Voter Beliefs and Strategic Voting in Two-Round Elections

Luke Plutowski[1], Rebecca Weitz-Shapiro[2], and Matthew S. Winters[1]

[1]Department of Political Science, University of Illinois
[2]Department of Political Science, Brown University

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Abstract

How widespread is strategic voting in two-round electoral systems, and which types of voters are most likely to engage in such behavior? While runoff elections are common in presidential systems around the world, research on strategic voting in these settings remains limited. This paper explores four different types of strategic behavior that are possible in two-round systems, including some types, such as "strong-to-weak" strategic voting, which are not possible in single-shot elections. We use a nationwide survey to assess the incidence and correlates of strategic voting in Brazil's 2018 presidential election, where 13 candidates competed in the first round. We find evidence of "weak-to-strong" strategic voting at a similar rate to that documented in single-round elections in other countries. We find little evidence of other types of strategic voting. Further, we show that voters' confidence in their predictions of the likely electoral outcome and their ideological preferences strongly predict strategic voting. These results point to the importance of accounting for voter beliefs and attitudes in addition to objective voter characteristics to explain strategic voting.

Introduction

As far back as Downs (1957), scholars have acknowledged that rational voters "may at times vote for a party other than the one [s]he most prefers" (47). This behavior, casting a ballot for a candidate or party who is not the voter's first choice in order to maximize her influence over the election result (and therefore her own utility) is commonly referred to as "strategic voting." Historically, scholarship on strategic voting has focused mainly on single-round plurality elections, like those in the U.S., U.K., and Canada (e.g., Alvarez and Nagler 2000; Cain 1978; Blais and Nadeau 1996; Cox 1997; Myatt 2007). Recently, theoretical discussions of strategic voting in two-round (runoff) systems (Bouton 2013; Bouton and Gratton 2015; Cox 1997) have come to be complemented by a small but growing empirical literature (Blais 2004; Blais et al. 2011; Fujiwara 2011; Weitz-Shapiro and Winters 2019).

This study makes three contributions to the literature on strategic voting in two-round systems. First, while previous work has documented the existence of strategic voting in runoff elections, we explore in greater depth the kinds of strategic voting that are most prevalent. The addition of a second round creates the possibility of multiple types of strategic voting which are not possible under simple plurality rules; for instance, voters who sincerely support leading candidates may vote strategically if the candidate has poor polling numbers in runoff scenarios (Van der Staeten, Laslier, and Blais 2016). For settings where multiple varieties of strategic voting are possible, this paper contributes to our understanding of which, if any, of these types actually occur.

Second, several recent studies have examined which types of voters are most likely to vote strategically, typically focusing on single-round elections. As compared to a single-round system, the decision to cast a ballot strategically is more complex in a two-round system with large numbers of candidates. This study contributes to our understanding of who votes strategically by testing whether beliefs about the outcome of the election, in addition to more commonly examined individual-level characteristics like socioeconomic status and political attitudes, explain strategic voting in the case of two-round elections.

Third, studies of strategic voting in two-round elections, and studies of strategic voting in general, overwhelmingly focus on high-income, long-standing democracies. Some researchers have argued that strategic voting is uncommon where democratic institutions are new or weak (Moser and Scheiner 2009), while others have found rates of strategic voting in developing democracies comparable to those found in Western Europe (Weitz-Shapiro and Winters 2019). This study contributes new evidence to this debate by estimating the prevalence of strategic voting in a large, middle-income democracy with relatively low levels of mass partisanship.

Empirically, we conducted a survey with a nationwide sample of around 2,200 Brazilian voters in the lead up to the country's 2018 presidential election. Brazil has a two-round system in which the top two candidates in the first round advance to a runoff if no candidate achieves more than 50% of the valid votes.[1] Both theory as well as pre-election press and polling suggested that multiple types of strategic voting were likely to occur in this election.

Results from our survey suggest that two types of strategic behavior occurred: two variants of what we call "weak-to-strong" strategic voting. For the most part, this strategic behavior was carried out by genuine supporters of trailing candidates who expressed an intention to vote for one of the two leading candidates, Jair Bolsonaro (PSL) and Fernando Haddad (PT). To a lesser extent, some supporters of candidates further trailing in the polls declared an intention to vote for candidates who had some chance of advancing to the second round (Ciro Gomes (PDT) and Geraldo Alckmin (PSDB)). We estimate that 7.8% of the Brazilian electorate intended to use their votes strategically, a figure comparable to estimates of strategic voting from elections in long-standing wealthy democracies. The lack of empirical evidence for other types of strategic voting – for example, supporters of a strong candidate voting strategically to advance a weak second-round candidate – suggests that although two-round systems produce possibilities for a variety of types of strategic voting, some of these types may be too complex or involve too much uncertainty for voters to employ them.

[1] "Valid" votes exclude those that are blank or spoiled.

This proposition is supported by evidence from the second part of the study. Among respondents whose preferences and perceptions created the possibility of strategic behavior, we show that a voter's confidence in her belief about the outcome of the first-round election is a strong predictor of whether she actually intends to vote strategically. That is, those who are highly uncertain about the results of the first-round election are less likely to switch their votes away from their sincere preferences. In addition, we find the likelihood of strategic voting increases when voters have a strong ideological preference between the top candidates. With regard to commonly used explanatory variables like education, political knowledge, and income, the results are mixed. To the best of our knowledge, these results provide the first empirical evidence that voters' confidence in their own expectations about an election outcome are a crucial predictor of strategic voting behavior.

Defining and Measuring Strategic Voting

A vote is considered strategic if it is used to maximize influence over the electoral outcome rather than to express a true preference among all choices (Fisher 2004). In other words, a strategic voter has a favorite among all candidates in the field, but she chooses not to vote for that candidate out of the belief that she can advance her interests more effectively by voting for another candidate. This implies that strategic voting depends critically on two factors: the voter's preferences over the field of candidates and her perception that her ballot may have a greater impact if she deviates from her most preferred choice. The exact conditions for a vote to be considered strategic depend on the voter's beliefs about the electoral dynamics at hand.

Electoral Institutions and Strategic Voting

The term strategic voting is most commonly employed in the context of single-member district plurality (SMDP) systems to describe the phenomenon in which voters who support

third parties abandon their first choice and vote for one of the top two parties/candidates (Alvarez and Nagler 2000; Blais 2002; Blais et al. 2001; Cain 1978; Myatt 2007). The logic is that strategic voters cast their ballot for one of the top candidates out of a desire not to "waste" their vote (Blais et al. 2001).

Some scholars have found that in different systems like proportional representation (PR) (Cox and Shugart 1996; Lago 2008; Shikano, Herrmann, and Thurner 2009), multimember districts (Cox 1984; Cox 1994), multivote elections (Aldrich, Blais, and Stephenson 2018), and mixed systems (Karp et al. 2002; Gschwend 2007), voters have strategic incentives similar to those present under SMDP; namely, they can avoid wasting their vote on non-viable parties. Each of these electoral systems also presents the possibility of other types of strategic behavior not possible in SMDP systems. Under the single nontransferable vote (SNTV),[2] for example, voters who sincerely support the strongest candidate may use their votes strategically to help elect another candidate who is on the edge of the vote threshold (Cox 1994).

There is an ongoing debate about the extent to which two-round systems encourage or diminish strategic voting. Duverger (1954), for one, argues that the possibility of a runoff reduces the incentives for parties and voters to consolidate around top candidates. As Payne et al. (2002) summarize, "[v]oters are more free to express their true preferences in the first round, since they will have a second opportunity to choose among the two most viable candidates" (69). Similar, Niou (2001) offers formal results showing that runoff systems allow for a Condorcet winner to emerge through sincere voting in a larger set of contexts. Consistent with the Gibbard-Satterthwaite theorem, however, subsequent literature has documented the various ways in which voters *do* have incentives to vote strategically in two-round elections (Cox 1997; Bouton 2013; Bouton and Gratton 2015).[3]

Further, if strategic voting does occur, current literature offers few predictions about what

[2]Each voter casts one vote, but multiple (M) candidates are elected.

[3]In addition, expressive first-round voting in two-round systems may allow voters to signal their policy preferences (Blais 2004). Voting of this kind is beyond the scope of the current paper.

type of strategic behavior should be most common. Two-round systems open the possibility for multiple varieties of strategic voting (Van der Straeten, Laslier, and Blais 2016). In Table 1, we depict four types that may be observed in a runoff election with a 50-percent threshold.[4] The contingent nature of the second round shapes the different possibilities. When a voter believes the election is likely to be won in the first round by one of the two leading candidates (for example, if those two candidates are both polling near 50 percent), then the voter has incentives to choose between those two candidates, even if her true top preference is for a candidate currently polling third or below. This is the kind of strategic voting observed under SMDP elections. We refer to this as "weak-to-strong (I)" strategic voting.

When voters think a second round is likely, additional strategic possibilities emerge. A voter whose top preference is for a candidate who is trailing in the polls might switch her vote to another favorable candidate whom she believes is in a position to advance to the runoff (e.g. someone polling in or near third place). We refer to this as "weak-to-strong (II)" strategic voting.

Somewhat more unusually, voters who support leading candidates (i.e., those polling first or second) might also have strategic reasons to deviate from their sincere preferences. For instance, imagine a voter believes that her preferred candidate, who is among the top two, is likely to lose in the runoff, but a trailing "Candidate C," to whom she is ideologically close, would likely beat the other leading candidate in the second round.[5] Under these circumstances, she has an incentive to vote for Candidate C (assuming she believes Candidate C can plausibly reach the second-round election). We call this "strong-to-weak (I)" strategic voting.[6] Alternately, a voter who feels confident that her most preferred candidate will

[4]When the threshold is less than 50 percent or requires a margin of victory in addition to a minimum vote share, the strategic possibilities are even greater (see Cox 1997 and Bouton 2013).

[5]This scenario might occur if a leading candidate has both a strong base of support and a large number of voters opposed to his election.

[6]"Strong" and "weak" refer to beliefs about polling in the first round, not the second. The voter employs this strategy because of a belief that a "weak" (trailing) candidate would be a strong contender in the second round.

advance to a second-round election (e.g., is polling in first with a substantial lead) may have an incentive to use her vote to try to provide a weaker second-round opponent by voting for a candidate currently polling third or below. We call this "strong-to-weak (II)" strategic voting.[7]

Even if theoretical opportunities for strategic voting exist, there is mixed evidence on whether voters actually respond to these incentives. Cox (1997) argues that it is unlikely that many people actually vote strategically in two-round systems given the informational complexity involved (137). Similarly, Blais (2004) examines data from the 2002 French presidential elections and finds little evidence of voters abandoning nonviable candidates to support more popular ones. On the other hand, Blais et al. (2011) use experiments to show that voters do indeed weigh candidate viability in their vote choices under two-round rules. Evidence from Hungary (Kiss 2015) and Argentina (Weitz-Shapiro and Winters 2019) also suggests strategic voting does take place in runoff systems.

Correlates of Strategic Voting

Where strategic voting does occur, who behaves strategically? Previous studies that have examined individual-level correlates of strategic voting rely on evidence largely from single-member district plurality (SMDP) systems (see Blais and Nadeau 1996; Eggers and Vivyan 2020; Fisher 2004) or mixed electoral systems (see Karp et al. 2002; Gschwend 2007). Few studies have examined runoff systems. This is an important omission because the individual-level factors that drive strategic voting in one system may not hold in others. For example, complex electoral environments may require greater political knowledge on the part of voters to maximize the effect of their ballot, where more simple systems may allow for strategic behavior among less sophisticated voters.

We examine several individual-level factors that commonly predict strategic voting to see whether results from previous studies hold in the case of a two-round election. Building on

[7] Cox (1997) calls this "strategic desertion," while Bouton and Gratton (2015) refer to this as a "pushover vote."

Table 1: Strategic Voting Possibilities in Two-Round Elections with a 50-percent Threshold

Type of Strategic Behavior	**Relevant Beliefs about the Election**	**True Preference**	**Switch Vote To**	**Goal of Switching Vote**
Weak-to-Strong (I)	A first-round winner is likely (i.e., at most two candidates are viable)	Any candidate believed likely to place 3rd or below	Candidate believed likely to place 1st or 2nd	Help most preferred candidate among two viable candidates achieve a first-round victory
Weak-to-Strong (II)	A second round is likely (i.e., no candidate is likely to surpass the electoral threshold)	Any candidate believed likely to place 4th or below	Candidate believed to be in a position to place 2nd	Help a preferred candidate advance to the second round
Strong-to-Weak (I)	A second round is likely The voter's preferred candidate is less likely to perform well against the other leading candidate when compared to some alternative	Candidate believed likely to place 1st or 2nd	Candidate believed to be in a position to place 2nd	Help a candidate who performs better against an opposed leading candidate advance to the second round
Strong-to-Weak (II)	A second round is likely The leading candidate is more likely to win in a second round against some other candidate than the one currently most likely to advance to the second round	Candidate believed likely to place 1st	Candidate believed to be in a position to place 2nd (but not currently in 2nd place)	Help the leading candidate face a weaker opponent in the second round

the current literature, we examine five key variables that may help explain an individual's propensity to cast a strategic vote.

Looking at standard sociodemographic variables, both socioeconomic status (SES) and level of formal education might predict strategic voting. Several studies have found that higher educational attainment is correlated with strategic voting (Black 1978; Merolla and Stephenson 2007; Niemi, Whitten, and Franklin 1992). Eggers and Vivyan (2020) find that high-income voters were much more likely to vote strategically in British elections. These results could be driven by class or education-based differences in policy preferences, political interest, participation, or knowledge.

Political sophistication is also likely to increase strategic voting. Those with high levels of general political knowledge have been found to be more averse to "wasting" their votes and more likely to understand and use complex electoral rules to their advantage (Karp et al. 2002; Gschwend 2007). Greater familiarity with the "rules of the game" should lead citizens to make decisions with an eye towards maximizing the impact of their votes.

Relatedly, we predict that those with a stronger preference among the top candidates will be more likely to vote strategically (Blais and Nadeau 1996; Fisher 2004; Karp et al. 2002; Weitz-Shapiro and Winters 2019). Those who do not care which of the top vote-getting candidates will advance to the second round or win the presidency have no incentive to vote strategically. In contrast, those who have strong feelings, positive or negative, toward the leading candidates will be more motivated to use their vote to influence who advances to the second round or wins outright.

Finally, we argue that those who are more confident about the likely outcome of a particular election are more likely to vote strategically. For example, among voters who support trailing candidates, those who feel more certain about the fate of their preferred candidate are more likely to identify other, more viable candidates that they can support. In contrast, those who are uncertain about the chances of their favored candidate have no reason to abandon him at the ballot box. A voter's certainty about the likely results of a particular election

is not simply a function of general political knowledge; for example, Meffert and Gschwend (2011) show that relatively unsophisticated voters make strategic choices if they have access to election-specific polling information. In addition, a voter's self-assessed confidence in her beliefs is analytically distinct from the actual accuracy of her beliefs, as some voters may be confident in their expectations, even if they are incorrect. To our knowledge, no existing study has explored the effect of self-assessed confidence on strategic behavior.

The Brazil Case

We conduct our research in Brazil, a country whose presidential elections feature a two-candidate runoff if no candidate wins a simple majority of valid votes in the first round. This is the most common form of presidential election in the world.[8] The presidential democracies of Latin America make interesting laboratories for studying strategic voting because these countries tend to have many parties as well as low levels of mass partisanship (Coppedge 2018; Kitschelt et al. 2010; Mainwaring and Scully 1995; Pérez-Liñán 2006). In some ways, these conditions facilitate strategic voting, as many nonviable candidates enter elections, and weak partisanship may increase voters' willingness to abandon top choices. On the other hand, polling in these contexts is often unreliable, and the number of parties without clear ideological profiles may make choosing a second-choice candidate difficult. To date, few authors have examined the dynamics of strategic voting in the region.

In addition, we focus on Brazil because empirical reports in advance of the country's 2018 election suggested the possibility of widespread strategic voting. A poll conducted by the survey firm IBOPE three weeks before the first round estimated that 32% of the country's electorate had a "high" or "very high" chance of voting for a candidate who was not their most preferred to help prevent the victory of another they disfavored.[9] As shown

[8]Of 111 presidential systems listed in the Electoral System Design Database at idea.int, 79 of them feature a two-round system with a 50-percent threshold.

[9]Survey question (author translation): "Would you vote for a candidate that is not your preference to prevent another you do not like from winning?" From: Grillo, Marco, Jeferson Ribeiro and Fernanda

in Figure 1, Google searches for the term "voto útil" (literally, "useful vote," the Portuguese term for strategic voting) spiked around three weeks before the election, with another uptick occurring just days before the date of the first-round election (October 7).[10]

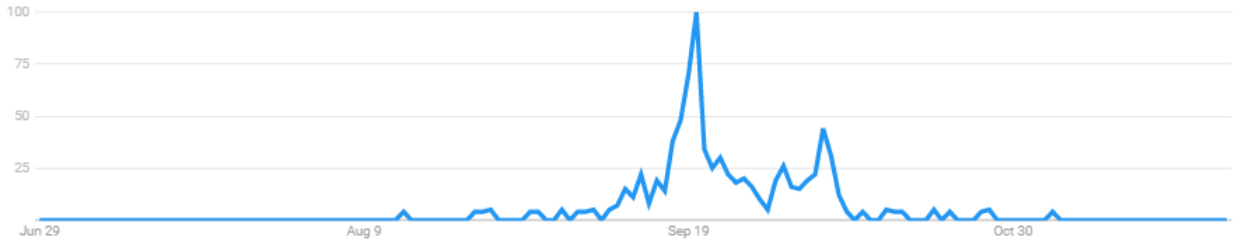

Figure 1: Google Search Interest for "Useful Vote" During 2018 Campaign

Two main factors made strategic voting particularly likely in 2018. First, the candidate field was crowded. Over a dozen candidates entered the presidential race. There was no incumbent or clear favorite; until late September, opinion polls showed the leading candidate with only around 30% of the likely vote. Since many candidates were non-viable, there was a large pool of voters who could weigh strategic considerations. Second, the political environment in Brazil was very polarized during this campaign. The top two candidates also had the highest rejection rates (i.e., were candidates for whom respondents said they would never vote), which could lead more voters to act strategically (Weitz-Shapiro and Winters 2019).

Strategic Voting Possibilities in the 2018 Presidential Election

Amid an economic crisis, an enormous corruption scandal, rising crime rates, and nationwide protests, Brazil's 2018 presidential elections took place in a turbulent political environment. The powerful leftist Worker's Party (PT) was expected to make a strong showing in 2018 with the return of hugely popular former president Luiz Inácio Lula da Silva ("Lula") as

Krakovics. "Ibope: um terço do eleitorado está propenso a dar voto útil para evitar vitória de candidato que rejeita." *O Globo*. September 19, 2018.

[10]The reason for the September 20 peak is not immediately clear, but the IBOPE poll had been released a few days prior and was referenced by several news outlets that week. A few presidential candidates had also made comments about "voto útil" that week, and a presidential debate was held on September 20.

a candidate. Lula, however, was found guilty on bribery charges and replaced as the PT candidate by former São Paulo mayor Fernando Haddad, who did not command the same level of name recognition or personal popularity as Lula. Divisive member of Congress Jair Bolsonaro (PSL) steadily gained popularity as a presidential candidate via a law-and-order and anti-establishment brand. Ultimately, Bolsonaro went on to win handily, receiving 46% of valid votes in the first round and 55% in the second round against Haddad.

Table 2 displays the profiles of the largest vote-getting presidential candidates in the 2018 race. For each candidate, we list their party, approximate ideological position, and the percentage of valid votes that they received in the first round. In addition, the table shows the candidates' polling numbers according to a Datafolha survey conducted two days before the October 7 election. We report the candidates' share of vote intentions as a percentage of both total votes and valid votes.

Table 2: Brazil's Presidential Candidates, 2018

	Party	**Ideology**	**Polling (Total)**	**Polling (Valid)**	**Results (Valid)**
Jair Bolsonaro	PSL	Right	36%	40%	46.0%
Fernando Haddad	PT	Left	22%	25%	29.3%
Ciro Gomes	PDT	Center-left	13%	15%	12.5%
Geraldo Alckmin	PSDB	Center-right	7%	8%	4.8%
João Amoêdo	NOVO	Center-right	3%	3%	2.5%
Cabo Daciolo	PATRI	Right	1%	1%	1.3%
Henrique Meirelles	MDB	Center-right	2%	2%	1.2%
Marina Silva	REDE	Center-left	3%	3%	1.0%
Alvaro Dias	PODE	Center-right	2%	2%	1.0%
Guilherme Boulos	PSOL	Left	1%	1%	0.6%

Notes: Ideology ratings were drawn from field research and media accounts. (See Alves, Jorge Antonio. "Brazilian voters wanted change - and they got it. Now what happens?" *Washington Post Money Cage Blog*, October 10 2018.) It is notoriously difficult to define the ideology of Brazilian politicians, but Bolsonaro was firmly to the right and Haddad to the left. "Valid" excludes abstentions, null and blank ballots, and "don't know" responses.

As noted above and summarized in Table 1, two-round, multi-candidate elections make possible a variety of patterns of strategic voting. These include a "weak-to-strong" strategic behavior that is the only type possible in SMDP elections, a separate "weak-to-strong"

behavior that appears in runoff systems, as well as two types of "strong-to-weak" strategic choices.[11] Table 3 summarizes how each of these scenarios would likely play out in the context of the 2018 Brazilian election

First, true supporters of trailing candidates might vote strategically for a leading candidate to help that candidate reach the 50% threshold needed to avoid a runoff election; this is classic weak-to-strong (I) strategic voting. Prior to the first round, polling indicated that an eventual runoff between Bolsonaro and Haddad would be very close. Supporters of trailing center-right candidates who disliked Haddad might have decided to abandon their first-choice candidates and vote for Bolsonaro in the hope Bolsonaro would prevail in the first round. This behavior was encouraged by Bolsonaro's campaign. Weeks before the first round, Jair Bolsonaro's son and current Senator Flávio Bolsonaro stated on Twitter that "Bolsonaro might be an Amoedo or an Alvaro Dias from winning in the first round."[12] Following a similar logic, supporters of trailing left and center-left candidates who believed that Haddad had a chance to win in the first round may have decided to cast their ballots for Haddad.

Following Bolsonaro and Haddad, the two candidates performing next best in the polls were Ciro Gomes (PDT), on the center-left, and Geraldo Alckmin (PSDB), on the center-right. Votes could have flowed to these candidates in two different strategic voting scenarios. In the weak-to-strong (II) variant, genuine supporters of candidates polling even lower might have decided to cast their ballots for Ciro or Alckmin if this candidate were their second choice. Voters who made this choice would do so with the objective of pushing this somewhat more viable candidate into the runoff.[13]

Alternatively, both Ciro and Alckmin could have benefited from strong-to-weak (I) strate-

[11] As described above, two-round multi-candidate elections create many possible strategic voting scenarios, particularly if we allow for variation in voters' beliefs about likely first-round results and the probability of victory across different second-round match-ups. We focus on a set of scenarios that received press attention and involved the leading candidates.

[12] Borges, Rodolfo. "Contra Bolsonaro ou PT, o voto útil promete definir os rumos para o segundo turno." *El País*. September 17, 2018.

[13] If this strategic effort failed, these voters could then of course cast a sincere ballot in the eventual second round.

gic voting. For example, leftists who genuinely supported Haddad may have switched their votes to Ciro if they believed Ciro to have a better chance of beating Bolsonaro in the second round. Various polls suggested that Ciro had the highest rate of *second*-vote intention (i.e. the candidate the respondent most prefers after their first choice), a very low rejection rate, and a very high chance of defeating Bolsonaro (and any other candidate) in a runoff election.[14] This type of strategic thinking was expressed by one voter, who stated: "I am only going to decide whom I will vote for in the final weekend, taking into account the criteria that is most important which is that the candidate that goes to the second round will have the best chance of defeating Bolsonaro."[15] In a parallel fashion, true supporters of the leading candidate (Bolsonaro, from the right-wing PSL), may have nonetheless decided to vote for the center-right fourth-placed candidate (Alckmin, PSDB) out of a belief that Alckmin would be better positioned to defeat the Haddad in the second round. Alckmin frequently claimed that his poll numbers in a potential second-round match against Haddad were much more favorable than those of Bolsonaro. "I see that Bolsonaro is a passport for returning to the PT. That is a fact. Just look at the second round... you vote for one and elect the other," he stated.[16]

One final possibility – strong-to-weak (II) voting – would be Bolsonaro supporters who viewed Haddad as a threat and therefore desired to get a weaker second round candidate to face Bolsonaro. This type of strategic voting is risky, since it involves taking votes away from a preferred candidate currently on track to either win outright or advance to a second round. We do not view this type of strategic voting as empirically likely.

[14]Praça, Sérgio. "O voto útil em Ciro Gomes." *Veja*. October 3, 2018.

[15]Estênio Brasilino, Carlos. "Conheça o voto útil, fiel da balança nas eleições polarizadas de 2018." *Metrópoles* . September 23, 2018.

[16]Borges, Rodolfo. "Contra Bolsonaro ou PT, o voto útil promete definir os rumos para o segundo turno." *El País*. September 17, 2018.

Table 3: Strategic Voting Possibilities in the First Round of the 2018 Presidential Election

Type of Strategic Behavior	**Votes To**	**Votes From**
Weak-to-Strong (I)	Bolsonaro	Alckmin, Meirelles, Dias, Amoedo
Weak-to-Strong (I)	Haddad	Ciro, Marina, Boulos
Weak-to-Strong (II)	Ciro	Marina, Boulos
Weak-to-Strong (II)	Alckmin	Meirelles, Dias, Amoedo
Strong-to-Weak (I)	Ciro	Haddad
Strong-to-Weak (I)	Alckmin	Bolsonaro
Strong-to-Weak (II)	A candidate perceived as a weaker opponent than Haddad	Bolsonaro

Research Design & Data

Empirically, this paper has two goals: First, to assess if and to what extent any of the types of strategic voting outlined above actually occurred; and second, to examine which types of voters were most likely to vote strategically. To this end, we conducted an original survey with Brazilian voters in the three days prior to the first round of the 2018 general elections. The survey was conducted online with a convenience sample recruited by the market research firm Offerwise (see online appendix for details about recruitment and sampling procedures). In total, 2,226 people were interviewed.

To increase representativeness, we created post-stratification weights to achieve distributions on gender, region, education, and socioeconomic status that are more reflective of the population of Brazil (see the online appendix for sample and population distributions of these variables). Our survey, as with many online convenience samples, oversamples wealthy and educated respondents. Only 13.3% of our sample is from the lowest socioeconomic classes (28.0% of the Brazilian population), and only 17.4% have a below-high-school education (52.6% in population). Our sample contains more respondents who are female and who are from the South than would be expected in a true random sample.

Measuring Strategic Voting

Scholars have generally taken three approaches to measuring strategic voting (Alvarez and Nagler 2000). First, some infer strategic voting using aggregate-level results such as cross-constituency differences (Cain 1978), shifts in vote shares across elections (Spafford 1972), or differences between actual vote shares and those expected by theory (Cox 1994). This type of measurement risks the possibility of ecological fallacy: researchers may incorrectly infer that individuals behave strategically from aggregate-level data.

A second approach uses self-reported strategic behavior: respondents are asked to choose their main reason for supporting a candidate/party and choose among answer choices such as "I supported a party that had no chance of winning" (Heath 1991; Niemi, Whitten, and Franklin 1992; Evans and Heath 1993). As Alvarez and Nagler (2000) show, this method is flawed due to respondents' propensity to misremember, misstate, or lie about their vote choice and the reasons underlying it.

A third approach, which our study uses, is to infer strategic voting from differences in respondent *attitudes* toward parties or candidates and their stated *vote intention*. Those who vote for someone who is not their genuinely most-preferred candidate likely often do so for strategic reasons. True preferences have been measured via feeling thermometers (Blais and Nadeau 1996), congruence between issue positions held by the respondent and each party (Alvarez and Nagler 2000), or behavioral measures like reported vote choice in primaries (Weitz-Shapiro and Winters 2019).

As Meffert and Gschwend (2011) note, however, not all insincere voters (those whose vote choice deviates from their top preference) can be classified as strategic. Switching one's vote is a necessary but not sufficient condition for strategic voting; some may abandon their top choice for symbolic reasons, because of a vote buying offer, or due to purely random, idiosyncratic factors. Thus, it is crucial to make a distinction between "vote switching" and "strategic voting." Vote switchers – those who cast their vote for a candidate other than their most sincerely preferred choice – should be considered strategic only if they make their

decision in order to increase their influence over electoral outcomes.

One challenge in assessing voter motivations is that, if voters have diverse (or simply incorrect) impressions of candidate polling numbers in the first and second rounds, a large number of vote-switching scenarios might be strategic. In order to make claims about which voters in our sample were strategic voters, we identify vote switchers and then, using information about voters' perceptions of the likely first-round outcome, try to match vote-switching patterns to the scenarios laid out in Tables 1 and 3.

To measure sincere preferences in our study, we asked respondents to name the candidate they thought would make the best president, regardless of their actual vote choice. We next asked them to name the candidate for whom they intended to vote on election day. Those whose vote intention differs from their sincere preference are considered vote switchers.[17]

Table 4 displays the distribution of valid responses to the question about respondents' vote intention for the first round according to our unweighted sample, the post-weight sample, the last pre-election poll from Datafolha, and actual electoral returns. We also show the share of respondents who selected each candidate as their true first preference among the field according to the weighted and unweighted samples. Our sample appears to lean center-right compared to the general population. Even when weighted, our sample includes a greater than expected number of supporters of small, right-party candidates and fewer than expected Haddad and Ciro voters. Our estimate of the proportion of Bolsonaro voters was low compared to actual results but higher (and therefore more accurate) than most pre-election polls.

Importantly, in our survey, the distribution of first choice preferences is different than the distribution of voting intentions, indicating the possibility of strategic voting. A higher proportion of respondents expressed an intention to vote for one of the leading candidates, Bolsonaro or Haddad, than described them as their first preferences. Some less viable can-

[17]These questions were asked in sequence on the same survey, making it highly unlikely that differences between reported preferences and vote intentions reflect a shift in preferences over time or a bandwagoning effect.

didates received a much higher share of first preference selections than vote intentions. This suggests that many people, despite believing that these candidates were the best fit for the presidency, ultimately cast their ballots for other, more popular candidates.

Types of Vote Switching

Table 5 shows the raw number of voters in our sample who indicated that they planned to vote for someone who was not the candidate they thought would make the best president; we call these people "vote switchers." In total, we identify 12.7% of our sample as vote switchers. This is a conservative estimate of the number of vote switchers, as we do not consider those who express a top choice but then respond "don't know" to or refuse to answer the vote choice question.[18] We exclude four candidates from the columns in the table, as we have no expectations about them, and none received more than ten switch votes.

The patterns that appear in the table are most consistent with the weak-to-strong (I) story summarized in Table 1. As in single-shot systems, voters who initially support weaker candidates seem to coalesce around the two main leaders: Bolsonaro and Haddad received 60% of all switch votes. Bolsonaro's switchers were mostly true supporters of right-wing candidates, while Haddad took many votes from the leftist Ciro, both of which are consistent with the strategic logic behind the expectations in Table 3. Table 5 also shows some evidence of weak-to-strong (II) strategic voting, with candidates near second place (Ciro, Alckmin) on the receiving end of a non-trivial percentage of vote switchers.

On the other hand, there is no clear evidence of systematic "strong-to-weak" strategic voting. Among the 290 voters who expressed a sincere preference for Haddad, only 4 (1.4%) reported an intention to vote for Ciro. Alckmin picked up only 6 votes from Bolsonaro supporters. In fact, very few people who most preferred Bolsonaro or Haddad switched their vote at all. Conversely, only 57.1% of those who believed that the trailing Amoêdo would

[18]There are 78 individuals in our sample who do not express a preference for any particular candidate but do name a candidate for whom they will vote. Their declared vote intention is spread across candidates. We do not consider these voters strategic, because in order to act strategically, a voter must deviate from her stated true preference.

Table 4: First Preferences, Vote Intentions and Valid Vote Share by Candidate

	First Pref. (Weight: N)	**Vote Int. (Weight: N)**	**First Pref. (Weight: Y)**	**Vote Int. (Weight: Y)**	**Vote Int. (Datafolha)**	**Results**
Bolsonaro	39.6%	42.8%	41.6%	43.9%	40%	46.0%
Haddad	15.7%	19.5%	20.1%	24.7%	25%	29.3%
Ciro	14.6%	13.6%	12.9%	10.3%	15%	12.5%
Alckmin	6.8%	5.9%	8.0%	6.8%	8%	4.8%
Amoedo	9.7%	6.9%	4.3%	3.6%	3%	2.5%
Daciolo	1.6%	1.8%	1.1%	1.3%	1%	1.3%
Meirelles	4.9%	3.5%	5.9%	4.6%	2%	1.2%
Marina	4.1%	2.8%	4.3%	2.9%	3%	1.0%
Dias	2.7%	2.5%	1.6%	1.6%	2%	0.8%
Boulos	0.4%	0.4%	0.1%	0.2%	1%	0.6%
Total N	1850	1810	1805.3	1823.1	19,552	117,364,560

Notes: 2,226 total respondents were interviewed for our survey; "don't know" and null/blank/abstain vote intentions were removed. Post-stratification weights use sex, region, education, and SES to approximate Brazilian population values for those variables. Candidates are listed in order of the final election results.

Table 5: Number of Vote Switchers in Sample by Candidate (Unweighted)

		Vote Intention					
		Bolsonaro	**Haddad**	**Ciro**	**Alckmin**	**Amoêdo**	**Dias**
True Pref.	**Bolsonaro**	(*662*)	8	1	6	4	6
	Haddad	1	(*259*)	4	3	2	2
	Ciro	5	31	(*202*)	2	2	1
	Alckmin	17	15	3	(*71*)	2	1
	Amoêdo	39	2	14	4	(*101*)	1
	Daciolo	7	0	0	0	0	1
	Meirelles	12	8	2	3	3	2
	Marina	7	5	4	2	1	0
	Dias	10	1	1	4	0	(*28*)
	Boulos	0	1	2	0	0	0
	Total Switchers	98	71	31	24	14	14
	% of All Switchers	34.7%	25.2%	11.0%	8.5%	5.0%	5.0%

Note: Meirelles, Marina, Boulos, and Daciolo each received ten or fewer switch votes (30 total). "% of All Switchers" is each each column total divided by the 282 respondents who indicated they would vote for someone who was not their top choice.

make the best president indicated they were planning to vote for him, a remarkably low proportion.

Although it is possible that some in our sample switched away from leading candidates for strategic reasons, we conclude that in this election, any type of strong-to-weak strategic voting was extremely rare. The rest of the paper, therefore, focuses only on the weak-to-strong scenarios.

In existing survey work, it is a challenge to detect if voters who deviate from their true preference believe they are switching from long-shots to leaders. Our survey, however, asked respondents to predict who would place in first, second, and third in the first round. The responses to this question demonstrate that a substantial proportion of respondents misidentify the actual polling positions of the candidates. Table 6 shows the proportion of respondents who estimated that each candidate would finish in first, second, and third place. Half of our respondents identified Bolsonaro as the leading candidate, but half of them saw him as likely to finish second or lower. Half of our respondents expected Haddad to finish either first or second, and one out of four thought that Ciro was on track to finish first or second. Only 18% of respondents correctly identified Bolsonaro, Haddad, and Ciro as the eventual first, second, and third place finishers, respectively.

Table 6: Share of Respondents Who Predict Candidate Will Finish in First, Second, and Third Place (Weighted)

	First	**Second**	**Third**	**Actual Place (Vote Share)**
Bolsonaro	*51.1%*	21.3%	12.0%	1 (46.0%)
Haddad	18.8%	*33.2%*	18.1%	2 (29.3%)
Ciro	11.7%	15.3%	*31.0%*	3 (12.5%)
Alckmin	7.7%	11.8%	21.5%	4 (4.8%)
Amoêdo	1.7%	2.6%	3.8%	5 (2.5%)
Meirelles	3.1%	4.0%	5.7%	6 (1.2%)
Marina	3.8%	6.8%	4.7%	7 (1.0%)
Dias	2.0%	5.0%	3.1%	8 (0.8%)

Note: *Italics* indicate the "correct" response – Bolsonaro finished first, Haddad second, and Ciro third.

Using subjective measures of candidate placement is an empirical innovation over previous studies which use actual election returns to classify voters as strategic (e.g. Abramson et al. 1992; Black 1978; Eggers and Vivyan 2020; Weitz-Shapiro and Winters 2019). Those studies may be committing Type I errors by assuming that voters who abandon their first choice candidate know or believe that they are voting for someone with a better chance of winning.

How Many Weak-to-Strong Strategic Voters?

We now seek to establish how many switchers should be considered strategic voters. To do so, we adopt a measure that encapsulates both weak-to-strong scenarios (Table 1). We first consider any respondent who believes her preferred candidate will not finish in the top two to be a *potential strategic voter*: these respondents support a candidate whom they believe will not currently advance to the second round, giving them an opportunity to heighten their impact on the eventual outcome by casting a ballot for another candidate. Using this definition, we identify 627 respondents (28.2% of our total sample) as potential strategic voters.[19]

To measure actual strategic voting, we have two sufficient conditions: a true supporter of a candidate perceived as likely fourth or below switches to one of the candidates perceived to be in the top three, or a true supporter of a candidate perceived to be in third place switches to one of the candidates perceived to be in the top two. This captures both weak-to-strong scenarios (I and II).[20] We make the assumption that if someone switches to vote for a leading candidate, they are doing so to increase the impact of their ballot, the second condition for

[19] In the online appendix, we show differences between potential strategic voters and the rest of the sample on our explanatory variables. Potential strategic voters tend to be more educated, wealthy, confident, and neutral toward the PT compared to others.

[20] Our operationalization of potential strategic voting may be inappropriate for voters who strongly support a third-place candidate whom they believe is close to advancing to the runoff. In this case, it is in the voter's best interest to vote sincerely. Unfortunately, our data are not detailed enough to separate these voters from true potential strategic voters, i.e. those who believe the third-place candidate is far from second place. This problem, though, should not affect the estimate of *actual* strategic voting since these voters would be treated as "zeros" either way. In the online appendix, we repeat our analysis with a more restrictive definition of potential strategic voters (those who support a candidate they believe to be in fourth place or below) and find similar patterns in the explanatory variables that predict strategic voting.

strategic voting. We remove from the analysis those who refused to answer either question about vote intention or presidential preference.

Among the pool of potential strategic voters, about a third actually intended to switch their vote. Thus, we estimate that around 7.8% of voters engaged in weak-to-strong strategic voting in this election.[21]

Table 7 shows a breakdown of vote intention by true preference across presidential candidates. The rows show the number and percentage of respondents who intended to vote for their first preference, intended to vote for a different candidate, intended to abstain or vote null, or responded "don't know." The first column includes only respondents who support a candidate they think will finish outside of the top two (i.e. potential strategic voters), while the second includes only those who support someone they think is in the top two.

Table 7: Intended Vote Choice by Presidential Preference (Weighted)

	Support "Third or Below"	**Support "Top Two"**
Voted Sincerely	377 (66.7%)	1103 (90.8%)
Switched Vote	155 (27.3%)	56 (4.6%)
DK/Null/Abstain	36 (6.3%)	56 (4.6%)

Note: Columns sum to 100%. Cell numbers use the weighted sample but are rounded to the nearest whole number.

The table provides further evidence that this election featured weak-to-strong strategic voting. Over 90% of those who supported a candidate that they thought would finish in the top two say they intended to vote sincerely. In contrast, more than a quarter (27.3%) of those who supported someone outside the top two reported they intended to switch their

[21]It could be that some of these voters switch for non-strategic reasons (or that some survey respondents are not paying attention). In our sample, 57 respondents (2.6%) switched to vote for someone outside of their top three. If we consider these individuals to be random switchers and estimate that there is a similar proportion of random switchers among the weak-to-strong voters, then a more conservative estimate of the proportion of strategic voters is 5.2%. If we were to treat anyone who switches their vote as a strategic voter, then our estimate would be 12.6%.

vote. The rate of switching is even higher among respondents who supported someone they believed would place *fourth* or below (41.5%). Among the 155 potential strategic voters who switched, 134 (86.4%) were classified as strategic; 90 supported someone outside the top three but voted within the top three, and 44 supported the third-placed candidate but switched to someone in the top two.

Thus, even when voters have the opportunity to express a preference between the top candidates in an eventual runoff, they appear to be concerned about "wasting" their first round vote by supporting a non-viable candidate. It is possible there are non-strategic reasons that some may switch from weak to strong candidates, but a number of factors make it unlikely these explain the patterns we document. We are unlikely to be picking up on a "bandwagoning effect" (Nadeau, Cloutier, and Guay 1993) because our questions about sincere preference and vote choice are asked contemporaneously. If polling success leads voters to think more highly of perceived winners, we would expect this to change both vote choices *and* sincere preferences, in which case we would not identify these individuals with updated preferences as vote switchers. Perhaps voters simply receive some psychological benefit from voting for a winner, even if they do not think that candidate would make the best president. Two empirical findings diminish this possibility. First, 34% of our strategic voters vote for a second or third placed candidate, *not* the candidate they perceived as most likely to win. Second, as Table 5 (and later analysis) shows, switchers tended to vote along ideological lines; Bolsonaro picked up votes primarily from right-of-center candidates, while Haddad benefited most from Ciro supporters.

Who Votes Strategically?

We next investigate, among potential weak-to-strong strategic voters, which types of respondents were most likely to actually vote strategically. We explore five variables that could predict the likelihood of strategic voting: education and socio-economic status; political knowledge; ideological preference among the top candidates; and certainty about election

outcomes.

We measure SES on a six-point scale according to the ABCDE classification, which is based on household monthly income. To more evenly represent the actual distribution of wealth in Brazil, we use the A, B1, B2, C1, C2, and D-E categories. We asked respondents to report the highest level of formal education they had attained on a 10-point scale, ranging from "illiterate/no formal education" to "completed graduate degree".

To measure knowledge, we asked respondents a nine question battery related to Brazilian and international politics. The questions were a mix of free-response ("How many federal deputies are elected in your state?"), multiple choice ("What level of government is responsible for high school education: federal, state, or municipal?") and true/false ("Beneficiaries of *Bolsa Familia* have to possess a magnetic card."). We create an additive index ranging from 0 to 9 questions correctly answered. The mean number of correct responses was 3.39 with a standard deviation of 1.67.

We hypothesized that strategic voting would be more likely among candidates with stronger ideological preferences between the top candidates. We capture this variable by asking respondents their opinion about the Brazilian Worker's Party (PT). This works well as a proxy for preference among the top candidates because much of the ideological competition in the 2018 election centered around views of this party, which had won the previous four presidential elections. In comparison to those who are neutral toward or don't know their opinion about the PT, pro-PT potential strategic voters should be more likely to switch their vote to support Haddad (PT) vis-a-vis the other candidates. Likewise, those who are anti-PT should be more likely to vote strategically, in comparison to those who are neutral, in order to help prevent a second round in which the PT candidate may have won.

To measure certainty about election outcomes, we asked respondents to assess their confidence, on a four-point scale, in their own predictions of the top three finishers. We expect that those who are more certain that their preferred candidate will fall outside of the top two are more likely to abandon that candidate and use their ballot to express a

preference among the (perceived) leaders. Thus, potential strategic voters who are more confident in their forecast should be more likely to vote strategically.

Results

We use multivariate logistic regression to test which explanatory variables predict whether someone votes strategically or sincerely. Our outcome of interest is a binary variable that takes on a value of 0 if the respondent is a potential strategic voter but votes sincerely. Respondents receive a 1 if they 1) truly support someone outside of the top three but intend to vote within the top three or 2) truly support someone in third place but intend to vote for one of the top two candidates. Those who intended to vote null or blank or said "don't know" were removed. Results are shown in Table 8.[22]

Table 8: Logit Model of Strategic Voting in 2018 Presidential Election

	DV: Strategic Voting
SES	−0.021 (0.111)
Education	0.312** (0.076)
Political Knowledge	0.127 (0.079)
PT – Opponent	0.967* (0.385)
PT – Supporters	1.646** (0.399)
Prediction Confidence	0.419** (0.169)
Constant	−6.138** (0.730)
Observations	545

Logit coefficients with (standard errors), *p<0.05; **p<0.01

The table shows that, in line with previous literature, formal educational attainment has a positive association with likelihood of voting strategically ($p < 0.01$). Likelihood of strategic voting jumps at the highest levels of education. While holding other variables at their mean or mode, the predicted probability of a strategic vote is less than 7% for people with less than a high school degree, 9% for someone with a high school degree, and 15% for

[22]We show bivariate results for each of the explanatory variables in the online appendix.

college graduates. Political knowledge and socioeconomic status, however, have no significant relationship with voting strategically.[23]

We find support for our hypothesis regarding opinion of the top candidates, as measured by the PT opinion variable: respondents are more likely to vote strategically if they oppose or support the PT (compared to neutral/don't know). Again, this is a result we would expect in a simple plurality system; voters who have a strong preference between the top candidates are more likely to abandon a trailing candidate who is their sincere choice.

Even accounting for these factors, the results show that the greater a voter's confidence in her prediction of the outcome of the first round, the more likely she is to vote strategically ($p < 0.01$). When prediction confidence is changed from "not at all" to "very" confident for a typical respondent, the predicted probability of voting strategically more than triples (3.6% to 11.7%). An individual's confidence in her beliefs about candidate positions strongly predicts whether or not she chooses to vote strategically.

Conclusion

Previous research on strategic voting has focused mostly on single-member district plurality elections in advanced industrial countries. Although some scholarship has acknowledged that runoff electoral systems also present incentives for strategic voting, the forms this may take and the prevalence and correlates of strategic behavior have received limited attention to date. This paper examines strategic voting in a contingent two-round system, Brazil's 2018 presidential election, in which multiple types of strategic voting were expected to occur. This paper examines the extent to which different types of strategic voting occurred. Further, we assess which individual-level factors correlate with a higher likelihood of voting strategically, which few studies have done in the case of a runoff election.

Through an original survey conducted shortly before the first round of the election, we

[23]In follow-up analysis, we also tested for differences across age groups (Eggers and Vivyan 2020) and gender (Lee and Rich 2018). We find that neither variable is significantly associated with strategic voting, either in bivariate analysis or when included in the full model.

find that strategic voting did occur, with votes flowing from supporters of weaker candidates to the strongest candidates. We estimate that 7.8% of votes cast were strategically, a rate broadly similar to estimates from elections in other countries including Great Britain (7.2%, Alvarez and Nagler 2000), Canada (6.0%, Blais and Nadeau 1996), and Argentina (10%, Weitz-Shapiro and Winters 2019). These strategic votes primarily benefited the leading candidates, Jair Bolsonaro (PSL) and Fernando Haddad (PT). These results are in contrast with the findings of authors like Moser and Scheiner (2009), who argue that strategic voting is uncommon in new democracies, where party systems are poorly institutionalized.

The results contribute to the rich literature on the relationship between electoral institutions and strategic voting. The finding that the strongest candidate(s) benefited from strategic voting suggests that voters fear "wasting" their votes in the first round, just as they do under SMDP rules, even when they have the opportunity to express a preference among the top candidates in the runoff. Two-round systems also allow the possibility of other, unique strategic voting possibilities, including the scenario in which strong candidate supporters defect to a weaker first-round candidate who is believed to have stronger prospects in the second round. However, we do not find evidence of substantial strong-to-weak strategic voting in this election. Though there was much speculation that this might occur, the lack of empirical evidence suggests that these scenarios may be too complex or uncertain for voters to commit to them.

This study also adds to the emerging literature on the individual-level correlates of strategic voting. The results suggest that individual attitudes and beliefs matter just as much as, if not more than, "objective" voter characteristics. We find that two of the strongest predictors of casting a strategic vote were a voter's level of confidence in her election predictions and the strength of her opinion about Brazil's major partisan divide. We also find, in line with some previous work, that level of education predicts strategic voting (Black 1978; Karp et al. 2002; Merolla and Stephenson 2007; Niemi, Whitten, and Franklin 1992). However, we find null effects for other factors like SES (Eggers and Vivyan 2020) and knowledge (Karp

et al. 2002; Gschwend 2007; Niemi, Whitten, and Franklin 1992). Previous studies on this topic have produced inconsistent findings about the effects of standard demographic variables. Carefully measuring and accounting for voter attitudes could help resolve some of these debates.

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Online Appendix

Survey Design

For recruitment, the survey firm Offerwise sent emails to a random selection of several thousand people in a database that consists of Brazilian citizens who sign up to receive offers to participate in research studies in exchange for various rewards. The survey included one attention check question; if a respondent failed to answer this question correctly, the questionnaire immediately ended and their responses were not recorded. The firm closed the survey after collecting 2,226 complete questionnaires. These were all collected October 4-6, 2018.

The following table provides statistics about the sample for the variables for which we applied poststratification weights. As one might expect from an online convenience sample, we oversample the wealthy, the educated, and those who come from wealthier regions of Brazil. Our sample's mean age (32.0) and income ($1.800-$3.399 BRL) were in line with national averages (31.8; $2298 BRL).

Sample Statistics and Population Parameters for Weighting Variables

	Survey (Unweighted)	**Census**
Female	55.9%	51.0%
Center-West	9.8%	7.4%
Northeast	24.5%	27.8%
North	5.1%	8.4%
Southeast	41.3%	42.1%
South	19.2%	14.3%
SES – A	8.2%	5.0%
SES – B1	11.7%	8.9%
SES – B2	25.7%	15.7%
SES – C1	22.7%	20.7%
SES – C2	18.3%	21.8%
SES – D-E	13.3%	28.0%
Education – Below HS	17.4%	52.6%
Education – HS Degree	33.0%	26.9%
Education – University+	49.6%	20.5%

Question Wordings

- **Vote Intention**: On October 7th, which candidate do you plan to vote for for President in the first round?
  - *No dia 7 de outubro, em qual candidato o(a) Sr(a) pretende votar para Presidente da República no primeiro turno?*
- **Sincere Preference**: Thinking of all candidates for the presidency, regardless of who you plan to vote for in the first round (October 7th), which candidate do you think would be the best president?
  - *Pensando em todos os candidatos à presidência, independentemente de em quem o(a) Sr(a) pretende votar no primeiro turno (o dia 7), qual candidato o(a) Sr(a) acha seria o melhor presidente?*
- **Predictions**: Now we would like to return to the subject of the presidential elections on the 7th of October. We want to know your best guess about which candidates will be the highest-voted. Who do you think will receive the most number of votes in the presidential election on October 7th? Who will come in second? Who do you think will come in third?
  - *Agora gostaríamos de voltar de novo ao assunto da eleição presidencial no dia 7 de outubro. Quem o(a) Sr(a) acha vai receber o maior número de votos na eleição presidencial no dia 7 de outubro? Quem o(a) Sr(a) acha vai chegar em segundo? Quem o(a) Sr(a) acha vai chegar em terceiro?*
- **Confidence**: How confident are you that these three candidates will receive the most number of votes?
  - *Quão confiante o(a) Sr(a) está que os três candidatos que o(a) Sr(a) selecionou vão receber os maiores números de votos?*

Political Knowledge Battery

- How many states does Brazil have (excluding the Federal District)?
- How many federal deputies are elected in your state?
- How many senators are elected in each state?
- What is the name of the Minister of the Economy?
- If there were to be a second round in this election, what would be the date of the election?
- Who is the president of Argentina?
- What level of government is responsible for high school? (*Municipal, state, federal*)
- True or false: All hospitals in Brazil are public.
- True or false: Beneficiaries of Bolsa Família have to possess a magnetic card.

Differences Between Potential Strategic Voters and Other Respondents

Here we report differences between potential strategic voters (the restricted sample we use for analysis made up of those who support candidates they believe to be ranked third or below) and other respondents in our sample. The figure below shows the differences between the two groups on education level, SES, political knowledge, and confidence in prediction. In each of the four plots we show the mean value of each variable for both potential strategic voters and other respondents with 95% confidence intervals. The figures also display the p-value of a two-sample difference-in-means t-test between the two groups. Potential strategic voters are more highly educated, wealthier, and more confident in their election predictions than other respondents.

Next, we show the differences for the PT opinion variable and the confidence variable when treated as categorical. Potential strategic voters are more likely than others to be opponents of the PT, which makes sense, as PT supporters were able to vote sincerely for Haddad. Potential strategic voters are slightly more confident in their election predictions than other respondents on average, although the majority in both groups say they are "somewhat" or "very" confident.

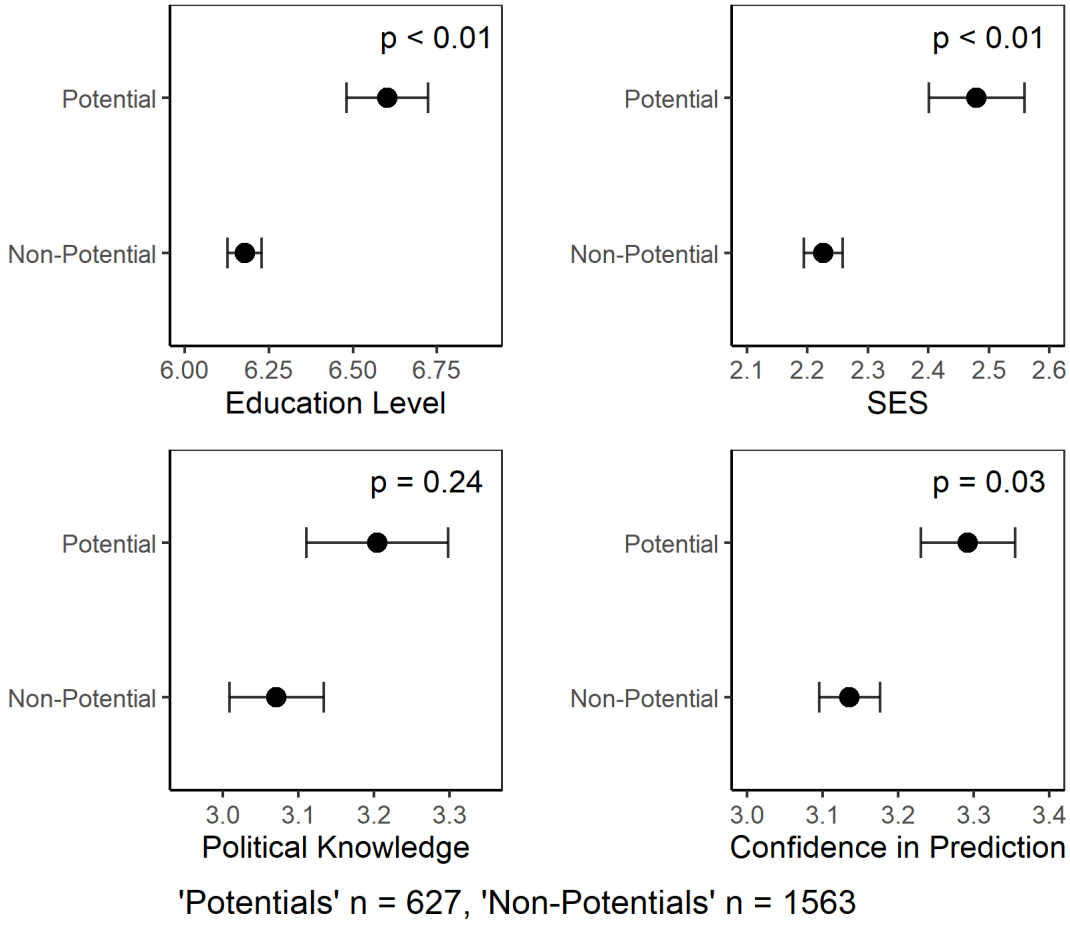
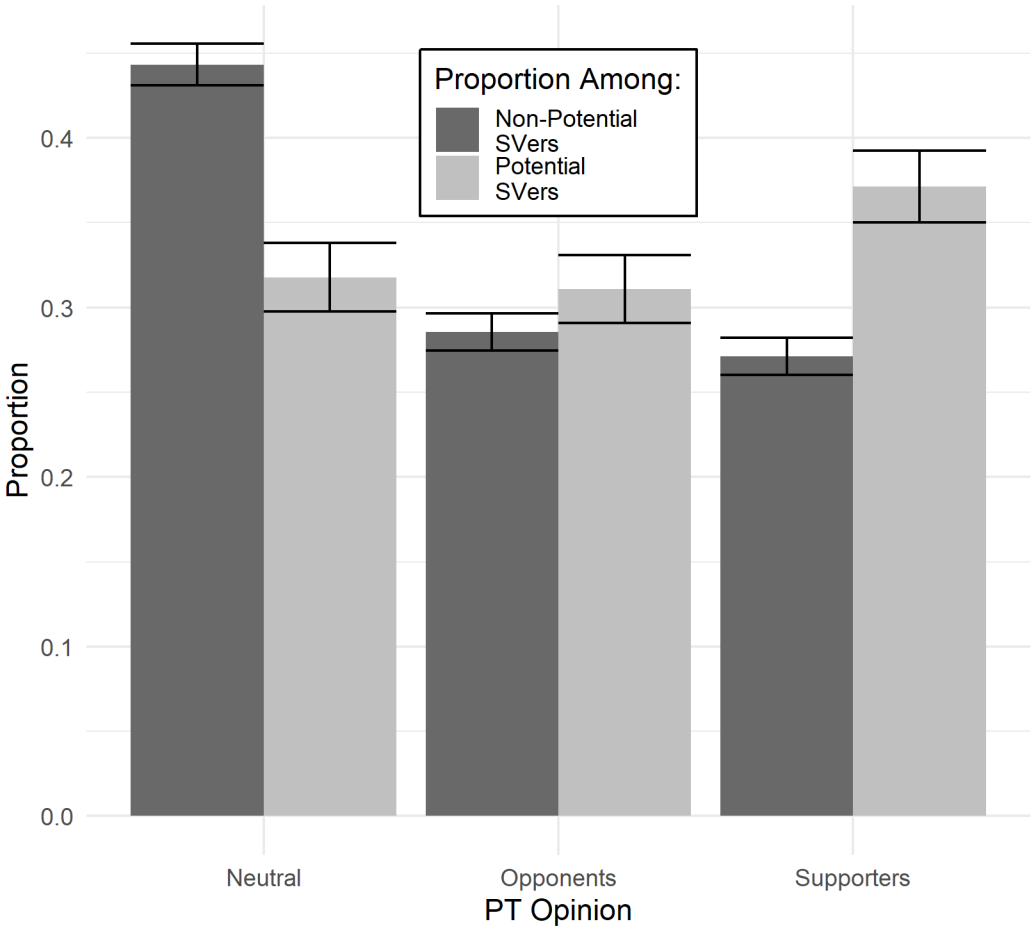
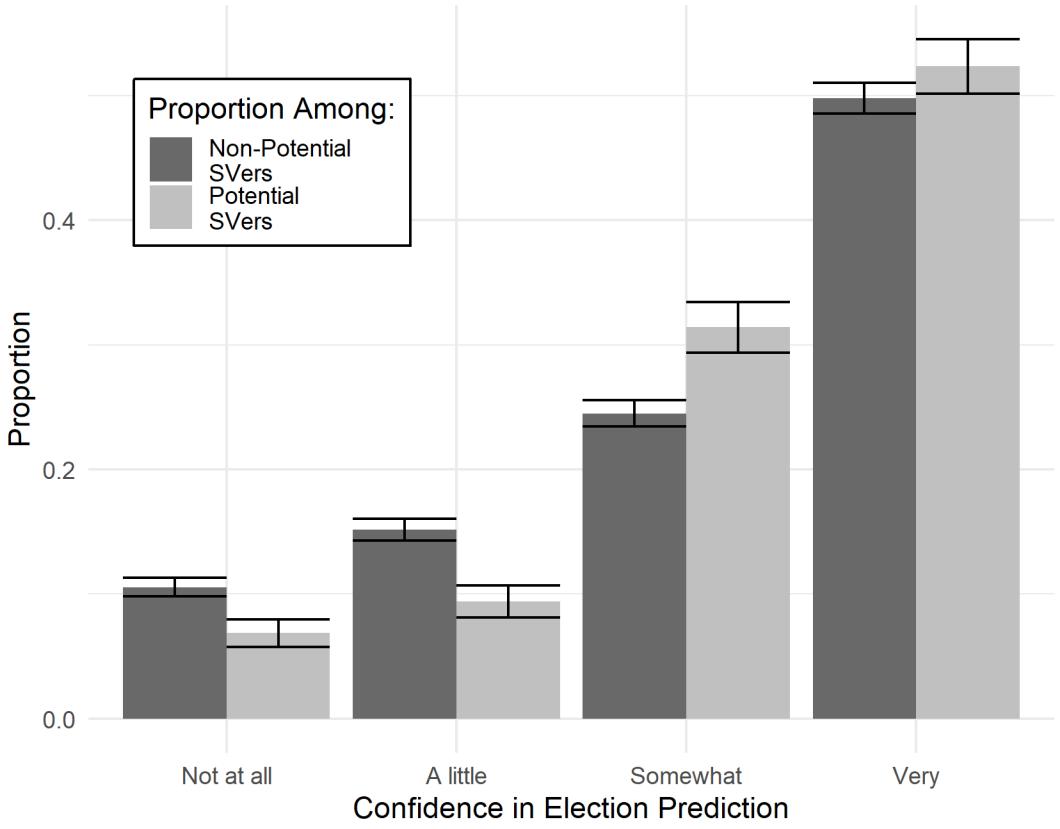


Figure 2: Demographic Differences Between Potential Strategic Voters and Other Respondents



Difference Between Potential and Non-Potential SVers Opinion of PT



Potential Strategic Voters by Confidence in Prediction

Differences Between Potential and Actual Strategic Voters

The figure below reports differences between actual strategic voters and potential-but-not-actual strategic voters. In each of the four plots we show the mean value of each variable with 95% confidence intervals. The figures also display the p-value of a two-sample difference-in-means t-test between the two groups. In bivariate analysis, all variables are significant; actual strategic voters are more highly educated, wealthier, more confident, and more knowledgeable than other potential strategic voters.

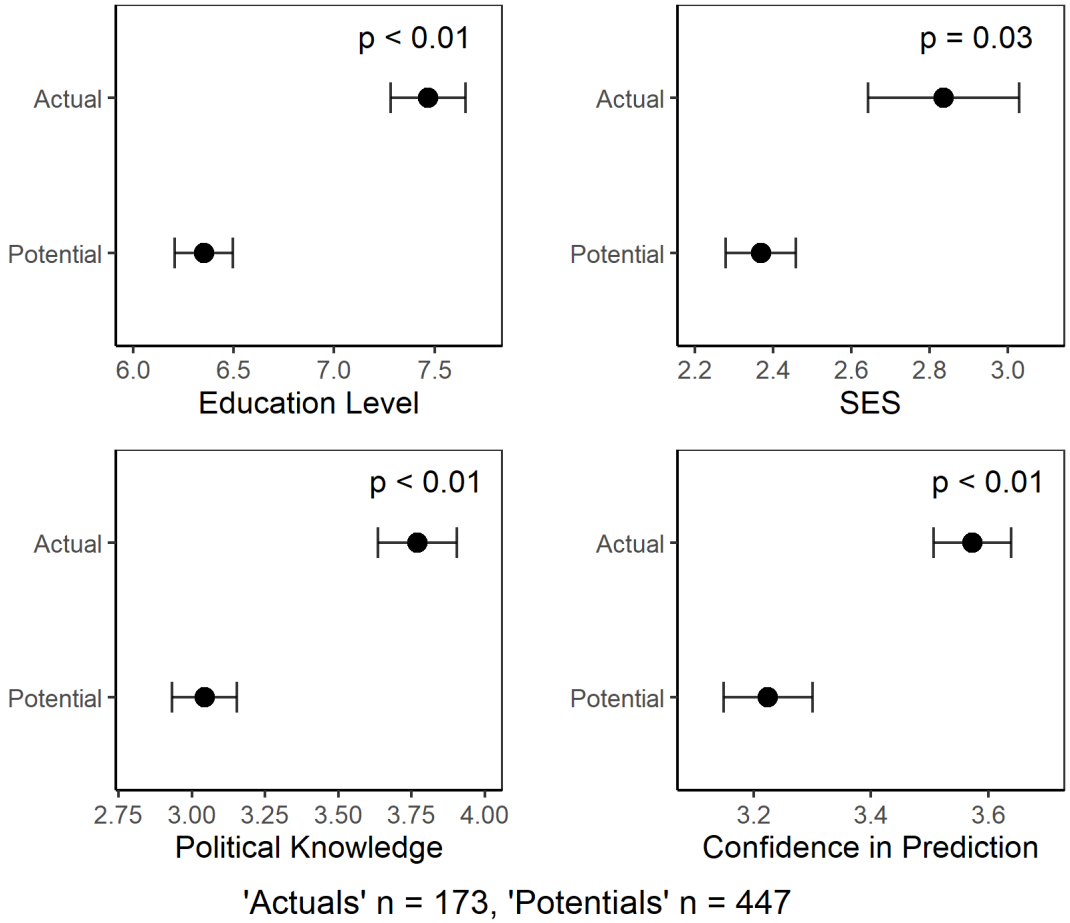


Figure 3: Demographic Differences Between Actual Strategic Voters and Potential, Non-Actual Strategic Voters

Alternative Analysis

In this logistic regression, we adopt a more restrictive measure of potential strategic voting: we define any respondent who truly supports a candidate she believes to be placed fourth or below as a potential strategic voter. Then, any of these respondents who say they intend to vote for someone *within* the top three is classified as an actual strategic voter (positive case). The results with respect to the respondent's confidence in her election predictions and affinity for the PT hold (partly), while the education variable is no longer a significant predictor.

Logit Model of Strategic Voting with Restrictive Operationalization

	DV: Strategic Voting
SES	−0.014 (0.111)
Education	0.061 (0.107)
Political Knowledge	−0.081 (0.081)
Prediction Confidence	0.583** (0.164)
PT – Opponents	0.753* (0.382)
PT – Supporters	0.660 (0.411)
Constant	−2.661** (0.820)
Observations	313

Logit coefficients with (standard errors), *p<0.05; **p<0.01