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Optimists and skeptics: Why do people believe in the value of their single vote?

André Blais [1,2], Ludovic Rheault [2,*]

University of Montreal, Canada Research Chair in Electoral Studies, Faculty of Arts and Sciences, Department of Political Science, C.P. 6128, succursale Centre-ville, Montreal QC, Canada H3C 3J7

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ABSTRACT

We investigate the origins of voters' beliefs about the value of their single vote. We construe such beliefs as a function of psychological predispositions and exposure to information about the competitiveness of the electoral race. We test this theoretical model using data from the 2008 Canadian federal election and a new survey question tapping voters' beliefs about whether their vote can make a difference. Our results show that sense of efficacy has a strong effect, efficacious voters being more prone to optimism. Competitiveness of the race also matters, but only among attentive voters.

In this study we seek to shed light on voters' views about the relevance of their single vote. The likelihood of casting a pivotal vote in an election being infinitesimal (Owen and Grofman, 1984; Blais, 2000; Mulligan and Hunter, 2003), the fact that large numbers of voters nonetheless are pushed to the polls in most democracies represents a paradox for social scientists.

Several empirical studies have shown electoral competitiveness to affect turnout (e.g.Blais and Dobrzynska, 1998; Franklin, 2002), but the micro-level mechanism underlying this relationship remains unclear. According to the rational choice model, a person has to ascertain the probability that her own vote will decide the outcome of the election. Yet, "empirical studies examining the assumptions and predictions of the pivotal voter model are scarce and indirect" (Duffy and Tavits, 2008, p. 603). The decision to vote or not to vote should build upon assessments of the value of a single ballot, but we still understand little about how such beliefs are formed.

We hope to fill some of the gap in this study. We argue that voters' beliefs regarding the impact of their single vote stem from two sources: psychological predispositions that are quite stable across elections, and contextual information specific to a given campaign. Using a novel measure of voters' beliefs about the possibility of casting a pivotal vote, we test this model with empirical data from a survey conducted during the 2008 federal election in Canada.

As far as we can tell, no previous study has attempted to measure voters' beliefs about the value of their own vote. The usual approach is to use proxies such as the objective competitiveness of the election or perceptions of the closeness of the race (Uhlaner and Grofman, 1986; Mueller, 2003, ch. 14; McDonald and Tolbert, 2009). In a recent experiment, Duffy and Tavits (2008, p. 604) did "ask subjects to state a subjective probability as to whether their own decision to vote or not to vote will be decisive for the election outcome", but this was done in the confines of a laboratory experiment.

* Corresponding author. Tel.: +1 514 343 6111x4841; fax: +1 514 343 2360.
E-mail addresses: andre.blais@umontreal.ca (A. Blais), ludovic.rheault@umontreal.ca (L. Rheault).
[1] Tel.: +1 514 343 6111x40564; fax: +1514 343 2360.
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We need to understand how people form beliefs about the possibility that their vote could be pivotal in actual elections.

The focus in this study is whether people believe their vote could decide the outcome of an election. We distinguish the optimists, who cling to the view that their vote could be decisive, and the skeptics, who have reached the sad conclusion that their vote will have no impact.

We model the voter's view about the value of her vote as a function of psychological traits and short-term factors (the electoral context). First, we assume that the voter forms an initial view on the matter on the basis of her disposition system, the part of the brain that routinely manages daily-life decisions (Marcus et al., 2000). That is, long-term psychological traits embedded in the disposition system shape the general attitude that the respondent has regarding the value of her single vote. As Marcus et al. (2000, p.9) put it, "[…] behavior designed to achieve a purpose demands an assessment of the effort, the prospects of success […]. For humans, these strategic considerations are only occasionally governed by conscious calculation. More often, these executive functions are done subconsciously".

The concept that best captures the idea that individuals may have a subconscious inclination regarding the potential impact of their behavior (such as the vote) is sense of efficacy. Sense of efficacy refers to whether individuals believe in the possibility of influencing their environment. Campbell et al. (1960, p. 517) broadly define personal efficacy as "feelings of mastery over the self and the environment". This concept was used initially by psychologists to address the problematic of changing a subject's behavior. As summarized in a recent publication: "[u]nless people believe they can produce desired outcomes and forestall undesired ones through their actions they have little incentive to act or to persevere in the face of difficulties" (Fernández-Ballesteros et al., 2002, p. 107).

Bandura (1977) brought forth a modern theory of efficacy, according to which people have two distinct kinds of expectations: efficacy expectations and outcome expectations. While outcome expectations are defined as the "person's estimate that a given behavior will lead to certain outcomes", efficacy expectations mean "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, p. 193). Bandura's main argument is that efficacy expectations, which chronologically come first, matter more than outcome expectations to explain enduring behavior change in subjects.

In our context, this means that efficacy expectations are the underlying factor shaping voters' views about the impact of their vote (the outcome expectations). In other words, the logical antecedents to voters' beliefs are efficacy expectations. Efficacious persons have favorable predispositions to believe in their individual capacity to influence their environment; they should also have the same favorable predispositions to think optimistically about their capacity to influence an election.

The political science literature provides us with a related concept that is adapted to political issues. Political efficacy, more accurately external political efficacy, refers to how a voter perceives the relationship between citizens and the government – in other words whether she believes that governments care for their needs and for what they say (see Balch, 1974; Craig and Maggiotto, 1982).

Table 1
Descriptive statistics.

Variable	Mean	Std. deviation	Variable coding
Age	0.380	0.218	1 = Oldest respondent (90 yrs old)
Gender	0.522	0.500	1 = Male
Education	0.602	0.222	1 = University degree
Religiosity	0.384	0.486	1 = High religiosity
Income	0.429	0.306	1 = Highest income stratum
Preference	0.607	0.294	1 = Strong preference
Province	0.519	0.500	1 = British Columbia
Efficacy	0.510	0.216	1 = High efficacy
Competitiveness	0.590	0.280	1 = Most competitive ridings
Attentiveness	0.619	0.200	1 = Most attentive
Information	0.505	0.299	1 = Most informed

The number of cases listwise is 3684. Descriptive statistics are computed for those 3684 cases. All variables are rescaled between 0 and 1.

Second, and still building upon the psychological framework proposed by Marcus et al. (2000), we expect novel information regarding the electoral race to activate the surveillance system, which acts as an updating device. When faced with novel information, consciousness interrupts the course of the disposition system.[3] It follows that voters exposed to campaign information should be more likely to update their beliefs according to their perceptions of the closeness of the electoral race. Put another way, holding constant voters' predispositions, we argue that the electoral context should affect the belief that one's vote counts especially among attentive voters – the latter's surveillance system being more prone to update beliefs in light of freshly gathered information.

The fact that attentiveness may act as a catalyst is a common finding in the literature. Sniderman et al. (1991) show that sophisticated voters take a different route to make up their mind about candidates as compared to unsophisticated ones (see also Petty and Cacioppo, 1986). Zaller (1992) considers that the probability of exposition to new information depends on the level of awareness of individuals, which is a general measure of political information. Informed voters are also shown to react more quickly to the reception of information conveyed through the media (Zaller, 1992; Althaus, 2003).

Based on these arguments, we model the probability of being optimistic regarding the possibility of casting a pivotal vote as a function of long-term predispositions and the conditional impact of the electoral context. Let $E(S_i)$ represent the expected success of one's vote behavior (i.e. casting a pivotal vote). The disposition system (D_i) of efficacious persons tends to overestimate the chances of success. $E(S_i)$ also depends on the objective closeness of the race R in the voter's constituency, conditional on the surveillance system being awaken following exposure to campaign information (A_i):

[3] The idea that human behavior is guided by two types of mechanisms, the first being rather automatic (or subconscious) and leading to satisficing decisions, the second interrupting the first to consider new information, has also been discussed by Herbert Simon (1967) (see Marcus et al., 2000, who review those arguments).

Table 2
Multinomial probit models of voters' beliefs regarding the value of their vote.

Variables	Model 1		Model 2	
	Estimates	Std. Err.	Estimates	Std. Err.
"My Vote COULD Make A Difference"				
Age	−0.050	0.165	−0.030	0.162
Gender	−0.135	0.071	−0.124	0.071
Education	−0.394*	0.166	−0.318	0.173
Religiosity	0.186*	0.073	0.184*	0.073
Income	−0.129	0.119	−0.119	0.117
Preference	0.551***	0.121	0.579***	0.122
Province	0.217**	0.069	0.204**	0.070
External Political Efficacy	1.723***	0.167	1.738***	0.167
Competitiveness	−0.039	0.414	0.083	0.244
Attentiveness	−2.065	1.061		
Attentiveness × Competitiveness	2.688*	1.311		
Information			−2.474***	0.700
Information × Competitiveness			2.926**	0.863
Constant	−1.112***	0.287	−1.158***	0.208
"I Have No Idea"				
Age	−0.714**	0.242	−0.827***	0.232
Gender	−0.310**	0.099	−0.306**	0.098
Education	−1.287***	0.232	−1.160***	0.237
Religiosity	0.149	0.101	0.119	0.100
Income	−0.439**	0.167	−0.512**	0.164
Preference	−0.606***	0.165	−0.632***	0.167
Province	−0.077	0.097	−0.098	0.098
External Political Efficacy	0.427	0.237	0.436	0.231
Competitiveness	−0.185	0.505	0.346	0.293
Attentiveness	−3.003*	1.437		
Attentiveness × Competitiveness	2.528	1.765		
Information			−1.162	0.994
Information × Competitiveness			0.796	1.216
Constant	1.114**	0.357	0.496	0.261
N	3684		3688	
Log Pseudo-likelihood	−3335.72		−3343.31	
Proportional Reduction in Errors	17.9%		17.6%	

Multinomial probit models with sampling weights. The dependent variable is the belief regarding the possibility of casting a pivotal vote, with three response categories, the answer "My Vote will NOT Make a Difference" being the reference category. *** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$.

$$E(S_i) = \gamma D_i + \delta(R|A_i) + \sigma_i \quad (1)$$

The respondent is optimistic about the possibility of influencing the electoral outcome whenever $E(S_i)$ is above a certain threshold, and is skeptic if it lies below. The parameters γ and δ capture the impact of each factor (dispositional inclination and informational updates) in explaining the voter's expected success in casting a pivotal vote, while σ_i includes unobserved voter characteristics. Note that we construe the surveillance system as an updating device, one which corrects (or not) the inclination that would otherwise be driven solely by the disposition system.

1. Methodology

Although $E(S_i)$ cannot be strictly observed, we may capture voters' beliefs about the value of their vote. Let $V_{i,k}$ indicate that a voter i has a viewpoint k regarding the value of her vote, where k is an element of the set J, which comprises three alternatives (response categories): either the respondent believes her vote might make a difference, either she thinks that it will not, or else she has no idea. As argued above, we assume that the likelihood of a voter i having viewpoint k depends on the combination of her psychological traits and her proneness to update her beliefs with information about the electoral campaign. Following Uhlaner and Grofman (1986), we also suppose that those with strong preferences are more prone to indulge in wishful thinking.[4] The model finally includes basic socio-demographic characteristics. Thus we have:

$$V_{i,k} = X_i\beta_k + \varepsilon_{i,k}, \quad (2)$$

where

$$\begin{aligned} X_i\beta_k = {} & \alpha + \beta_1 Age + \beta_2 Gender + \beta_3 Education \\ & + \beta_4 Religiosity + \beta_5 Income + \beta_6 Preference \\ & + \beta_7 Province + \beta_8 Efficacy + \beta_9 Competitiveness \\ & + \beta_{10} Awareness + \beta_{11} Awareness \cdot Competitiveness \end{aligned} \quad (3)$$

The voter is then predicted to report viewpoint k whenever the combination of long-term and short-term factors makes k more likely than any other alternative j:

[4] We measure strength of preference using a scale based on the range in party and leader ratings, i.e. the range from the lowest to the highest ratings for both parties and leaders.

Table 3
Joint significance tests ("My Vote COULD Make a Difference" Equation, Table 2, Model 1).

Combinations	Estimates	Std. Err.
Competitiveness + (Attentiveness × Competitiveness)	2.649**	0.924
Attentiveness + Competitiveness + (Attentiveness × Competitiveness)	0.584*	0.262

** = $p < 0.01$; * = $p < 0.05$.

$$Pr(Y_i = k) = Pr(V_{i,k} > V_{i,j} \forall j \neq k) \quad (4)$$

The model is tested with data coming from an Internet survey conducted by YouGov/Polimetrix in the last week of the 2008 Canadian federal election among a sample of eligible electors in the provinces of British Columbia and Quebec. The sampling frame was designed to match the demographic make-up of each province (as revealed by census data) as well as expected political interest (as indicated in previous surveys). After linking survey respondents to constituency-level data, we have a sample size of 3707.

Respondents were asked squarely to indicate which of the following two statements best reflects their own view: "1. My single vote will NOT decide who wins the election in my local riding; 2. My vote COULD decide who wins the election in my local riding." The second statement is theoretically valid in the sense that there is a minuscule chance that one's vote turns out to be pivotal. The first statement is more lucid; for all practical purposes, it is almost a certainty that one's vote will not determine the outcome of a large electorate election. We show below that responses to this question are revealing.

Interestingly, Canadian voters are evenly divided about the issue of interest. 44.5% of the sample's respondents thought their vote could make a difference, and 44.5% had given up hope. The remaining 11% had no idea about it. There are small differences between the two provinces; the percentage of "optimists" is slightly higher in British Columbia than in Quebec (47% against 42%).

The fact that voters' opinions are divided regarding this survey question represents a very interesting line of inquiry. It reveals that about half of them feel like they have the power to influence the outcome of electoral contests; but as interestingly it shows that about half of them are ready to concede that the act of voting is in fact inconsequential.

Our main objective is precisely to understand what induces an individual to believe that her vote might, or might not, make a difference, an endeavor that has never been directly undertaken before. According to our model, the factors that should play most are first the person's disposition, particularly her sense of efficacy, plus objective data about the closeness of the race (competitiveness), conditional on one being exposed to such data (awareness).

Efficacy is measured by two standard survey questions tapping the level of external political efficacy (asking whether respondents feel they have any say in what the government does, and whether they think the government pay attention to what people want). Competitiveness represents the closeness of the race in the respondent's constituency, as measured by official electoral results. We use the gap between the two front-runners and reverse this measure, so that high values indicate close races. As for awareness, we consider two alternative approaches common in the literature. The first is self-reported attentiveness to the media, which is the measure used by Marcus et al. (2000). The second is an information variable, which corresponds to the respondent's score on a knowledge test of six factual questions about Canadian and international politics (the approach Zaller (1992) uses to measure political awareness). Those variables allow us to capture the degree to which each respondent is likely to be exposed to real-time campaign information. Table 1 shows the descriptive statistics (using listwise deletion).

To estimate such a model, we must make assumptions regarding ε_i. This stochastic component may either be extreme value distributed or multivariate normal distributed. Using a Type I extreme value distribution would yield a multinomial logit model, which implies the assumption that the estimates are independent of the other alternatives, that is, the odds of believing that one vote can make a difference as compared to the belief that it will not make a difference is independent of the possibility of having no idea about the issue. This assumption (the independence of irrelevant alternatives (IIA)) seems implausible in this context. Intuitively, when reporting her beliefs, the respondent must first determine whether she has an idea or not about the issue; if yes, then she would pick one of the two other answer choices. Thus, at least from a methodological perspective, a multinomial probit model would best suit our needs. Although computationally demanding, the multinomial probit relaxes the assumption of IIA, allowing the errors to be correlated among the alternatives (Long, 1997, p. 184).

2. Results

Table 2 shows the results of two multinomial probit models, the first (Model 1) using self-reported media attentiveness, the second (Model 2) using political information. We use the skeptic response ("My vote will NOT make a difference") as the reference category. All variables

Table 4
Predicted probabilities of optimistic beliefs for different values of competitiveness, political attentiveness, and efficacy.

Competitiveness if attentiveness = 0		
Competitiveness = 0	Competitiveness = 1	Predicted change
0.3504	0.3591	+0.01
Competitiveness if attentiveness = 1		
Competitiveness = 0	Competitiveness = 1	Predicted change
0.0598	0.5751	+0.52
External political efficacy		
Efficacy = 0	Efficacy = 1	Predicted Change
0.2087	0.6604	+0.45

Note: Other variables held at their means.

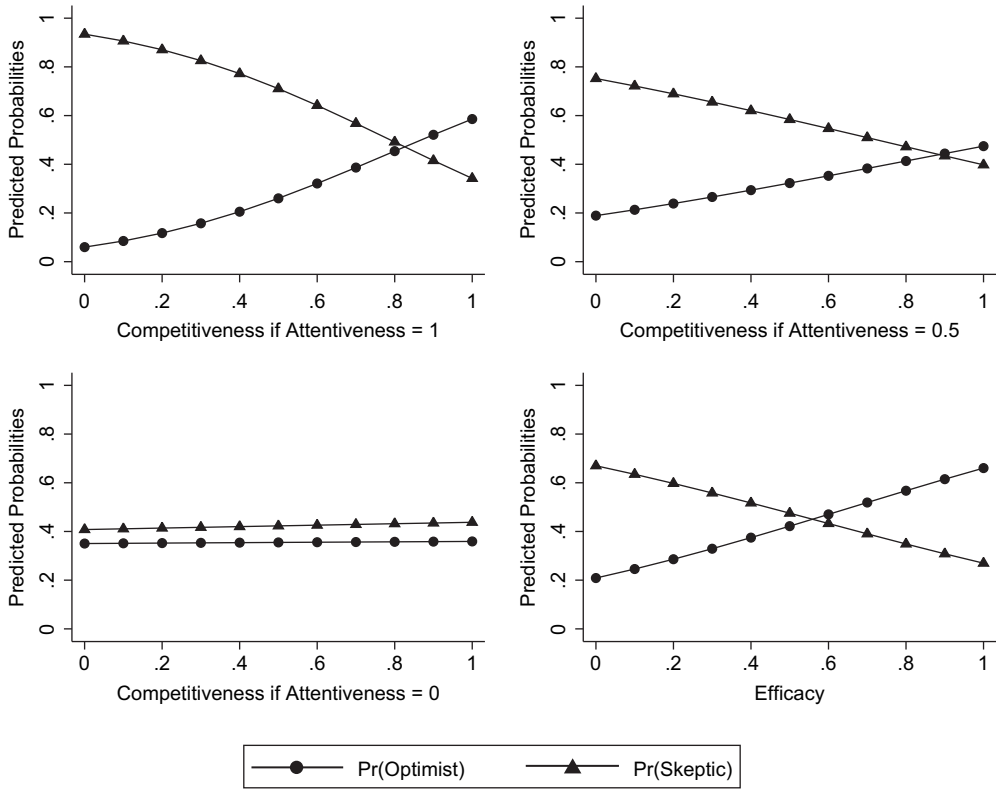

Fig. 1. Out-of-sample predicted probabilities of beliefs about the value of one's single vote, by (conditional) competitiveness versus efficacy.

have been rescaled from 0 to 1, so that estimates can be compared in size. Overall, both models generate a satisfyingly good fit, with proportional reductions in errors of about 18%. Using the mode of the dependent variable to predict respondents' beliefs yields accurate predictions about 44.5% of the time. Using the models, we correctly predict the responses 54% of the time.

First take a look at the statistical significance issues for Model 1. External political efficacy turns out to be a significant predictor of the belief that one's vote could make a difference, as reveals the positive and huge significant estimate in the top equation of Table 2. In line with Uhlaner and Grofman (1986), we also find that those with strong preferences are more prone to believe that their vote could be pivotal. The interactive term "Attentiveness times Competitiveness" also turns out to be jointly significant with the competitiveness measure. Interestingly, competitiveness has no influence among inattentive respondents, as is revealed by the non-significant constitutive term's estimate. A close race makes voters more likely to believe their vote could influence the outcome, though conditional on voters being attentive to the media.

Using information scores as a measure of awareness (Model 2) reveals the same relationship. This pattern fits our expectations. Politically aware voters are exposed to novel campaign information. Such exposure awakens their surveillance system, thus activating belief updates regarding the competitiveness of the electoral race. These more aware respondents become more optimistic about the value of their single vote when there is a close race, while being skeptic when there is little uncertainty about the outcome.

This finding may confound common wisdom, insofar as some would assume that informed respondents should be more prone to face the sad reality that their vote is unlikely to be pivotal. The negative estimates for the awareness constitutive terms (significant in Model 2) appear to yield some support to such common wisdom. Yet, this only indicates that informed respondents give up hope when the outcome of the election is known from the start (since the constitutive term for Information captures the impact of information when competitiveness is zero – that is, in the least competitive constituencies of the sample). In close races, the better informed become even more optimistic than the less informed.

From this point, it would be interesting to determine whether general psychological traits matter more than the short-term informational updates to explain beliefs. In other words, our aim is to compare the magnitude of the impact of efficacy to that of the campaign context. Since all variables have been rescaled, observing the size of the estimates gives a first idea. External political efficacy weighs much in explaining why respondents believe their vote might count; its estimates suggest a large impact on voters' beliefs, robust to alternative specifications, although they appear to rank second behind contextual variables. Focusing on Model 1, the combination of the interaction term and the competitiveness variable yields an estimate

that is greater in size than that of efficacy (2.65 as compared to 1.72, respectively (see Tables 2 and 3)). Yet, to accurately compare both factors, we must consider the combination of attentiveness, competitiveness, and the interaction term, to include the effect of each three sides of those interacted factors. This combination yields an estimate of 0.6 (Table 3), and a Wald-test reveals that the difference with the effect of efficacy is statistically significant ($\chi^2 = 12.43$; $p>\chi^2 = 0.00$). A similar conclusion holds when using the second specification (Model 2).

Another way to analyze the issue is to use the predicted probabilities of observing outcomes. For simplicity, we focus on the model using media attentiveness as a measure of political awareness. The top part of Table 4 shows the predicted probabilities of believing that one's vote could make a difference, for a discrete change (from min to max) in competitiveness, depending on attentiveness being minimal or maximal. All other variables are held at their (weighted) means. For inattentive respondents, the fact that the race is close has virtually no impact on the probability of having this viewpoint. For attentive respondents, competitiveness yields a change in predicted probabilities of about 0.52 points. As for efficacy, a change from the lowest level to the highest level yields an increase in the predicted probability of believing that one's vote could change the election outcome of 0.45 points.

To illustrate this, Fig. 1 plots out-of-sample predicted probabilities of observing each viewpoint against the degree of closeness of the electoral race, for three different levels of attentiveness (other variables held at their means). The upper-left and upper-right panels show the probabilities for the most attentive and moderately attentive respondents, respectively: we can see that when the level of awareness is sufficiently high, competitiveness has the predicted impact of augmenting the probability that respondents believe in the possibility of casting a pivotal vote (the lines with circle markers). Just below (lower-left panel) are the predicted probabilities for inattentive respondents: here competitiveness has almost no impact at all on beliefs about the possibility of being pivotal. Finally, we also show the predicted probabilities by level of efficacy in the bottom-right panel. We can see that efficacy straightforwardly increases the proneness to believe that one's vote could be decisive.

Note that we also tested for a possible interaction effect between attentiveness or information and efficacy. We found no significant impact (results not shown).

3. Conclusion

We conclude that sense of efficacy is the prime explanatory factor shaping voters' beliefs about the possibility that their vote will make a difference. Since the probability of being decisive in an election is unobservable (Mueller, 2003, pp. 304–05), voters' outcome expectations tend to build upon subconscious mechanisms assessing prospects of success of their behavior. Competitiveness of the electoral race also matters, but to a lesser extent, since it has an effect only among those voters who are exposed to political information. Those findings imply that uninformed/inattentive voters tend to consider the possibility of being pivotal more intuitively, that is, solely based on their general psychological inclination. In contrast, more aware voters are likely to readjust their beliefs using contextual information, interrupting the course of their disposition system.

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