 2016; Hillary Clinton; Bernard Sanders; Donald Trump; Ted Cruz; Marco Rubio.

JEL-codes: D71; D72.

Introduction

The organization of the US presidential election process makes it an eminently suitable setting for the empirical occurrence of such so-called “voting paradoxes” as those identified by social choice theory (e.g., Riker 1982; Nurmi 1999; Gehrlein 2006; Gehrlein and Lepelley 2011).

For both major parties, Democrats and Republicans, the process involves a form of plurality voting (although different forms at different stages), where the winner is the candidate with most votes but not necessarily an absolute majority. The election process also includes sequential decisions (state by state in the primaries followed by a general election among the voters in all states). Alone but especially together these features mean that in candidate fields with more than two alternatives it is possible to observe the selection of an alternative, *A*, that in reality could be beaten by another alternative, *B*, in a pairwise comparison between the two alone (the “Borda Paradox”). There is even the theoretical possibility of a so-called cyclical majority (the “Condorcet

Paradox”), where no candidate cannot be beaten by at least one other candidate in pairwise comparison ($A > B$, $B > C$, but $C > A$). Furthermore, given that the voters voting in the individual primaries, as well as in the general election, are not identical sets of decision-makers, there is ripe possibility for inconsistent social choices even if the individual preferences are consistent and the individual stages unproblematic (cf. Brams, Kilgour and Zwicker 1998; Kurrild-Klitgaard 2013).

Since voters in US presidential elections usually have more than two alternatives to choose between, the selection of a president who might be beaten by one or more other candidates if compared in pairwise “head to head” match-ups would seem to be at least a theoretical possibility, and there are reasons to believe that this, or even “cyclical majorities” between three or more candidates may have occurred in some US presidential elections (Riker 1982; Riker 1986; cf. Van Deemen 2014; Kurrild-Klitgaard 2014).

The present note is not meant as an in-depth, academic treatment of the topic but merely as a brief note using some simple polling averages from the beginning of the 2016 US primary election season to illustrate the empirical relevance of the perspective.

Some simple polling averages

On the evening of the first stage of the 2016 presidential elections, the Iowa Caucus, 1 February 2016, and about a week before the New Hampshire Primary, the leading candidates of the two major parties were (in terms of poll shares in national polls of the voters of the two parties):

Democrats: 1) Hillary Clinton; 2) Bernard Sanders

Republicans: 1) Donald Trump; 2) Ted Cruz; 3) Marco Rubio

A look at the well-established polling averages found at the respected website RealClearPolitics.com¹ produced the binary relations given in Table 1, where > indicates “beats” and where the percentages given are the polling averages, either from pair-wise comparisons (for the possible General Election candidate pairs) or from the comparisons of all-against-all in the national primary polls of the two parties. Ideally only the former should be used, since there is no guarantee that candidate *A* will be beat candidate *B* in pairwise comparisons just because candidate *A* leads candidate *B* in a field of +2 candidates. However, there are—as we shall return to—very few head-to-head match-ups made among primary candidates and at least initially we shall have to rely on the national polls with all candidates.

Table 1. General election head-to-head match ups and national primary polls, averages.

Candidates	Election polls
Clinton (44.0%) > Trump (41.3%)	General Election head-to-head match-up
Clinton (51.6%) > Sanders (37.2%)	National Primary, all candidates (Democrats)
Cruz (46.8%) > Clinton (45.5%)	General Election head-to-head match-up
Rubio (47.0%) > Clinton (44.5%)	General Election head-to-head match-up
Rubio (44.0%) > Sanders (43.0%)	General Election head-to-head match-up
Sanders (45.0%) > Cruz (41.7%)	General Election head-to-head match-up
Sanders (46.8%) > Trump (41.5%)	General Election head-to-head match-up
Trump (35.8%) > Cruz (19.6%)	National Primary, all candidates (Republicans)
Trump (36.2%) > Rubio (10.2%)	National Primary, all candidates (Republicans)

Source: RealClearPolitics.com (1 February 2016).

¹ RealClearPolitics’ polling averages are unweighted averages of the five most recent polls on a topic from different polling firms (so that no polling firm’s polls constitute more than 1/5 of the polls used).

Now, US voters are famously unfocused at the beginning of the primary season, but taking RealClearPolitics' polling averages as given and representative for the US voting population, and assuming away all other candidates, etc., the results of Table 1 gives us (at least) three odd social orderings of the candidates summarized in Table 2.

Table 2. Three quasi-cycles hypothesized on the basis of poll averages.

Sanders > Trump > Rubio > Sanders
 Rubio > Clinton > Trump > Rubio
 Cruz > Clinton > Sanders > Cruz

Source: See Table 1.

These comparisons show three different sub-sets of the set of five candidates each involving three candidates finding themselves in a quasi-cycle with each other. I call these "quasi-cycles" since they are not really based in actual choices made or preferences held by the same sets of voters at unique points in time.

The results presented here should not be read in the way that "the voters" as a whole (necessarily) have collective preferences resembling the orderings—since, obviously, the voters voting in the Democratic primaries are not the same as those voting in the Republican primaries, and none of these two sets are identical, separately or jointly, with the voters of the general election.

However, the orderings may be read as at least a distinct empirical possibility—and this despite the fact that we have included national primary polls and compared these with General Election head-to-head match-ups, given that pairwise comparisons are rarely made for primary contenders. First of all, on the Democrats' side there is not the same need for a pairwise comparison since at the date of writing (1 February 2016) Clinton held a +50% vote share among Democrats.

Secondly, there has—according to PollingReport.com—been one poll with head-to-head match-up among the top-three Republican contenders Cruz, Rubio and Trump (an NBC News/Wall Street Journal Poll conducted by Hart Research Associates and Public Opinion Strategies, 9-13 January 2016). In this poll's pairwise comparisons Cruz beat Trump 51%-43% while Trump beat Rubio 52%-45%. The former would be inconsistent with the assumption made here but would not affect the three quasi-cycles identified here, since none of them includes both Trump and Cruz.

Conclusion

A look at the US presidential polls as they stood 1 February 2016 suggest the following hypothetical scenarios: Should Sanders end up the 45th president of the US by beating Trump on Election Day in November, then he would likely have lost if Rubio had been his adversary. Should Rubio be the winner by beating Clinton, then he might have lost to Trump. And should Cruz be the new president by trumping Clinton, then he might plausibly have lost to Sanders.

In this way the polling averages demonstrate the potentially instability of social choices, and that this is not just a theoretical phenomenon but a genuine empirical possibility.

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