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Résumé: L'article présente une série d'expériences dans lesquelles les participants étaient invités à voter dans quatre élections au scrutin à un tour et quatre élections au scrutin à deux tours, avec le même ensemble de cinq candidats parmi lesquels trois étaient viables et cinq ne l'étaient pas. Les expérimences visaient à tester les arguments avancés par Duverger et Cox à propos de la propension à voter sincèrement ou non dans les élections à un ou deux tours. Dans les deux systèmes on observe une tendance forte à déserter les deux candidats non viables. Les données sont plus favorables à la théorie de Cox qu'à celle de Duverger.

Abstract: The paper presents a series of experiments in which participants were invited to vote in four one round elections and four two round elections, with the same set of five candidates, among which three were viable and two were not. The experiments were designed to test the arguments put forward by Duverger and Cox about the propensity to vote sincerely or strategically in one round and two round elections. Our findings indicate little difference between the two systems. In both systems, there was a strong tendency to strategically desert the unviable candidates. The data thus support Cox over Duverger.

Mots clés : Vote stratégique, Cox, Duverger

Key Words : Strategic voting, Cox, Duverger

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One Round Versus Two Round Elections: An Experimental Study

There are two principal voting methods for electing presidents : one round plurality elections whereby the candidate with the most votes wins, and two round majority runoff elections whereby an absolute majority is required on the first ballot, and if no candidate is elected on that first ballot, a second round is held, opposing the two candidates with the most votes on the first ballot, and the person with the most votes on the second ballot is elected.

According to Blais, Massicotte and Dobrzynska (1997), majority runoff is used in 49 democratic countries for the (direct) election of the president, and one round plurality in 20 countries. Other voting systems, such as the alternative vote, are utilized only in a few cases.

The question that we address in this paper is: How much difference does it make to voters that the electoral system is two rounds (like in France) rather than one round (like in Mexico)? We focus on the impact of the electoral system on voters. The electoral system can also influence parties and candidates, who may choose to run or not to run, and/or to make or not to make alliances. Here we are interested in determining whether voters behave differently in the two voting systems, given the same set of options, and whether these (similar or different) behaviours, aggregated through different rules, yield similar or different outcomes.

The place to start is Duverger (1951), who argued that voting systems matter a lot. According to Duverger, voters in a one round plurality system will vote only for the two leading candidates. Duverger predicts that those who prefer weak candidates will not want to waste their vote on candidates who have no chance of winning and that they will consequently desert their first choice and strategically support the candidate that they prefer among the top two. Duverger contends that voters will vote strategically in a plurality system and that only two candidates will get meaningful support.

Cox (1997) extends the analysis. Cox comes to the same conclusions, that is, that there will be substantial strategic voting and that only two candidates will get votes, but he points outs that such an outcome depends on a number of conditions. It makes sense for supporters of weak parties to strategically support one of the two leading candidates only if they have a clear preference between these two candidates, if there is a relatively close race between them, if they are short-term oriented (they care only about this specific election), and if it is clear who the « viable » candidates are. Cox thus asserts, like Duverger, that voters will tend to converge on the two leading candidates, but he adds that they will not always do so.

What about two round runoff elections? Duverger observed that countries with two ballots had multiparty systems, and implied that voters were voting sincerely on the first ballot, that they were rallying to viable candidates only on the second ballot.

Cox takes issue with Duverger. He argues that strategic incentives exist in two round elections as well as in one round elections. The only difference is that in the former case there are two « winners », the two candidates who are allowed to run on the second ballot, instead of one. Cox concludes that in a two round election there are three viable candidates, in contrast to two in a one round election. The prediction thus becomes that on the first ballot supporters of the fourth or lower placed candidates will tend to desert their first choice and to rally to one of the top three contenders, and that consequently only the top three candidates will get meaningful support.

Cox and Duverger agree that there should be substantial strategic voting in one round plurality elections and that only two candidates should receive meaningful support. They disagree with respect to two round runoff elections. According to Duverger the vote should be sincere and dispersed while Cox predicts the same pattern as in one round elections, with the difference that three candidates instead of two should get significant votes.

Who is right and who is wrong? To address this question we devised an experiment.

The Experiment

Groups of people are invited to vote in a series of elections. Some of these elections are held under the one round plurality rule and others under the two round runoff system. Everything else is the same. The same group of people votes under the two systems, they

have exactly the same set of options, five candidates with the same positions, and so any difference in the outcomes can be attributed to the experimental treatment, that is, the voting system.[1]

In real life, electoral systems affect not only voter behaviour but also parties' and candidates' behaviour. As Duverger and Cox note, potential weak candidates anticipate that voters will desert them if they believe that they have no chance of winning, and they will not want to mount a campaign that is bound to be unsuccessful. If we observe that the vote is more dispersed in runoff elections, like in France, than in one round elections, like in Mexico (for presidential elections), we cannot tell if the difference stems from candidates' or from voters' behaviour (or from other factors). In an experiment like the one described here, we can be confident that any difference that we observe comes from voters' response to the different voting systems.

The basic protocol is as follows. There are two groups of 21 voters. In each group, eight elections are held successively, four one round and four two rounds; one group starts with one round and the other with two rounds. In each election, there are five candidates, located at five distinct points on a left-right axis that goes from 0 to 20: an extreme left candidate, a moderate left, a centrist, a moderate right, and an extreme right (see Figure 1). The set of options is identical in the two voting systems.

For each of the four elections (under the same voting system), the participants are assigned a randomly drawn position on the 0 to 20 axis. There are a total of 21 positions,

and each participant has a different position. The participants are informed about the distribution of positions. After the initial series of four elections, the group moves to the second set of four elections, held under a different rule, and the participants are assigned a new position.

The participants are informed from the beginning that one of the eight elections will be randomly drawn as the « decisive » election. They are also told that they will be paid 20 euros (or Canadian dollars) minus the distance between the elected candidate's position and their own assigned position. For instance (this is the example given in the presentation), a voter whose assigned position is 11 will receive 10 euros if candidate A wins in the decisive election, 12 if E wins, 15 if B, 17 if D, and 19 if C. In the experiment (as in real life) it is in the voter's interest that the elected candidate be as close as possible to her own position.

We performed 12 such experiments in Lille, Montreal, and Paris. The basic protocol was always the same but we introduced two variants. In some of the experiments, we had larger groups of voters, 63 rather than 21, to see whether the same patterns hold in small and large groups. And in some of the experiments, we ask participants to ascertain each of the candidates' chances of winning before casting their vote, to see whether it makes a difference when people are invited to focus on the strategic context of the election. More precise information about each experiment is provided in Table 1.

The best outcome, for each voter, the one that yields the highest reward, is the election of the candidate who is closest to her own position. But what if I believe that the closest candidate has no chance of winning and the contest is between the second closest candidate (my second choice) and the most distant (my worst option)? Should I support my second choice in order to prevent the worst outcome? The question, of course, is precisely the one raised by Duverger and Cox : whether people vote sincerely or strategically, and whether the propensity to vote strategically is stronger in one round than in two round elections.

The strategic voter has to determine which candidates are viable and which ones are not. In our setup, if every voter were to vote sincerely for the candidate that is closest to her position, candidates A and E would each receive four votes. Four voters have B as their closest candidate, four have D, and three have C; the last two voters (positions 8 and 12) are equally distant from C and B or from C and D.

The upshot is that candidates A and E cannot win if everyone votes sincerely. In one round elections, it takes at least five votes to win, while A and E receive only four votes each. C will win if and only if voters with positions 8 and 12 choose to vote for her (rather than for B or D, who is equally distant from their position). Otherwise B or D wins and if there is a tie between the two a random draw decides the winner. In all cases, A and E cannot win if everyone votes sincerely. The only viable candidates are B, C, and D.

In two round elections, there will be a runoff between B and D if they each get five votes, between C and a random draw among the four others if C wins five votes (then all the others get four votes), or between B or D and a random draw among the four others (then B or D has five votes and all others have four). It is impossible (again assuming sincere voting) for both A and E to make it to the second round. It is possible for either one to make it to the second round but A or E cannot win on the second round because she will then face a non extremist candidate, whose position is bound to be closer to that of a majority of voters. Again, then, B, C, and D are the three viable candidates.

All this assumes sincere voting. The same conclusion can be reached if we allow for strategic voting. In a plurality election, strategic voting entails deserting the weakest candidates in favour of a stronger second choice, and there seems to be no reason for any voter who is closest to B, C, or D, to move to A or E.

The same verdict applies in the case of two round elections. Strategic voting usually means deserting the weakest candidates in exactly the same way as in a one round plurality election. Theoretically there is the possibility of voting for the least favoured candidate in the first round if that ensures the victory of the most favoured candidate in the second round (Cox 1997, 129). But this would seem a very risky strategy (the favoured candidate may fail to get into the runoff) especially if, as is the case in our setup, no one candidate can be assumed to be guaranteed to make it to the second round.

In both voting systems, therefore, candidates B, C, and D are viable, and candidates A and E are not. Indeed A and E failed to win any of the 192 elections held in the course of our experiments. The question is whether voters react differently to the same strategic context under one round and two round systems. According to Duverger, voters should react differently, they should desert unviable candidates in plurality elections but they should stick with them on the first ballot of a two round system. According to Cox, voters should behave similarly and vote strategically under both systems.

The Findings

Table 2 shows the vote share obtained by "extremist", "moderate", and "centrist" candidates in the 192 elections held in these experiments (96 one round and 96 two round). According to Duverger, extremist candidates should do well in the two round elections but get practically no support in one round elections. According to Cox, extremist candidates should receive only weak support and there should be little difference between the two sets of elections.

Throughout all these elections, candidates C, B and D get on average almost 30% of the vote each, against slightly more than 5% for candidates A and E. This is prima facie evidence that candidates A and E suffer from strategic desertion. The difference between one round and two round elections is minimal. It is true that extremist candidates do better in two round elections but there is only a (statistically insignificant) two point difference between the two systems. All in all, these results confirm Cox's predictions.

We also observe that the centrist candidate performs slightly better in one round elections while moderate candidates get slightly more votes in two round elections. This latter result suggests that a two round system may encourage a bipolar party system, though the pattern is quite muted.

Table 2 also indicates that support for extremist candidates decreases from the first to the fourth elections as it becomes clearer that these candidates have no chance of winning. At the first election, more than one voter out of five is willing to vote for A or E. Support decreases by more than half by the fourth election. The small difference between the two systems remains throughout. From the first to the fourth election, more votes go to the moderate candidates, especially in two round elections. Indeed the divergence between the two systems with respect to the choice between centrist and moderate candidates increases from the first to the fourth elections. Finally, the biggest change occurs between the first and the second elections, an indication that a number of voters react to the announcement of the outcome of the first election.

Table 3 shows which candidate won the various elections. The pattern is quite straightforward. Half of the elections were won by candidate C and half by candidates B or D. Candidate C tended to get somewhat fewer votes in the first round of two round elections (Table 2) but half of the time C was present in the second round and she won all the time when she made it to the second round. So, centrist candidates are as likely to win in two round as in one round elections, at least when the set of options resembles the one participants were presented with.

Table 4 focuses on voters for whom the closest candidate was A or E, that is, those who were between 0 and 3 or between 17 and 20 on the left right scale. These are the people whose first choice was not viable, and who, according to Cox, should desert their first choice for a more viable option. Table 4 indicates that the great majority of participants did exactly so, three quarters of them in one round elections and two thirds in two round elections.

Again there is substantial change from the first to the fourth elections. Initially only one half of these voters deserted extremist candidates but that percentage reached more than 80% in the fourth election, with the biggest increase taking place between the first and the second election.

These results indicate that strategic desertion is less widespread in two round elections, perhaps because some people wait for the second round before rallying to another candidate. But the difference is small. The bottom line is that the probability of strategic deserting an unviable candidate is almost as strong in two round as in one round elections.

Conclusion

The general question that we have addressed in this paper is whether people vote differently in one round and two round elections, more specifically whether the

propensity to desert unviable candidates is weaker in the latter than in the former. To this effect we designed a series of experiments in which participants were invited to vote in four one round elections and four two round elections, with the same set of five candidates, among which three were viable and two were not.

Our findings indicate little difference between the two voting systems. In both systems, there was a strong propensity to strategically desert the two unviable extremist candidates. As a consequence, the data clearly support Cox over Duverger.

The point remains, however, that strategic desertion is slightly less frequent under two round elections than one round elections. All in all, strategic desertion is almost 10 points lower in two round elections. There is thus a small difference between the two systems. In fact, such a small difference was expected by Cox (1997, 137), who notes that strategic voting is more complicated under two round elections because it requires more information, as people need to think about the possible outcomes of both the first and the second rounds. In a one round plurality system, things are simpler, as voters just have to decide who the top contenders are.

The conclusion must thus be that Cox is basically right. Given the same set of viable and unviable candidates, the propensity to vote strategically is only slightly weaker in two round elections.

This in no way means that the electoral system has little impact on the vote. In our experimental setup, the participants were offered exactly the same set of candidates and all candidates were equally viable and unviable in both voting systems. But in real life the choice set is likely to differ. On the one hand, there should be typically only two viable candidates in a plurality election against three in a two round election. Furthermore, the ideological dispersion of the candidates is likely to differ. And people who are offered different choice sets are likely to vote differently. What our study suggests, however, is that whatever difference we observe between one round and two round elections is likely to reflect mainly the impact of the voting system on parties and candidates. Voters tend to behave similarly in the two systems if and when they are faced with the same set of options.

References

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Table 1: Overview of Experiments

Experiment	Place	Date	Group Size	Question on Chances
1	Montreal	06/09/06	20/21	No
2	Paris	11/12/06	21	Yes
3	Paris	13/12/06	21	Yes
4	Lille	18/12/06	21	Yes
5	Lille	18/12/06	61/64	Yes
6	Paris	18/12/06	21	No
7	Paris	19/12/06	21	No
8	Paris	15/01/07	21	No
9	Montreal	19/02/07	21	No
10	Montreal	20/02/07	21	Yes
11	Montreal	21/02/07	63	No
12	Montreal	22/02/07	63	Yes

Figure 1: Positions of the Candidates on the Left/Right Axis

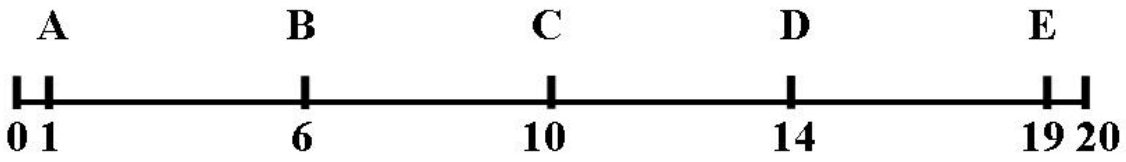

Table 2: The Vote Share

	A+E	C	B+D	N (elections)
1st Election	21 (23)	29 (26)	50 (52)	24 (24)
2nd Election	12 (13)	31 (26)	57 (61)	24 (24)
3rd Election	9 (11)	32 (26)	59 (63)	24 (24)
4th Election	7 (9)	34 (26)	59 (65)	24 (24)
All Elections	12 (14)	31 (26)	57(60)	96 (96)

Note: The numbers indicate the percentage of the vote obtained by the candidates. The first number refers to one round election and the second (in brackets) to two round elections.

Table 3: The Outcome: Who Wins?

	One Round	Two Rounds
A+E	0 (0%)	0 (0%)
C	46(48%)	49 (51%)
B+D	50 (52%)	47 (49%)
Total	**96 (100%)**	**96 (100%)**

Table 4: The Vote Choice of People Whose Closest Candidate Is A or E

	A + E	Others	N (votes)
1st Election	47 (55)	53 (45)	2 766 (2 830)
2nd Election	23 (33)	76 (67)	2 766 (2 854)
3rd Election	17 (27)	83 (73)	2 766 (2 854)
4th Election	13 (21)	87 (79)	2 766 (2 854)
All Elections	25 (34)	75 (66)	11 064 (11 392)

Note: The numbers indicate the percentage of voters voting for candidate A or candidate E (first column) or for the other candidates (second column). The first number refers to one round elections and the second (in brackets) to two round elections.

NOTES

[1] Differences could also stem from the order in which a voting rule is utilized, that is, people may vote differently depending on whether they start with plurality or runoff. To control for that possibility, half of the groups were randomly assigned one round and the other half two rounds for the first set of elections. The patterns are very similar if we consider only the first set of four elections.