Holding Three Simultaneous Elections: The Case of the 2011 Ontario Election

André Blais, Université de Montréal
Maxime Héroux-Legault, Université de Montréal
Laura Stephenson, Western University
William Cross, Carleton University
Elisabeth Gidengil, McGill University

Ascertaining the impact of electoral systems is a tricky business. One approach is to compare electoral outcomes across countries or regions with different electoral systems (Taagepera and Shugart 1989; Blais and Carty 1991; Lijphart 1994; Cox 1997; Clark and Golder 2006). The problem with such an approach is that the observed differences may be due to other characteristics that are correlated with electoral systems. For instance, proportional systems may be more common in smaller or more heterogeneous settings, and this may have an impact on the fractionalization of the vote. It is possible to control for the effects of some of these factors through a multivariate estimation, but there will always be some doubt as to whether all the important exogenous variables have been taken into account.

An alternative approach is to compare electoral outcomes before and after the adoption of a new electoral system (Shamir 1985). The advantage is that one can be more confident that the over time difference is not due to other societal factors since we are dealing with the same society at different points in time. Still, it may be difficult to rule out the possibility that other factors were also changing at the same time. Furthermore, since major changes to the electoral system are relatively infrequent, the number of cases that can be examined is limited.

A third methodology is a lab experiment (Schram and Sonnemans 1996; Blais et al. 2011). People are invited to vote in a number of elections held under different rules and the researcher simply compares the outcomes. The great advantage is that because the researcher has control over all other factors, any difference that emerges between types of elections can unequivocally be attributed to the electoral system. The main question related to this method is external validity, or whether people behave the same way in the lab and in "real" life.

A fourth approach is quasi-experimental. The basic idea is to invite people to vote in a number of elections, as in a lab experiment, but in the context of a ''real'' election campaign. At the time of the 2001 first round French presidential election, Laslier and Van der Straeten (2008) ran an ''experiment'' in six polling stations. They set up a voting booth in the room where the official vote was taking place. After they had voted, people were invited to proceed to the ''experimental'' booth where they were given a ballot with the names of all the candidates so they could indicate all those of whom they approved, following the rules of approval voting.[1] The authors then compared the results of the approval vote with those of the real election. For a similar study, see Baujard and Igersheim (2009).

---

[1] People had been informed a week earlier that there would be such an experiment, and they had been provided an explanation of the voting rule (approval voting) to be tested.

A similar design was used in the ThreeOntarioVotes project, which was conducted at the time of the October 2011 election in the Canadian province of Ontario. In this paper, we use data from this study to assess the influence of electoral laws on vote choice. We evaluate whether people vote differently when electoral rules change, how the distribution of votes and seats is affected, and to what extent differences are related to the expectations and perceptions of voters rather than the mechanics of the electoral systems themselves. After providing more information on the study, we present data on how people voted in this quasi-experiment, and we discuss what the results suggest about the impact of electoral systems. In so doing, we explore the merits and limits of the quasi-experimental approach to the study of electoral systems.

The ThreeOntarioVotes project

The ThreeOntarioVotes study was conducted at the time of the 2011 Ontario election. Ontario elections are held on a fixed date, the first Thursday of October every four years. The writ of election was issued on September 7 and the election was held on October 6. Four parties ran candidates in each of the 107 constituencies: the Liberals, the Progressive Conservatives (PC), the New Democrats (NDP), and the Greens. Seventeen other parties were registered in the election, but they typically only ran candidates in a handful of constituencies.

The Liberals entered the election as a single party majority government and were re-elected with 38% of the votes and 53 seats, one shy of a majority; the PCs obtained 35% of the votes and 37 seats, and the NDP received 23% of the votes and 17 seats. The Greens failed to elect any candidate although they did obtain 3% of the votes. All the other parties (including independent candidates) received 1% of the vote in total.

The Ontario party system has long been dominated by the Liberals, PCs and NDP. All three parties have formed single party governments in recent years while no other party has won a seat in the legislature. The New Democrats are generally a party of the centre-left and the PCs of the centre-right with the Liberals typically placed in the middle. This alignment was evident in the 2011 election with the caveat that the New Democrats were perceived to be positioning themselves more towards the centre than in recent elections while the PCs were moving further right. The result of this positioning is that the ideological distance between the NDP and the Liberals appeared to shrink while the PCs became increasingly distinctive as the only party of the right.

The ThreeOntarioVotes project had two main objectives, both of which were to be achieved through a website. The first objective was educational. The goal was to provide people with factual information about three electoral systems: first past the post (FPTP), the alternative vote (AV), and proportional representation (PR). The second objective was to collect data on the impact of these electoral systems using a quasi-experimental research design.

The website had four sections. The first three accomplish the first objective of the project: education. The first section gave a description and an explanation of how FPTP, AV, and PR work, the second gave access to the most recent Twitter messages from the four largest parties,

and the third provided information on how the political system functions in three countries that each use one of the voting rules presented in the first section of the website (Canada, Australia, and the Netherlands). In the last section people were invited to indicate their constituency and to vote according to each of the three electoral systems. This is the quasi-experimental component of the project. The three systems were presented in random order.[2] In the case of FPTP, participants were asked to vote for one of the candidates in their constituency while for AV they were invited to rank order the same candidates, with the proviso that they had to indicate at least their first, second, and third choices. In the PR election, people had to vote for one of the 21 official parties.[3] After they had voted, visitors were invited to answer a short questionnaire. The Appendix provides more information about the website.

The website was advertised in the media. Our partners, the Canadian Broadcasting Corporation (CBC) and the Toronto Star newspaper, provided a link to the project on their own websites. There was an article about the project in the September 21 (2011) issue of the Toronto Star[4]. Carleton University and the University of Western Ontario also issued press releases which resulted in several additional news stories.

Between the launch of the website on September 17 and Election Day, there were 10,487 visits. All in all, 4,848 people cast a valid ballot in each of the three elections. The 4,178 who were eligible to vote in the Ontario election are considered in our analyses. Of these, 2,644 told us the name of their constituency or their postal code, which allowed us to assign them to the actual constituency in which they were eligible to vote. The other 1,534 individuals were randomly assigned a constituency.[5]

The participants in this study do not constitute a representative sample of the electorate. People who follow CBC news or read the Toronto Star were more likely to hear about the project and to participate in the voting exercise. Most importantly for our purposes, as Table 1 shows, the sample has a strong partisan bias. The sample substantially under-represents those who intended to vote for the Progressive Conservative party. To correct for this bias, we have weighted the data so that in each of the 107 constituencies the vote distribution for the FPTP election matches the actual outcome of the election.[6] Province-wide analyses include an

---

[2] Interestingly, the election sequence does not affect either the vote distribution or the relative frequency of vote switching across elections (results not shown).

[3] The PR system was province-wide list PR (with a single district and 107 seats), using d'Hondt and no threshold.

[4] Bob Hepburn. Toronto Star. 21st of September. Abstract can be found at : http://pqasb.pqarchiver.com/thestar/access/2465323201.html?FMT=ABS&FMTS=ABS:FT&type=current& date=Sep+22%2C+2011&author=Bob+Hepburn&pub=Toronto+Star&edition=&startpage=A.23&desc=If+y ou+hate+how+we+vote%2C+try+this

[5] There was very little difference between those who were assigned their actual constituency and those who were given a random one in terms of socio-demographic profile or political orientation. Those who were given a random constituency were slightly less inclined to vote Liberal (four point difference).

[6] This created a problem in those constituencies where we had no individual voting for a given party. This was the case for the PC vote in 7 constituencies, and for the Greens and "others" in 26 and 64

additional weight so that the proportion of respondents in each constituency corresponds to the actual proportion of voters.

How Much Vote Switching?

The first aspect of electoral system effects that we address is whether people vote differently depending on the voting rule, and to what extent. We expect more vote-switching between FPTP and PR than between FPTP and AV. As an electoral system, AV is "closer" to FPTP than PR in two ways. First, in both AV and FPTP people are invited to vote for local candidates in their constituency while they are asked to support a party under PR. Second, the logic of PR is to award each party a proportion of the seats that is about the same as its proportion of votes while AV and FPTP are winner-take-all systems. As a consequence, we expect that people should vote more similarly (compared to FPTP) in the AV than in the PR election.

Let us start by looking at the results from the AV election (see Table 2). Twelve percent of the voters voted differently under AV (as indicated by their first choices) than they did in the FPTP election. Vote switching is particularly evident for those who voted Liberal in the FPTP election: 9% gave their first AV vote to the NDP and 5% to the Greens. In the case of Conservative voters, 4% gave their first AV vote to the Greens and 4% to the Liberals.

As predicted, there is more vote switching under PR: 21% of voters voted differently in the PR and FPTP elections and now vote switching is equally prevalent among those who voted Liberal or Conservative under FPTP (Table 3). Fourteen percent of those who voted for the Liberals in the FPTP election supported the NDP in the PR election, and 6% supported the Greens. Among FPTP Conservative voters, 6% moved to the NDP, 5% to the Liberals and 9% moved to "other parties". As for NDP voters, 7% went to the Liberals in the PR election while 5% of Green voters supported the NDP and the same percentage moved to "other parties".

Having established that some people vote differently depending on the electoral system, the obvious follow-up question is, "Why do people make different choices in different types of elections?" The most obvious explanation is that options are simply not the same across electoral systems. Indeed, some voters may have voted for an independent candidate under FPTP and AV, which they could not do under PR. It is also possible that some people voted for small parties under PR, but did not have a candidate of the corresponding party in their riding. Those two kinds of voters had to switch votes because their options were not the same across electoral systems. Among the 909 individuals with a different vote choice under PR (compared to FPTP), 1% correspond to the first situation, and 16% to the second. The equivalent percentages among those whose first choice under AV differs from the PR vote are 1% and 18%.

---

constituencies, respectively. In each of these cases, we had to ''create'' a voter for the missing party. In order to attribute a PR vote and AV preferences to these "voters", we used the modal PR vote and the modal AV vote combination among those in the same part of the province who were voting for that party in the FPTP election. Weights were computed after these cases were created.

In other words, over 80% of those who switched their vote had the opportunity to support the same party if they wished to do so.

We test two potential explanations to explain why the remaining voters switched votes. The first is that under AV and PR people express their sincere preferences while under FPTP they also take into account strategic considerations; that is, they do not want to waste their vote on a candidate who has no chance of winning. The second possibility is that some people have conflicting preferences: for example, the local candidate they like best may not be associated with their preferred party. As a consequence, they may make different choices depending on whether they are asked to vote for a candidate or for a party.

We can test these explanations through an examination of the participants' responses to our questionnaire.[7] To test the wasted vote interpretation, we created a dummy variable that equals 1 if the party that the respondent preferred was not one of the two strongest parties in the constituency. Voter preference was tapped through a question asking respondents which party they liked the most and we identified the two strongest parties as the two that received the most votes in the FPTP election in that constituency. According to Cox (1996), the number of viable parties (or candidates) in single-member constituencies is two. To test the conflicting preference hypothesis, we created a dummy variable that equals 1 if the respondent's preferred candidate in the constituency did not belong to the preferred party. We regress vote switching between FPTP and AV or PR elections on these two variables.

As can be seen in Table 4, there is clear support for the wasted vote hypothesis. Voters whose preferred party was not "viable" (that is, it was not one of the two strongest in their constituency) were more likely to vote differently in the FPTP and AV or PR elections. It is worth noting that the pattern is the same when we contrast AV to FPTP as when the contrast is with PR although the pattern is weaker in the former case. The implication of this finding is that there is less strategic desertion of weak parties under AV than under FPTP but there is more than under PR. In this regard, our results suggest that AV occupies an intermediate position between FPTP and PR when it comes to the incentives for strategic behaviour, which is consistent with our expectations.

On the other hand, the conflicting preference hypothesis is not supported. There are indeed some people (30%) with conflicting preferences (the candidate they liked the most was associated with a party that was not their most preferred) and these people are slightly more inclined to vote differently in the FPTP and PR elections, but the difference is small (four percentage points) and not statistically significant. Thus, it is clear that vote choices vary because of electoral systems. There is evidence that voters avoid wasting their votes, but conflicting preferences and differences in choice sets are not a significant factor. In the next sections, we consider the impact of vote choice variation on the vote distribution and seat allocation.

---

[7] The number of respondents in this analysis is smaller, as only 1,125 participants answered the questionnaire.

How Different is the Vote Distribution?

The general expectation in the literature on electoral systems is that weaker parties do better under more "permissive" electoral systems; that is, people are less reluctant to vote for small parties when they feel that a vote for a small party is not wasted (Cox 1997). The most permissive of the three voting rules included in our study is clearly the province-wide PR system (with no legal threshold) in which it takes less than 1% of the vote for a party to obtain a seat. AV comes somewhere in between FPTP and PR. On the one hand, a candidate needs the support of more than half the voters, and so a vote for a weak candidate may appear to be wasted. On the other hand, there is no harm in ranking one's preferred candidate first even if that candidate is quite weak and ranking a more viable option second. Things are a little ambiguous. Still, "AV does not exert as strong a reductive influence on the party system as does simple plurality." (Cox 1997, 95). We thus predict that support for small parties and the overall fractionalization of the vote will be much higher under PR and slightly higher under AV than under FPTP.

Vote switching between the FPTP and AV elections cost the Liberals four points and the Conservatives three points, while the Greens gained four points, the NDP two and "other" parties one (see Table 5). The prediction that small parties receive a larger share of first votes under AV is confirmed. "Third" parties received 34% under AV, compared to 27% under FPTP, an increase of 26%. The effective number of electoral parties (Laakso and Taagepera 1979) rose from 3.1 to 3.5, an increase of 12%. As expected, the fractionalization of the vote is higher under AV than under FPTP.

Predictably, the Conservatives (seven points) and the Liberals (six points) lost even more support due to vote switching between the FPTP and PR elections, but it is the "other" parties that gained the most (five points), with the NDP and the Greens each gaining four points. Support for "third" parties increased from 27% to 40%, an increase of almost 50%, while the effective number of electoral parties rose from 3.1 to 3.8, an increase of 22%.

The results contrasting PR and FPTP are not surprising. After all, we are comparing the most and the least permissive systems and we were expecting substantial differences in the distribution of the vote. Predictions were not quite as clear with respect to AV. We simply assumed that the distribution of the vote would be more fractionalized than under FPTP but less than under PR. What is striking is that the fractionalization of the vote under AV is almost exactly mid-way between FPTP and PR. Small parties get 7 more points than under FPTP and 6 less than under PR; the number of parties is 0.4 higher and 0.3 lower, respectively.

The common assumption in the literature is that the electoral system feature that matters the most is district magnitude (Taagapera and Shugart 1989). If so, the AV vote distribution should be much closer to FPTP than to PR since it is based on single-member districts whereas province-wide PR entails a single district with 107 seats. This suggests that there should be some strategic desertion of weak candidates under AV but much less than under FPTP, and not more than there would be under a PR system with small district magnitude.

The most interesting result with respect to the vote distribution is that this expectation is not supported. The vote under AV is *not* more similar to FPTP than to province-wide PR. Our results reveal that there is strategic desertion of weak candidates under AV, but considerably less than under FPTP.

How Different Is the Seat Outcome?

The bottom line question, of course, is whether the outcome of the election (in terms of seats) differs significantly under different electoral systems. Given the existing literature, we can comfortably predict that legislative fractionalization will be highest under PR and lowest under FPTP. The more difficult question concerns the seat outcome under AV. Is AV in the middle between FPTP and PR in this regard as well?

We should indicate at the outset the limits of the analyses to be performed. We are focusing on the impact of different electoral systems on voters' behaviour, but the behaviour of political parties is also likely to differ depending on the system. Furthermore, the number of respondents that we obtained in some of the constituencies is quite small and so our constituency-level outcomes are not as robust as we would wish.

With these limitations in mind, we can determine how many seats the various parties obtain, given voters' vote choices, under the three systems. The results are presented in Table 6.

We start with the FPTP/PR comparison. The outcome of the FPTP election is known: 53 seats for the Liberals, 37 for the Conservatives, and 17 for the NDP. This corresponds to 2.6 effective legislative parties. According to our estimations, with province-wide PR, the Liberals would have won 36 seats, the Progressive Conservatives and the NDP 31 each, the Greens seven and other parties two, for a total of 3.5 effective parties. The total number of seats that go to "third" parties double, while the effective number of parties increases by more than one third when the electoral system moves from FPTP to PR.

These differences can be characterized as substantial. It is true that in both elections the Liberals receive the most seats but fail to get a majority. However, under PR the Liberals receive 30% fewer seats, the NDP is tied with the PCs, and almost 10 seats go to parties that receive no seats under FPTP.

Are these differences due to differences in the number of options? The mean number of candidates in the constituencies is 6; the number of official parties from which people could choose in the province-wide PR election is 21. As we have shown above, some of the observed vote switching between the PR and FPTP elections is a result of differences in supply. However, the difference in outcomes is clearly *not* due to the presence of more parties under PR.[8] There were Liberal, PC, NDP, and Green candidates in all constituencies, and so the question is really

---

[8] More specifically, the increase in the number of effective parties under PR (compared to FPTP) does not simply follow from the presence of more parties in the PR election. We cannot rule out, however, the possibility that the presence of additional parties could have affected the race between the major parties.

about the two seats won by "other" parties under PR. We can say with some confidence that none of the other 17 parties had any chance of winning a FPTP election in any constituency even if they had run candidates everywhere since nowhere did any of these other parties get more than 2% of the vote.

What about AV? With respect to "third" parties, the AV outcome is somewhere between FPTP and PR, as we might have expected. But things are quite different for the two main parties. The Conservatives lose half of their seats, and they are no longer the official opposition. The Liberals do better than under FPTP, now garnering a majority. The Liberals get twice as many seats under AV than under PR. The overall fractionalization of seats is even lower under AV than under FPTP, as there are only 2.39 effective parties under AV.

The overall seat outcome under AV is thus quite different from the overall vote distribution. In the latter case, as we have seen, AV is somewhere in the middle between FPTP and province-wide PR, and probably close to what we would observe under small district PR. But when it comes to seats, AV resembles FPTP, as the bias in favour of the Liberals is even stronger.

Untangling the Mechanical and Psychological Effects

What exactly produces these differences? We wish to ascertain the relative import of two effects. First, the difference could simply result from the fact that the votes are counted differently. This is the mechanical effect. Second, the outcome may differ because voters vote differently. This is the psychological effect (Duverger 1951). Our final task in this paper is to determine which of these effects is the most important. Our methodology is inspired in part by Blais et al. (2011).

It is difficult to make predictions about the relative magnitude of mechanical and psychological effects. In their study, Blais et al. (2011) find that psychological effects are larger in Japan and in the Swiss elections held in the 1970s but that mechanical effects dominate in recent Swiss elections. It remains to be seen what emerges in the Ontario case.

Expectations are clearer when it comes to the direction of the effects, at least in the case of PR. Under PR, small parties are able to obtain more votes and they do not have to suffer from systemic under-representation as under FPTP. Thus, the mechanical and psychological effects should converge in the same direction. Things are more ambiguous in the case of AV. The psychological effect will also be related to the fact that small parties get more votes, but what about the mechanical effect? Compared to FPTP, AV gives a boost to parties that are the second (or third) choice of many voters. To the extent that parties can be aligned on a left/right continuum, this should benefit centrist parties. In Ontario, the mechanical effect should benefit the (centrist) Liberal party, which happens in this case to be the strongest party.

We first consider the PR/FPTP comparison. To do this, we simulate how many seats each party would have obtained with the distribution of support received under PR but with seats allocated

using the first past the post formula. More precisely, we use the PR votes in each of the 107 constituencies and we determine which party has the most votes in each of them.

The difference between the seat distribution obtained using a province-wide d'Hondt formula to translate PR votes into seats and the simulated outcome (determining the plurality winner in each constituency using the PR votes) corresponds to the mechanical effect since the psychological effect is neutralized (we use PR votes in both instances). The difference between the simulated outcome and the seat distribution under FPTP corresponds to the psychological effect since the mechanical effect is neutralized (the FPTP formula in each constituency is used in both cases).

The results suggest that the mechanical effect is much more important than the psychological effect (Table 7). We can see that when the PR votes are allocated in each constituency under the FPTP rule, the Liberals obtain 53 seats, the Conservatives 30, the NDP 22, the Greens 1 and other parties 1, corresponding to 2.73 effective parties. The difference between this number and the effective number under the actual PR outcome (3.50) represents the mechanical effect (we are using two different formulas with the same PR votes); the difference with the effective number under the actual FPTP outcome represents the psychological effect (we are using two different votes with the same FPTP formula). According to our estimations, four-fifths of the increase in the effective number of parties (from FPTP to PR) is due to the mechanical effect, and one-fifth to the psychological one.[9]

This is most obvious with respect to the Liberals. The Liberals receive fewer votes (six points less) under PR but their vote lead over the Conservatives is maintained, and so we can infer that the reason why the Liberals get fewer seats under PR is simply that they are deprived of the FPTP mechanical bias in favour of large parties. The reverse logic applies to the Greens. They more than double their votes under PR, but they get a plurality of the PR votes in only one constituency. For these two parties, the mechanical effect dominates.

The only party for which the psychological effect is more important than the mechanical effect is the Progressive Conservative party. This is so for two reasons. First, they are the party whose share of the votes declines the most from the FPTP to the PR election. Second, they are not advantaged (nor disadvantaged) under FPTP (as is often the case for the second party), as their seat share is the same as their vote share. In their case, they lose seats under PR mainly because they get fewer votes. [10]

---

[9] That is, the total 0.94 increase in the number of parties as we move from FPTP to PR is the combination of the psychological effect (0.77) and the mechanical effect (0.17).

[10] We should note that these evaluations depend on the choice of reference point. If we were to use PR as the reference, the psychological effect emerges as being as important as the mechanical one (results not shown). The Greens' loss of 7 seats is about equally because they lose half of their votes under PR and because they cannot transform their votes into seats under FPTP. In the case of the Liberals, the mechanical impact remains dominant but there is also a psychological effect which influences the vote gain realized when moving from the PR to the FPTP election. In the case at hand, it makes sense to use

As we have seen under AV, the Conservatives are the big loser, mostly to the benefit of the Liberals and the NDP. The effective number of parties is in fact slightly reduced (from 2.56 to 2.39). This is quite surprising given that the vote distribution under AV is somewhere between that under FPTP and under PR. When it comes to seats, however, the first party, the Liberals, is more advantaged under AV than under FPTP. Why is it so?

In order to make sense of these results, we need to ascertain the psychological and mechanical effects of moving from FPTP to AV in the same way as we have done for the FPTP/PR comparison. We can simulate how many seats each party would have received with the same AV (first preference) votes but with seats allocated under FPTP. The difference between the seat distribution obtained with the AV votes and formula and the simulated outcome is the mechanical effect since the psychological effect is neutralized (by using the AV votes in both cases). The difference between the simulation and the seat distribution under FPTP is the psychological effect because the mechanical effect is neutralized (by using the FPTP formula in both).[11]

Table 8 presents the results. The main psychological effect is to hurt the Liberals whose vote lead over the other parties is substantially reduced (see Table 5). As a consequence, the effective number of parties is increased. The psychological effect of AV is thus similar to that of PR; that is, it benefits mainly "third" parties.[12] As a consequence, the vote is more fractionalized under both AV and PR (compared to FPTP).

Interestingly, the mechanical effect of AV is exactly the opposite of PR as the Liberals substantially benefit to the detriment of the Conservatives. In the case of PR, the mechanical effect and the psychological effect operate in the same direction: the NDP and the Greens both benefit from the fact that voters are more willing to vote for them when they become viable and because the transformation of votes into seats is proportional. Voters anticipate the mechanical effect and their behaviour reinforces that effect.

Things are different with AV. Voters are more willing to cast their first vote for a weak party (most especially the Greens), knowing that they can give their second vote to their preferred option among the viable parties. This psychological effect contributes to the fractionalization of first votes, which benefits the small parties. But the mechanical effect of AV is completely different. The transformation of votes into seats strongly advantages the Liberals, to the

FPTP as the reference point since we wish determine how different things would be if another system were used.

[11]Again, we are using FPTP as the reference point. Note, however, that it would not be possible to use AV as the reference. This would require simulating the outcome with FPTP votes and the AV rule, which cannot be done since the AV rule entails considering second or third votes, which do not exist in a FPTP election.

[12] Note, however, that under PR this is mainly to the detriment of the Conservatives while under AV it is to the detriment of the Liberals. Under AV, the Liberals' edge over the Conservatives is reduced to one point while under PR it is the Conservatives' edge over the NDP which declines to a mere one point (see Table 2).

detriment of its closest rival, the Conservatives. The consequence is a 'mechanical' reduction in the effective number of parties.

Why do the Liberals benefit from the mechanical effect of AV? The reason is simply that AV, contrary to FPTP, takes into account second (or subsequent) choices, and the Liberals are much more likely to be voters' second or third choice than the Progressive Conservatives. In fact, if only first AV votes had been considered, the Conservatives would have won almost as many seats as the Liberals (38 against 43). But the Conservatives lost half of the seats (mainly to the Liberals) where they had the lead in the first count because a clear majority of those whose first vote went to the NDP or the Greens preferred the Liberals to the Progressive Conservatives.[13] The Progressive Conservatives suffer from not being an acceptable option to many voters.

In the case of AV, the mechanical and the psychological effects go in opposite directions. The latter benefits the smaller parties and thus contributes to the fractionalization of the party system while the former advantages the Liberals and thus reduces fractionalization. We should note, however, that the mechanical effect is beneficial to the Liberals not because they are the strongest party but because they are the second choice of many voters. We should not expect the psychological and the mechanical effects to always cancel each other. On the other hand, there is no reason to suppose that, as is the case under PR, the two effects necessarily go in the same direction.

Interestingly, a similar finding of contradictory psychological and mechanical effects at least partially cancelling each other is reported in an analysis of the mechanical and psychological effects of a two round system (compared to FPTP) to produce the victory of a centrist candidate in a series of elections conducted in the lab (Van der Straeten et al. 2011). The authors show that the centrist candidate gets somewhat fewer votes in the first round of a two round system (compared to FPTP) but benefits from a mechanical effect since the centrist candidate always wins when present in the second round. It may be that majority systems are particularly prone to create contradictory psychological and mechanical effects to the extent that they encourage relatively sincere voting on the first round (or first vote), thus contributing to the fractionalization of the vote, while the mechanics lead to less fractionalization, as there is only one winner in each constituency.

Conclusion

We have reported the findings of a quasi-experimental study of the effects of the electoral system. The approach is simple. During a real election campaign people were invited to vote for actual parties and candidates with three different voting rules. This allowed us to see how different the vote and the election outcomes would be if we moved from FPTP to AV or PR, and to determine how much of the effect is due to mechanical and psychological considerations.

---

[13] Ten times as many of those whose first vote was for the NDP went to the Liberals than to the PC for their second vote; the ratio was "only" two to one among those whose first vote was for the Greens.

According to our estimations, a full province-wide PR system would have increased legislative fractionalization by the equivalent of one effective party, a relative increase of about one third. In contrast, Lijphart (1994, 96) reports a difference of 1.7 effective parties between plurality and PR d'Hondt elections.

Why is our estimate lower? We believe that this is because our analysis does not consider the psychological effect on *parties*, which may be more inclined to run under PR. This is a limitation of our study, as we cannot consider the effects that the electoral system may have on party behaviour. We would argue, however, that the quasi-experimental design does a better job of providing reliable estimates of the psychological effects on voters. Comparing the votes of the same voters choosing among (basically) the same options under three different rules makes more sense, we would argue, than comparing electoral outcomes across countries, especially when all the plurality countries happen to be former British colonies (Lijphart 1994, 17).

Our analyses suggest that the mechanical impact is much more important than the psychological effect on voters in explaining the difference in outcomes between PR and FPTP. This is consistent with the evidence that strategic desertion of weak parties is less frequent than generally assumed in FPTP elections (Blais 2002). Likewise, Shamir (1985) reports that electoral fractionalization did not increase when Denmark and Sweden moved from FPTP to PR at the beginning of the 20th century. PR changes things first and foremost because parties that get relatively few votes are able to win seats.

Our results are particularly interesting with respect to the AV/FPTP comparison. There are very few studies of AV, mostly because it is applied in only one country (Australia) for legislative elections. Our results, we would argue, make sense. On the one hand, AV produces less strategic desertion of weak parties than FPTP. In this respect, it probably resembles small district PR. But the mechanical effect is quite different and independent of the psychological impact on voters. Compared to FPTP, AV advantages parties that are acceptable to many voters, which are likely to be centrist in most instances. In the particular case of the 2011 Ontario election that party happened to be the Liberal party, which succeeded in getting more seats under AV than under FPTP in spite of the fact that it got fewer first votes. AV has two quite distinct effects. On the one hand, its psychological effect is to provide more votes to small parties (though less so than PR systems with large district magnitude) and on the other hand its mechanical effect is to favour parties, big or small, that are deemed to be acceptable by many voters. These two effects are independent of each other, and they can sometimes operate in opposite directions.

These findings buttress our claim that there is room for the kind of quasi-experimental design used in this study to better understand the consequences of electoral systems. Our quasi-experimental study has its own limits, an important one being its inability to consider the psychological impact on party behaviour. However, we believe that allowing voters to vote according to different rules at the time of a real election can tell us at least as much about voter behavior as a cross-national comparison of countries with different systems or the conduct of a lab experiment.

REFERENCES

1. Baujard, Antoinette & Igershiem, Herrade. 2009. *Expérimentation du vote par note et du vote par approbation le 22 avril 2007*. Revue Économique. Vol. 60, n° 1, janv. 2009, pp. 189-201.
2. Blais, André. 2002. "Why is there so little strategic voting in Canadian plurality rule elections?" *Political Studies*. Volume 50. Issue 3. pages 445–454. August 2002
3. Blais, André et al., 2011. "Strategic Vote Choice in One-round and Two-round Elections." *Political Research Quarterly*, 20 (2010). pp. 1-9.
4. Blais, André et al., 2011. "The Mechanical and Psychological Effects of Electoral Systems: A Quasi-Experimental Study." Comparative Political Studies. Volume XX(X), pp. 1-23.
5. Blais, André & Carty, Kenneth R. 1991. "The Psychological Impact of Electoral Laws: Measuring Duverger's Elusive Factor". *British Journal of Political Science*, Vol. 21, No. 1 (Jan., 1991), pp. 79-93.
6. Clark, William Roberts & Golder, Matt. 2006. "Rehabilitating Duverger's theory". *Comparative Political Studies*. Volume 39 Number 6 August 2006 pp. 679-708
7. Cox, Gary W. 1996. "Is the Single Nontransferable Vote Superproportional? Evidence from Japan and Taiwan". *American Journal of Political Science* , Vol. 40, No. 3 (Aug., 1996), pp. 740-755
8. Cox, Gary W. 1997. *Making Votes Count: Strategic Coordination in the World's Electoral Systems.* Cambridge University Press. 360 p.
9. Duverger, Maurice. 1951. *Les partis politiques*, Paris, A. Colin, 476 p.
10. Laakso, Markku & Taagepera, Rein. 1979. "The "Effective" Number of Parties: "A Measure with Application to West Europe*"* , *Comparative Political Studies*, 12:1 (1979:Apr.) p.3
11. Laslier, Jean-François & Van der Straeten, Karine. 2008. "A Live Experiment on Approval Voting ». *Experimental Economics*, Springer, vol. 11(1), pages 97-105, March.
12. Lijphart, Arend. 1994. *Electoral Systems and Party Systems: A Study of Twenty-Seven Democracies 1945-1990*. Oxford University Press. 222 p.
13. Schram, Arthur and Sonnemans, Joep. 1996. "Voter Turnout as a Participation Game: An Experimental Investigation." *International Journal of Game Theory* (1996) 25 pp. 385-406
14. Shamir, Michal. 1985. "Changes in Electoral Systems as 'Interventions': Another Test of Duverger's Hypothesis." *European Journal of Political Research*. Volume 13, Issue 1, March 1985, pp. 1–10.
15. Shugart. Taagepera. 1989. *Seats and Votes: The Effects and Determinants of Electoral Systems*. Yale University. 310 p.
16. Van der Straeten, Karine et al. 2011. "Sorting out Mechanical and Psychological Effects in Candidate Elections: an Appraisal with Experimental Data." Paris, Mimeo.

Table 1: Comparing FPTP votes

Total Electorate and Website Participants

Party	Total Electorate Percent	Website Participants Percent
Liberal	37.7	46.4
Conservative	35.4	10.4
NDP	22.7	31.7
Green	2.9	8.6
Other	1.3	2.9
Total	4,311,138	4,178

Table 2: The Relationship between FPTP and AV first votes

AV	First Past the Post					
	Liberal	Conservative	NDP	Green	Other	Total
Liberal	83.8	4.1	2.0	1.4	5.4	33.6
Conservative	1.2	89.4	1.7	1.1	0.3	32.6
NDP	8.7	0.7	92.6	2.8	2.6	24.7
Green	5.3	4.0	2.6	94.1	7.5	6.9
Other	1.0	1.8	1.0	0.8	84.2	2.4
Total (N)	1,609	1,515	972	125	54	4,275
Total (%)	**100**	**100**	**100**	**100**	**100**	**100**

Table 3: The Relationship between FPTP and PR votes

PR	First Past the Post					
	Liberal	**Conservative**	**NDP**	**Green**	**Other**	**Total**
Liberal	75.7	4.9	6.7	2.3	6.6	31.9
Conservative	0.9	77.0	0.7	0.2	3.0	27.8
NDP	13.9	6.1	85.5	5.1	5.0	27.0
Green	6.2	2.7	4.1	87.8	8.0	6.9
Other	3.4	9.4	3.1	4.7	77.5	6.4
Total (N)	1,609	1,515	971	125	54	4,275
Total (%)	100	100	100	100	100	100

Table 4: The Sources of Vote Switching: A Logit Estimation

	Vote switching FPTP-PR		Vote switching FPTP-AV	
	Coef.	Std. Err.	Coef.	Std. Err.
Wasted Vote	2.07**	0.20	0.94**	0.20
Conflicting Preference	0.22	0.21	-0.23	0.25
Constant	-2.84**	0.17	-2.47**	0.15
-2 log likelihood	-386.1		-356.75	
Pseudo R2	0.15		0.03	
N=	1125		1125	

Significance levels

**0,001

Table 5: Comparing FPTP, AV and PR vote shares (in %) (weighted)

	FPTP	AV	PR
Liberal	37.7	33.6	31.9
Conservative	35.4	32.6	27.8
NDP	22.7	24.7	27.0
Green	2.9	6.9	6.9
Other	1.3	2.4	6.4
Total (N)	**4,275**	**4,275**	**4,275**

Effective Number of Parties: 3.13   3.5   3.83

TABLE 6: Comparing Electoral Outcomes under FPTP, AV and PR

Party	Number of seats FPTP	Number of seats AV	Number of seats PR
Liberal	53	62	36
Conservative	37	18	31
NDP	17	25	31
Green	0	2	7
Other	0	0	2
Total	107	107	107

Table 7: Ascertaining the Psychological and Mechanical Effects of Moving from FPTP to PR
Seats Won by Each Party

	FPTP votes, FPTP rule	PR votes, PR rule	Total Effect	PR votes, FPTP rule	Psychological Effect	Mechanical Effect
Liberal	53	36	-17	53	0	-17
Conservative	37	31	-6	30	-7	1
NDP	17	31	14	22	5	9
Green	0	7	7	1	1	6
Other	0	2	2	1	1	-1
Total seats	107	107		107		
Effective number of parties	2.56	3.50	+0.94	2.73	+0.17	+0.77

Table 8: Ascertaining the Psychological and Mechanical Effects of Moving from FPTP to AV
Seats Won by Each Party

	FPTP votes, FPTP rule	AV votes, AV rule	Total Effect	AV votes, FPTP rule	Psychological Effect	Mechanical Effect
Liberal	53	62	9	43	-10	19
Conservative	37	18	-19	38	1	-20
NDP	17	25	8	24	7	1
Green	0	2	2	2	2	0
Other	0	0	0	0	0	0
Total seats	107	107		107		
Effective number of parties	2.56	2.39	-0.17	2.96	+0.40	-0.57

Appendix: The Three Ontario Votes Website

Upon arriving on the Three Ontario Votes website, a user sees the landing page. This page harbours the Three Ontario Votes logo, as well as the logos and names of our partners. Clicking on either "Bienvenue" or "Welcome" brings users to either the French or English versions of the website.

The next section is the website's index. It acts as a sort of hub, allowing users to select which of the four sections of the website they want to browse. The index offers links to the four sections of the website, namely "Electoral Systems", "Twitter Accounts", "Electoral Systems around the World" and "Vote 3 Ways".

The section named "Electoral Systems" describes three electoral systems. The electoral systems described are first past the post (FPTP), alternative voting (AV) and proportional representation (PR). For each there is a presentation of how people vote and how votes are counted in each system, followed by an example and a short list of advantages and disadvantages.

The section named "Twitter Accounts" offers the Twitter feeds of the four main parties competing during the election, namely the Liberal party, the Progressive Conservative party, the New Democratic party and the Greens. Visitors can click on the tweets and visit the party's Twitter accounts if they are so inclined.

The section named "Electoral Systems around the World" describes how the political system works in three countries, one per electoral system featured on the website. Canada is used to exemplify FPTP, Australia for AV and the Netherlands for PR.

The last section, named "Vote Three Ways", is the most important for the current research. It invites visitors to the website to take part in simulated elections. The first step is for respondents to specify if they are of voting age and indicate their constituency or, barring that, their postal code. This is necessary to give respondents the appropriate candidate choices for the FPTP and AV votes. Respondents who cannot answer these questions are randomly distributed across constituencies for the simulated elections. The following step is to cast three votes, one per electoral system. The votes take place in a random order.

After voting, respondents are invited to fill a questionnaire asking about their political preferences and their socio-demographic characteristics. The questionnaire asks which party, party leader and local candidate respondents prefer, and which matters most in their voting decision. The questionnaire also asks which electoral system, among those presented on the website, respondents like most and least, as well as how satisfied they are with the way democracy works in Canada. The remaining questions are socio-demographic in nature, and inquire about the age, the sex, the first language, the education, the religion and religiosity of the respondents. The questionnaire also asks if respondents are born in Ontario or in Canada, and asks respondents if they were interested in the campaign, how certain they were to vote and whether they are close to a political party.