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EXPRESSIVE VOTING AND ITS COST: EVIDENCE FROM RUNOFFS WITH TWO OR THREE CANDIDATES

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In French parliamentary and local elections, candidates ranked first and second in the first round automatically qualify for the second round, while a third candidate qualifies only when selected by more than 12.5 percent of registered citizens. Using a fuzzy RDD around this threshold, we find that the third candidate's presence substantially increases the share of registered citizens who vote for any candidate and reduces the vote share of the top two candidates. It disproportionately harms the candidate ideologically closest to the third and causes her defeat in one fifth of the races. Additional evidence suggests that these results are driven by voters who value voting expressively over voting strategically for the top-two candidate they dislike the least to ensure her victory; and by third candidates who, absent party-level agreements leading to their dropping out, value the benefits associated with competing in the second round more than influencing its outcome.

KEYWORDS: Expressive voting, strategic voting, regression discontinuity design, French elections.

1. INTRODUCTION

IN AN INDIRECT DEMOCRACY—the form of government prevalent across the West today—representatives rule on behalf of the people. In theory, their representativeness comes from being elected. In practice, it depends on the extent to which voters' choices reflect their true preferences, and on the way in which the voting rule translates vote choices into election outcomes. These two conversions determine who is elected and which policies are enacted. Under plurality rule, when more than two candidates are running, citizens who support lower-ranked candidates face a difficult tradeoff: voting for their favorite, or for another candidate with higher chances of winning. By expressing their true

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preference, voters may split their support over multiple candidates and nominate less-preferred leaders. Hence, the result of the election depends on the extent to which voters are "expressive"—voting based on their preference among candidates only—or "strategic" (or "instrumentally rational")—voting based on likely outcomes of the election.

In his groundbreaking work on strategic behavior, Duverger (1954) posited that voters do not want to waste their vote and will thus, in most cases, exclusively vote for two front-runners. Models by Palfrey (1989), Myerson and Weber (1993), Fey (1997), and Cox (1997) formalize this intuition: under plurality rule, when voters are instrumentally rational, an election with multiple candidates usually boils down to a two-candidate race, and of these two, the candidate who is preferred by the majority wins the election.[1]

The division of the American political landscape between Republicans and Democrats is a famous illustration of Duverger's law. Yet in other countries, third- and lower-ranked candidates frequently receive large fractions of the votes. General elections in the United Kingdom are a case in point: since the Liberal Democrat party emerged in the 1990s, it has regularly split the vote share with the Labour and Conservative parties in many constituencies. In addition, the presence of lower-ranked candidates can have a major impact on the outcome of the election even when they receive only a small fraction of the votes. In the 2000 U.S. Presidential election, third-party candidate Ralph Nader earned 3 percent of votes in the crucial state of Florida, enough to sway the election in favor of George W. Bush.

To assess the extent to which voters behave strategically, existing studies usually compare people's preferences and vote choices and count the number of voters who vote for a front-runner instead of their favorite. But voters' underlying preferences are difficult to observe, so these studies depend on the reliability of survey responses (e.g., Blais, Nadeau, Gidengil, and Nevitte (2001), Hillygus (2007)) or on assumptions regarding the mapping between voters' preferences and vote choices (e.g., Kawai and Watanabe (2013), Spenkuch (2015)).

This paper uses a different approach: instead of estimating preferences, we focus on vote choices. We take electoral results when two candidates are competing, and compare them to races in which three are competing. While the number and types of competing candidates is in general endogenous, French local and parliamentary elections, which are held under a two-round plurality voting rule, provide us with a chance for exogenous variation. In most districts, no single candidate obtains the majority of votes in the first round, and a second round takes place a week later. The top two candidates (the two who obtain the highest vote share in the first round) automatically qualify for the second round; other candidates also qualify if they receive a number of votes higher than 12.5 percent of registered citizens. The candidate who obtains the highest vote share in the second round wins the election.

Our identification strategy exploits the discontinuity generated by the qualification rule for the second round. Using a regression discontinuity design (RDD), we compare second-round results in districts where the third candidate obtains a vote share just above or below the 12.5 percent threshold and, as a result, just passes or misses the qualification requirement. This strategy enables us to estimate the impact of the electoral offer on voter behavior and, in particular, examine whether voters adjust expressively or strategically to

[1]This result applies to a number of settings. The model of Myerson and Weber (1993) applies to a wide range of single-winner electoral systems such as plurality rule, approval voting, and the Borda system. Cox (1994) extended the model to a multimember context. The case of dual ballot rule was studied in Bouton (2013) and Bouton and Gratton (2015).

the presence of a third candidate. The second-round races we study can be thought of as first-past-the-vote elections in which first-round results provide voters with a large amount of information on the chances of the remaining competitors. If anything, this information should stack the odds in favor of coordination and strategic voting (Cox (1997)).

The threshold is defined as a fraction of registered citizens rather than actual votes: this makes it particularly hard to manipulate and results in a very diverse set of districts close to the threshold. The set includes competitive districts where the third candidate obtained a large vote share in the first round but turnout was relatively low, as well as districts where she obtained a lower vote share but turnout was high. This makes the external validity of our local average treatment effect estimates unusually high and enables us to compare treatment effect size across different settings. The number of elections we consider and the hundreds of districts at each election translate into a large number of observations, securing high statistical power while facilitating treatment effect heterogeneity analysis.

The presence of the third candidate in the second round increases voter turnout by 4.0 percentage points and reduces the share of blank and null votes by 3.7 percentage points, resulting in an overall increase of the share of people casting a ballot for any of the candidates by 7.8 percentage points (14.2 percent). In addition, the presence of the third candidate decreases the vote share of the top two candidates (expressed as a fraction of registered citizens) by 6.9 percentage points (12.5 percent).

Our key results relate to the impact of the third candidate's presence on the outcome of the elections. We find that the vote shares of the top two candidates decrease in proportion to their proximity with the third on the left-right ideological axis. The impact remains equally strong and significant in subsets of elections where first-round results indicate that the third candidate is very unlikely to be a "front-runner" (to rank first or second) in the second round. As a consequence, in 19.2 percent of the elections, the presence of the third candidate causes the loss of the candidate among the top two that is ideologically closest to her.[2] This candidate is the likely Condorcet winner of the second round: she would have won a two-candidate race against the other top-two candidate, absent the third, and she would most likely also win a two-candidate race against the third. Thus, the presence of the third candidate often results in an outcome that harms a majority of her supporters (those with a preference for the closest over the furthest top-two candidate) and a majority of voters.

Additional evidence suggests that our aggregate results are primarily driven by the behavior of two types of citizens: "loyal" supporters (whom we also designate as "loyals"), who abstain or vote blank or null when the third candidate is absent and vote for her when she is present, leading to increased participation; and "switchers," who vote for one of the top two candidates when the third is absent but switch to the third when she is present, explaining the decreased vote share of the top two candidates and the impact on winner identity. We argue that these behaviors are difficult to rationalize within rational voter and group-rule utilitarian models, in particular when the third candidate appears to have slim chances of being a front-runner in the second round, and even when allowing for imperfect information, aggregate uncertainty, or dynamic strategic motives. Instead, our results suggest that voters' choice of candidate, as well as their decision whether to vote

[2]This estimate is obtained by restricting the analysis to elections where the three candidates are from different political orientations, where the third candidate is located either to the right or to the left of both top two candidates (since in these elections the candidate ideologically closest to the third is clearly identified), and where first-round results indicate that the third candidate's chances of becoming a front-runner in the second round are low (so that the impact is not mechanically driven by the third candidate winning the election). More information in Sections 4.4 and 4.5.

or abstain, can only be satisfactorily explained by taking into account expressive benefits independent of the result of the election.

Because third candidates have the possibility to drop out of the race between the first and second rounds, our results also shed light on the motives underlying their behavior. We compare third candidates' likelihood to drop out across different settings and gather additional descriptive evidence from press articles. When third candidates have the same political orientation as one of the top two candidates, party-level agreements internalize the cost that staying in the race would generate for the candidate of the sister party and result in an overwhelming majority of dropouts. Instead, when third candidates have a different orientation than both top two candidates, they tend to take the decision on their own, independently from any party's instructions, and only drop out in rare circumstances. The fact that their decision to stay in the race decreases the chance of victory of the top-two candidate closest to them suggests that they often value the benefits associated with competing in the second round more than influencing its outcome.

The low likelihood of third-candidate dropouts when she has a different orientation than both top two candidates results in the overrepresentation of this setting among complier districts, which likely contributes to voters' difficulty to behave strategically in our sample. Overall, our results suggest that plurality rule often produces suboptimal outcomes, due to the difficulty for parties of differing orientations to reach dropout agreements, and to a sufficiently large fraction of voters valuing expressive more than instrumental motives when they have to choose between more than two candidates of distinct orientations.

1.1. *Contribution to the Literature*

A large literature studies how voting rules shape electoral outcomes and, in turn, how they affect voter behavior. Social choice theory has shown that no electoral system or voting rule is uniformly best under all criteria (Arrow (1951)),[3] and that in any voting system, some voters have an incentive to misrepresent their true preferences in order to affect the outcome of the election (Gibbard (1973), Satterthwaite (1975)). Building on this result, a normative literature has sought to identify voting rules that deliver outcomes best representing voters' preferences by most resisting strategic manipulation (e.g., Laslier (2009), Balinski and Laraki (2011)). Under existing rules, a sufficiently large fraction of voters may need to engage in strategic manipulation in order to elect leaders who best correspond to citizens' preferences. If too many people vote according to their true preference instead of behaving strategically, then plurality rule may fail to choose the Condorcet winner, when one exists, thus decreasing the representativeness of the electoral outcome (Nurmi (1983), Myerson and Weber (1993)).

A large empirical literature examines whether voters behave strategically or expressively. Small-scale laboratory experiments have provided direct evidence of the existence of strategic behaviors (e.g., Forsythe, Myerson, Rietz, and Weber (1993), Van der Straeten, Laslier, Sauger, and Blais (2010)). Outside of the lab, Cox (1997) documented patterns consistent with strategic voting across electoral systems. Using RDD on population thresholds, Fujiwara (2011) and Eggers (2015) found that the top two candidates tend to get more votes under simple plurality than under runoff or proportional elections,

[3]Arrow's impossibility theorem states that when there are more than two alternatives, there is no social welfare function that satisfies the Pareto property and the Independence of Irrelevant Alternatives and which is not a dictatorship.

in line with Duverger's prediction (but see Bordignon, Nannicini, and Tabellini (2016)). Consistent with Myatt's (2007) prediction that the amount of strategic voting increases with the level of information, Hall and Snyder (2015) found that higher levels of information in U.S. primary elections decrease the number of votes and donations "wasted" on candidates unlikely to win. An important piece of information used by voters to coordinate comes from candidates' rankings in previous elections: second-place candidates are substantially more likely than close third-place candidates to run in, and win, a subsequent election (Anagol and Fujiwara (2016)).

To determine the actual proportion of voters voting for a candidate other than their preferred one, existing studies compare people's preferences and voting choices. Estimates based on surveys are typically low, below 20 percent (e.g., Alvarez and Nagler (2000), Blais et al. (2001), Hillygus (2007), Kiewiet (2013)), but potentially biased by misreporting. For instance, overreporting voting for the winner (Wright (1993), Atkeson (1999)) may lead to overestimating strategic behavior. Alternatively, to avoid cognitive dissonance (Festinger (1962)), people may adjust their stated preference to their voting choice, which would lead to underestimating it.

A second strand of the literature relies on aggregate electoral results and studies strategic voting by imposing assumptions on the mapping between voters' preferences and vote choices. Kawai and Watanabe (2013) and Myatt and Fisher (2002) calibrated structural models to estimate the number of voters who did not vote for their preferred candidate and the impact of strategic voting on the number of seats won by a party, respectively. In the context of the German split-ticket voting system, Spenkuch (2018) compared votes cast for party lists under a proportional rule with votes cast for individual candidates under plurality rule, and reported that about one third of voters behave strategically (also see Spenkuch (2015)).

Instead of estimating voter preferences and comparing them with their actual choices, this paper focuses on vote choices only. We compare electoral outcomes when two versus three candidates are competing.[4] Methodologically, we draw on other studies that exploit vote-share thresholds to estimate the incumbency effect and other causal effects of interest (e.g., Lee (2008), de la Cuesta and Imai (2016)). Our strategy allows us to make three important contributions to the literature. First, we estimate the impact of the presence of the third candidate on both participation and vote shares and demonstrate that the third candidate obtains votes both from voters who would have voted for the top two had she been absent and from supporters who would have abstained or voted blank or null. Second, we can precisely estimate the fraction of races whose final outcome changes as a result of these behaviors. Third, in addition to studying voters' behavior, we highlight the main factors affecting candidates' own decision to stay in the race or drop out.

We further contribute to the theoretical literature on strategic voting by exploring the extent to which our results can be explained by rational voter models (e.g., Myerson and Weber (1993)), and group-rule utilitarian models (Coate and Conlin (2004), Feddersen and Sandroni (2006), Bouton and Ogden (2017)), in which the individual or group's utility is only affected by who wins the election.

The remainder of the paper is organized as follows. We describe the data we use in Section 2 and our empirical framework in Section 3. Section 4 presents our empirical results. We interpret and discuss our results in Section 5. Section 6 concludes.

[4]Similarly to our setting, Blais, Dolez, and Laurent (2017) and Kiss (2015) studied runoff elections in France and Hungary, respectively, in which more than two candidates can qualify. Differently from our strategy, they compared electoral outcomes in the first and second rounds, assuming that voters reveal their true preference in the first round. For a discussion of this assumption, see Piketty (2000) and Bouton and Gratton (2015).

2. RESEARCH SETTING

2.1. *French Parliamentary and Local Elections*

Our sample includes parliamentary and local elections. Parliamentary elections elect the representatives of the French National Assembly, the lower house of the Parliament. France is divided into 577 constituencies, each of which elects a Member of Parliament every five years. Local elections determine the members of the departmental councils. France is divided into 101 départements, which have authority over education, social assistance, transportation, housing, culture, local development, and tourism. Each département is further divided into small constituencies, the cantons, which elect members of the departmental councils for a length of six years. Until an electoral reform in 2013, each canton elected one departmental council member; after the reform, each elected a ticket composed of a man and a woman. This new rule applied to the 2015 local elections, which are included in our sample. We consider a ticket as a single candidate in our analysis, since the two candidates organize a common electoral campaign, run in the election under the same ticket, and get elected or defeated together.

Both parliamentary and local elections are held under a two-round plurality voting rule. In order to win directly in the first round, a candidate needs to obtain a number of votes greater than 50 percent of the candidate votes and 25 percent of the registered citizens. In the vast majority of districts, no candidate wins in the first round, and a second round takes place one week later. In the second round, the election is decided by simple plurality: the candidate who receives the largest vote share in the second round wins the election.

The two candidates who obtain the highest vote share in the first round automatically qualify for the second round. Other candidates qualify only if they obtain a first-round vote share higher than 12.5 percent of the registered citizens. This threshold does not have any other implication. All candidates qualified for the second round can decide to drop out of the race between rounds.

Our sample includes all parliamentary and local elections using the 12.5 percent qualification threshold: the eight parliamentary elections which took place since 1978 as well as the 2011 and 2015 local elections.[5] The fact that this threshold is at a relatively high percentage means at most three candidates qualify for the second round in all but a handful of districts, which is ideal for our study design. In the elections we consider, the third candidate received more than 12.5 percent of votes in 1,215 districts (16.7 percent of our sample).[6]

2.2. *Data*

Our sample includes a total of 7,257 observations: 3,458 (47.7 percent) from local elections and 3,799 (52.3 percent) from parliamentary elections. Official results of local and parliamentary elections were digitized from printed booklets for the 1978, 1981, and 1988

[5]Each of the 10 elections we consider took place at a different date. Moreover, the local and parliamentary elections we study were never held at the same date as other types of elections such as presidential, mayoral, or regional ones.

[6]In local elections, the required vote share was 10 percent of the registered citizens until 2010, when the threshold was increased to 12.5 percent. The lower threshold resulted in more than three candidates qualifying in a large number of constituencies. One exception was made after the change: in the 2011 local elections, the threshold remained at 10 percent in the nine cantons belonging to Mayotte département (0.6 percent of the 2011 observations). The threshold in parliamentary elections was increased from 5 to 10 percent in 1966 and from 10 to 12.5 percent in 1976.

TABLE I

SUMMARY STATISTICS

	Mean	Sd	Min	Max	Obs.
Panel A. 1st round					
Registered voters	45,964	30,882	883	189,384	7,257
Turnout	0.582	0.124	0.134	0.908	7,257
Candidate votes	0.562	0.122	0.132	0.890	7,257
Blank and Null votes	0.019	0.011	0.001	0.094	7,257
Number of candidates	7.78	4.08	3	29	7,257
Panel B. 2nd round					
Turnout	0.588	0.131	0.128	0.928	7,257
Candidate votes	0.554	0.136	0.124	0.907	7,257
Blank and Null votes	0.035	0.022	0.002	0.278	7,257
Number of candidates	2.04	0.28	1	3	7,257

parliamentary elections and obtained from the French Ministry of the Interior for all others. We exclude districts where only one round took place or those with fewer than three candidates in the first round.[7] Table A-I in the Supplemental Material Appendix (Pons and Tricaud (2018)) gives the breakdown of the sample data by election type and year.

Table I presents some descriptive statistics on our sample.

In the average district, 7.78 candidates competed in the first round, and turnout was 58.2 percent. On average, 56.2 percent of the registered citizens cast a valid vote for one of the candidates. Valid voting for a candidate entails inserting a ballot pre-printed with the candidate's name in an envelope and putting this envelope in the ballot box. We term these "candidate votes." The difference between turnout and candidate votes arises from voters who cast a blank vote (putting an empty envelope in the ballot box) or a null vote (writing something on the ballot or inserting multiple ballots in the envelope). Turnout in the second round was slightly higher than in the first (58.8 percent on average), but the fraction of candidate votes was slightly lower (55.4 percent on average) due to an increased share of blank and null votes. The average number of candidates in the second round was 2.04, and there were three candidates in the second round in 453 districts (6.2 percent of the sample).

We further use the political label attributed to the candidates by the French Ministry of the Interior to allocate them to six political orientations: far-left, left, center, right, far-right, and other. In the elections we consider, the candidate who ranked third in the first round was on the left in 37.1 percent of the districts, on the right in 19.6 percent, on the far-right in 36.7 percent, and from another political orientation in the remaining 6.6 percent of the districts.[8]

[7]We also exclude three elections where the second and third candidates in the first round obtained exactly the same number of votes. Here, the 12.5 percent threshold rule did not apply. Both candidates were allowed to move on to the second round, regardless of the number of votes they had obtained in the first.

[8]The Ministry of the Interior attributes political labels based on several indicators: candidates' self-reported political affiliation, party endorsement, past candidacies, public declarations, local press, etc. We mapped political labels into the six political orientations, mainly based on the allocation chosen by Laurent de Boissieu in his blog "France Politique": http://www.france-politique.fr/. We also used public declarations made by the candidates. Appendix I of the Supplemental Material shows the mapping between labels and political orientations for each election.

2.3. *Vote Share of the Third Candidate*

In most cases, candidates who came in third in the first round should be expected to have lower chances of winning the second round or finishing second than the candidates who ranked first and second in the first round, and voters casting a ballot for the third candidate should expect their vote to be "wasted." Strikingly, however, third candidates who qualify and compete in the second round garner more votes than in the first round and get a remarkably high vote share on average, in elections in which all three candidates stay in the race: 25.6 percent of the candidate votes, against 33.2 and 41.2 percent for candidates who ranked second and first. This result is not driven by any particular configuration: the vote share obtained by the third candidate in the second round is large when she is on the left (30.6 percent), the right (28.9 percent), and the far-right (21.5 percent).

Voters who vote for the third candidate when she is present may either vote for one of the top two candidates or instead abstain or vote blank or null when she is absent. Thus, using a regression discontinuity design framework, we estimate the impact of the presence of the third candidate both on voter participation and on the top two candidates' vote share. We then test whether her presence ultimately affects who wins the election.

3. EMPIRICAL STRATEGY

3.1. *Evaluation Framework*

We exploit the 12.5 percent vote share threshold, which determines whether the third-highest-ranking candidate qualifies for the second round, to estimate the impact of her presence on electoral outcomes.

Qualified third candidates can drop out of the race between the two rounds, making our regression discontinuity design fuzzy. Formally, we define the running variable X as the qualifying margin of the third candidate in the first round (the difference between her vote share, expressed as a fraction of the number of registered citizens, and the 12.5 percent threshold), the assignment variable D as a dummy equal to 1 if the third candidate qualifies for the second round ($X \geq 0$) and 0 otherwise ($X < 0$), and the treatment variable T as a dummy equal to 1 if the third candidate is present in the second round and 0 otherwise. We call compliers the districts in which the third candidate qualifies ($D = 1$) and runs in the second round ($T = 1$). We evaluate the impact of the presence of the third candidate in complier districts with the following specification:

$$Y_i = \alpha_1 + \tau T_i + \beta_1 X_i + \beta_2 X_i T_i + \mu_i, \tag{1}$$

where Y_i is the outcome of interest in district i and T_i is instrumented with D_i as shown in the following first-stage equation:

$$T_i = \alpha_0 + \gamma D_i + \delta_1 X_i + \delta_2 X_i D_i + \varepsilon_i. \tag{2}$$

Following Imbens and Lemieux (2008) and Calonico, Cattaneo, and Tiriunik (2014), our main specification uses a nonparametric approach, which amounts to fitting two linear regressions on districts respectively close to the left, and close to the right of the threshold. We test the robustness of our results to a quadratic specification, including X_i^2 and its interaction with T_i as regressors in equation (1) and X_i^2 and its interaction with D_i in equation (2). Our estimation procedure follows Calonico, Cattaneo, and Tiriunik (2014), which provides robust confidence interval estimators. Our preferred specification uses the MSERD bandwidths developed by Calonico, Cattaneo, Farrell, and Titiunik (2018),

which reduce potential bias the most. We also test the robustness of the main results to using the optimal bandwidths computed according to Imbens and Kalyanaraman (2012).[9] The bandwidths used for the estimations are data-driven and therefore vary depending on the outcomes we consider. Instead, when we provide descriptive statistics on districts "close to the threshold," we consider districts in which the vote share of the third candidate was within exactly 2 percentage points from the threshold. Thanks to our large sample size (7,257 districts), the number of districts close to the threshold is higher than 1,800.

On average, districts close to the threshold are of similar size than in the full sample, as shown in Table A-II in the Supplemental Material Appendix. Close to the threshold, the average district is characterized by slightly higher first-round turnout and third-candidate share of candidate votes, and slightly lower number of candidates and total vote share of the top two candidates. But differences with the full sample remain relatively modest overall.

3.2. *Identification*

The 2SLS estimates obtained from equations (1) and (2) can be interpreted as a local average treatment effect conditional on the assumptions of the LATE theorem being satisfied (Imbens and Angrist (1994)).

First, *independence of the instrument* comes from the discrete rule of qualification. The identification assumption is that the distribution of potential confounders changes continuously around the 12.5 percent vote share threshold, so that the only discrete change occurring at this threshold is the shift in assignment status. Sorting of candidates across the threshold only threatens the validity of this assumption if it occurs at the cutoff, with potential losers pushed just above the threshold or potential winners pushed just below (de la Cuesta and Imai (2016)). Generally, this is unlikely, as it requires the ability to predict election outcomes and deploy campaign resources with extreme accuracy, and given that weather conditions on Election Day and other unpredictable events make the outcome of the election uncertain (Eggers, Fowler, Hainmueller, Hall, and Snyder (2015)).

In our setting, manipulation of the threshold is perhaps even more unlikely than in other RDDs using vote share thresholds. First, candidates have very limited information available about voters' intentions in the first round of French parliamentary or local races. District-level polls are very rare during parliamentary elections, and nonexistent during local elections, due to small district size and limited campaign funding. In addition, the threshold is defined as the share of registered citizens. Manipulating it would thus require accurately predicting and manipulating *both* the fraction of registered citizens turning out and the share of candidate votes going to the third candidate.

To bring empirical support for the identification assumption, we check if there is a jump in the density of the running variable at the threshold (McCrary (2008)). As Figure A1 in the Supplemental Material Appendix shows, we do not observe any. Figures B1 and B2 and Table B-I in Appendix B of the Supplemental Material further show the lack of any significant jump at the cutoff for first-round outcomes and for the assignment status predicted by these baseline variables, bringing additional support for the identification assumption.

[9]Figure A5 in the Supplemental Material Appendix shows the robustness of our main results to bandwidth choice, both for linear and quadratic specifications.

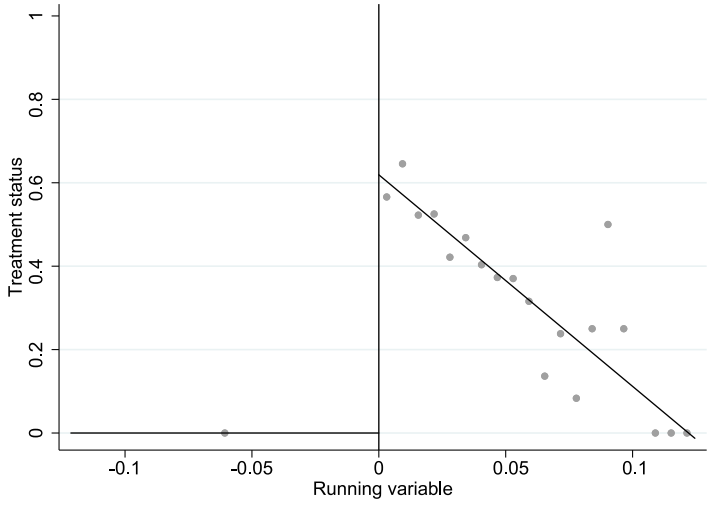


FIGURE 1.—First stage. *Notes*: Dots represent the local averages of the treatment status (y-axis). Averages are calculated within bins of the running variable (x-axis). The running variable (the qualifying margin of the third-highest-ranking candidate in the first round) is measured as percentage points. Continuous lines are a linear fit.

Second, the *first stage* is strong. Figure 1 plots the treatment against the running variable, and Table II provides the formal estimates for the first stage. Columns (1) and (2) show the results obtained under the MSRED and IK optimal bandwidths, using a local linear regression. Columns (3) and (4) present the results using a quadratic specification. All four estimates are significant at the 1 percent level. In our preferred specification (column (1)), we find that the probability that the third candidate stays in the race jumps from 0 to approximately 55.2 percent at the threshold.

The third candidate tends to drop out of the race when she has the same political orientation as one of the top two candidates (in 91.1 percent of the cases, at the threshold); when her orientation differs from both the top two, she instead tends to run in the second round (in 85.2 percent of the cases). As a result, the latter case accounts for the vast majority of complier districts.[10]

Third, *monotonicity* is fulfilled as the qualification rule did not generate any defier: no candidate who received a vote share lower than the qualification threshold was allowed to run in the second round.

Finally, the *exclusion restriction* requires that the qualification of the third candidate only affects second-round outcomes through the third candidate's presence in that round. We cannot entirely rule out the possibility that the third candidate's decision to drop out (which is only observed conditional on her qualification) disappoints some voters, or that it is interpreted as a signal on other candidates' characteristics, thus affecting voter behavior in the second round through other channels. Such violations of the exclusion restriction, however, are unlikely to drive the bulk of our results. First, the qualification of the third candidate has very small, and non-statistically significant, effects in districts where

[10]While our analysis primarily seeks to estimate the impact of the third candidate's presence in the second round, the second part of our discussion (Section 5.2) examines at greater length the factors affecting the decision of the third candidate whether to drop out or stay in the race, thereby providing additional evidence on the characteristics of complier districts.

TABLE II

FIRST STAGE[a]

	Treatment Status			
Outcome	(1)	(2)	(3)	(4)
Assignment status	0.552***	0.611***	0.509***	0.566***
	(0.042)	(0.030)	(0.051)	(0.043)
Robust *p*-value	0.000	0.000	0.000	0.000
Observations	1,541	3,579	2,142	3,579
Polynomial order	1	1	2	2
Bandwidth	0.017	0.038	0.023	0.038
Band. method	MSERD	IK	MSERD	IK
Mean, left of the threshold	0.00	0.00	0.00	0.00

[a]Standard errors are in parentheses. Statistical significance is computed based on the robust p-value and ***, **, and * indicate significance at 1, 5, and 10, respectively. Each column reports the results from a separate local polynomial regression. The outcome is a dummy equal to 1 if the third candidate is present in the second round. The independent variable is a dummy equal to 1 if the third candidate gathered more than 12.5 percent of the registered votes in the first round. Separate polynomials are fitted on each side of the threshold. The polynomial order is 1 in columns 1 and 2, and 2 in columns 3 and 4. The bandwidths are derived under the MSERD (columns 1 and 3) and IK (columns 2 and 4) procedures.

she has the same political orientation as one of the top two candidates and almost always drops out (Table A-III in the Supplemental Material Appendix). Second, additional evidence on third candidates' dropouts and on their press coverage (which we discuss at greater length in Section 5.2) suggests that dropout decisions are unlikely to carry much private information and that they rarely generate adverse voter reaction.

Under these four conditions, the second-stage estimate can be interpreted as the causal impact of the treatment on complier districts, at the threshold. Estimating the impact of the presence of the third candidate on electoral outcomes amounts to comparing voters' behaviors in elections with two versus three candidates modulo two noticeable exceptions. First, in 5.5 percent of the elections near the discontinuity, the candidate ranking second in the first round dropped out of the race. Second, in 1.2 percent of the elections, the candidate ranking fourth in the first round also qualified for the second round, and she decided to run in three instances. Appendix C of the Supplemental Material discusses these particular cases at greater length and shows that our results are not driven by them.

4. EMPIRICAL RESULTS

4.1. *Impact on Participation and Candidate Votes*

We consider three outcomes related to participation: turnout, the share of null and blank votes, and the share of candidate votes, all defined using the number of registered voters as the denominator. We begin with a graphical analysis before presenting formal estimates of treatment effects.

In the graphs in Figure 2, each dot represents the average value of the outcome within a given bin of the running variable. To facilitate visualization, a quadratic polynomial is fitted on each side of the 12.5 percent threshold. We observe a clear discontinuity at the cutoff for each outcome: the presence of the third candidate has a large and positive impact on the share of registered citizens who vote and on the share of citizens who vote for one of the competing candidates rather than casting a blank or a null vote.

Table III provides the formal estimates of the impacts using our preferred specification. On average, the presence of the third candidate in the second round increases turnout

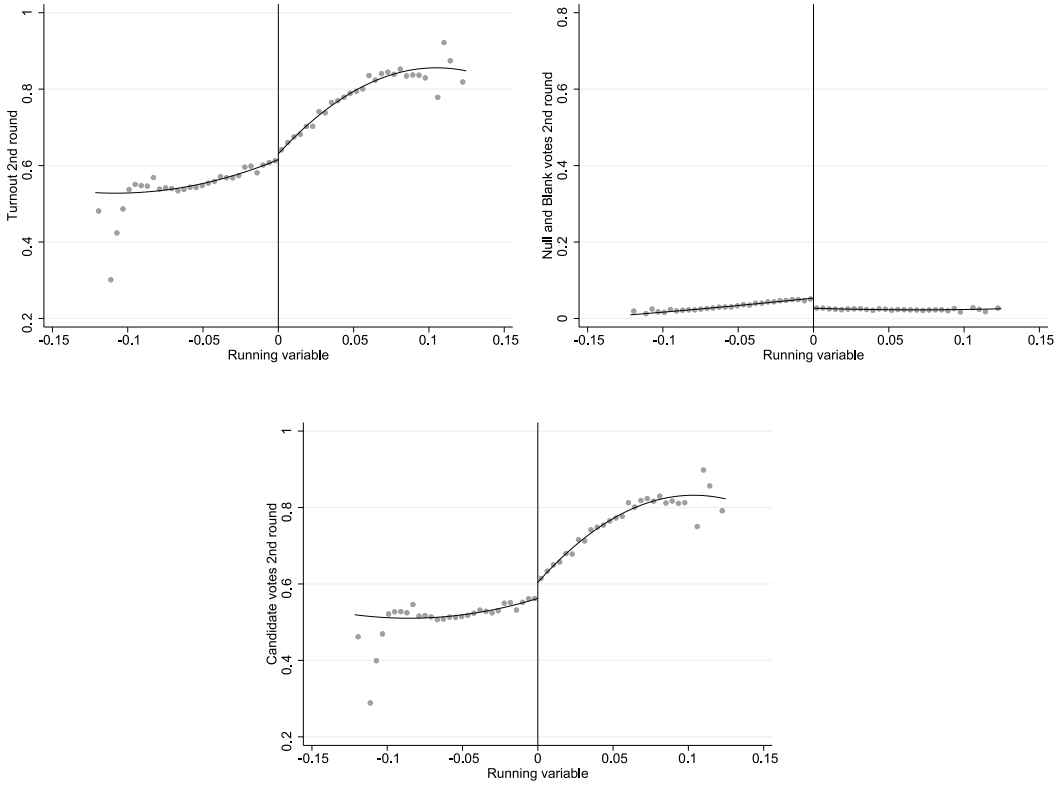


FIGURE 2.—Impact on participation and candidate votes. *Notes*: Dots represent the local averages of the outcome variable (y-axis). Averages are calculated within 0.4 percentage-point-wide bins of the running variable (x-axis). The running variable (qualifying margin of the third-highest-ranking candidate in the first round) is measured as percentage points. Continuous lines are a quadratic fit.

by 4.0 percentage points (6.7 percent), reduces the share of null and blank votes by 3.7 percentage points (78.7 percent),[11] and increases the share of candidate votes by 7.8 percentage points (14.2 percent). All effects are significant at the 5 percent level and the last two at the 1 percent level. As should be expected, the impact on the share of candidate votes corresponds to the sum of the absolute value of the impacts on the turnout rate and the share of blank and null votes.

To probe the robustness of the results to specification and bandwidth choices, Table IV estimates the treatment effect on the share of candidate votes using four different specifications. Columns (1) and (2) show the results obtained under the MSERD and IK optimal bandwidths, using a local linear regression. Columns (3) and (4) use a quadratic specification. The estimates obtained using these different specifications are all significant at the 1 percent level and very close in magnitude.

[11] In the 2015 local elections, the only ones in which blank and null votes were counted separately, the impact on both outcomes was negative (Figure A2 and Table A-IV in the Supplemental Material Appendix).

TABLE III

IMPACT ON PARTICIPATION AND CANDIDATE VOTES[a]

	2nd Round		
	Turnout	Null and Blank Votes	Candidate Votes
Outcome	(1)	(2)	(3)
3rd present	0.040**	−0.037***	0.078***
	(0.017)	(0.004)	(0.019)
Robust *p*-value	0.041	0.000	0.001
Observations	2,298	2,630	2,374
Polynomial order	1	1	1
Bandwidth	0.025	0.028	0.026
Band. method	MSERD	MSERD	MSERD
Mean, left of the threshold	0.598	0.047	0.548

[a]Standard errors are in parentheses. Statistical significance is computed based on the robust p-value and ***, **, and * indicate significance at 1, 5, and 10% respectively. Each column reports the results from a separate local polynomial regression. Each outcome uses the number of registered voters as the denominator. The variable of interest (the presence of the third candidate in the second round) is instrumented by the assignment variable (whether the vote share of the third-highest-ranking candidate in the first round was higher than the threshold). Separate polynomials are fitted on each side of the threshold. The polynomial order is 1, and the optimal bandwidths are derived under the MSERD procedure.

4.2. *Impact on Votes Going to the Top Two Candidates*

We now estimate the effect of the presence of the third candidate on the second-round vote share of the candidates who placed first and second in the first round. If vote shares were defined using the number of candidate votes as the denominator, the total vote share of the top two candidates in the second round would decrease by exactly the fraction of votes going to the third candidate when she is running. Instead, we define vote shares using the number of registered citizens as denominator, just as we did for participation outcomes. As a result, the presence of the third candidate has no mechanical effect: it can decrease the vote share of the other two candidates, increase it, or leave it unchanged.

Figure 3 plots the vote share of the top two candidates against the running variable. The quadratic polynomial fit indicates a large downward jump at the cutoff.

TABLE IV

IMPACT ON CANDIDATE VOTES[a]

	Candidate Votes in the 2nd Round			
Outcome	(1)	(2)	(3)	(4)
3rd present	0.078***	0.075***	0.080***	0.080***
	(0.019)	(0.016)	(0.026)	(0.024)
Robust *p*-value	0.001	0.000	0.005	0.007
Observations	2,374	3,454	3,039	3,454
Polynomial order	1	1	2	2
Bandwidth	0.026	0.037	0.033	0.037
Band. method	MSERD	IK	MSERD	IK
Mean, left of the threshold	0.548	0.541	0.544	0.541

[a]The polynomial order is 1 in columns (1) and (2) and 2 in columns (3) and (4). The bandwidths are derived under the MSERD (columns (1) and (3)) and IK (columns (2) and (4)) procedures. Other notes as in Table III.

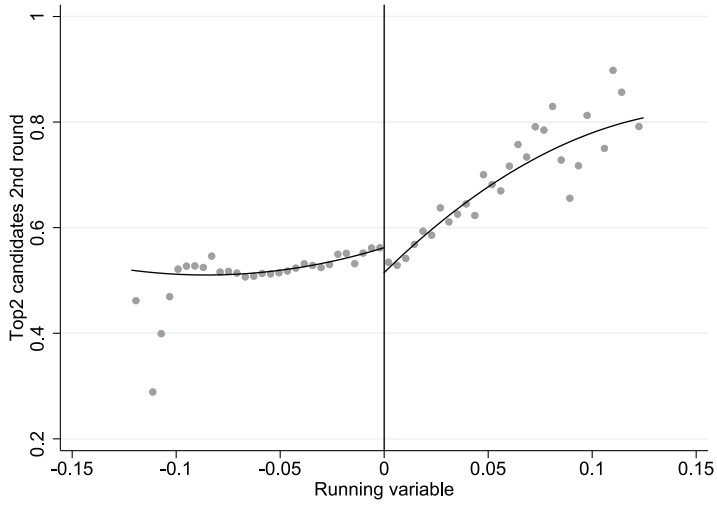


FIGURE 3.—Impact on votes going to the top two candidates. Notes as in Figure 2.

Consistent with the graphical analysis, the estimates reported in Table V indicate a sizable and significant negative impact of the treatment on the vote share of the top two candidates in the second round. Our preferred specification (column (1)) shows that the presence of the third candidate decreases the vote share of the top two candidates by 6.9 percentage points (12.5 percent) on average, an effect significant at the 1 percent level. The effect has a similar magnitude and remains statistically significant in other specifications.

We further estimate the impact on the vote share of the first and second candidates separately, and find that both decrease by a similar magnitude on average when the third candidate is present (Figure A3 and Table A-V in the Supplemental Material Appendix).

4.3. *Impact on the Top Two Candidates Depending on Political Orientation*

We now assess whether the presence of the third candidate systematically affects the outcome of the race. We first show that the vote shares of the top two candidates decrease

TABLE V

IMPACT ON VOTES GOING TO THE TOP TWO CANDIDATES[a]

	Vote Share Top 2 in the 2nd Round			
Outcome	(1)	(2)	(3)	(4)
3rd present	−0.069***	−0.072***	−0.061*	−0.068*
	(0.020)	(0.015)	(0.028)	(0.023)
Robust *p*-value	0.003	0.002	0.074	0.085
Observations	2,250	3,704	2,726	3,704
Polynomial order	1	1	2	2
Bandwidth	0.024	0.040	0.030	0.040
Band. method	MSERD	IK	MSERD	IK
Mean, left of the threshold	0.551	0.541	0.546	0.541

[a]Notes as in Table IV.

in proportion to their ideological proximity with the third. We focus on elections in which the political orientations of the three candidates are well-identified and differ from one another, so that they can be ranked on the left-right axis. The resulting sample accounts for 75.7 percent of the districts where the third candidate qualifies and runs in the second round, near the discontinuity. We call A the candidate most to the left, C the candidate most to the right, and B the candidate located between A and C. We study three different settings, each characterized by the ideological position of the third candidate—on the left of the two others, right, or in the middle.[12]

As shown in Figure 4(a), when the third candidate is C, candidate B (who is closer to her) loses the most votes. The regression results are reported in Table A-VI in the Supplemental Material Appendix: while the vote share of candidate B decreases by 5.2 percentage points on average, the vote share of candidate A decreases by only 2.5 percentage points. The effect on an outcome defined as the difference between the vote shares of candidates A and B is equal to 2.4 percentage points but not significant.

Symmetrically, when the third candidate is A, candidate B again loses the most from her presence (Figure 4(b)). As shown in Table A-VII in the Supplemental Material Appendix, while the vote share of candidate B decreases by 8.6 percentage points on average, the vote share of candidate C is not significantly affected by the presence of candidate A. The effect on the difference between the vote shares of B and C is significant, and at the 1 percent level.

Finally, when the third candidate is located in the middle, both A and C lose a large number of votes (Figure 4(c)). As shown in Table A-VIII in the Appendix, the presence of B decreases the vote share of candidate A by 7.1 percentage points on average and the vote share of candidate C by 5.6 percentage points. The effect on the difference between the vote shares of A and C is small and not statistically significant.

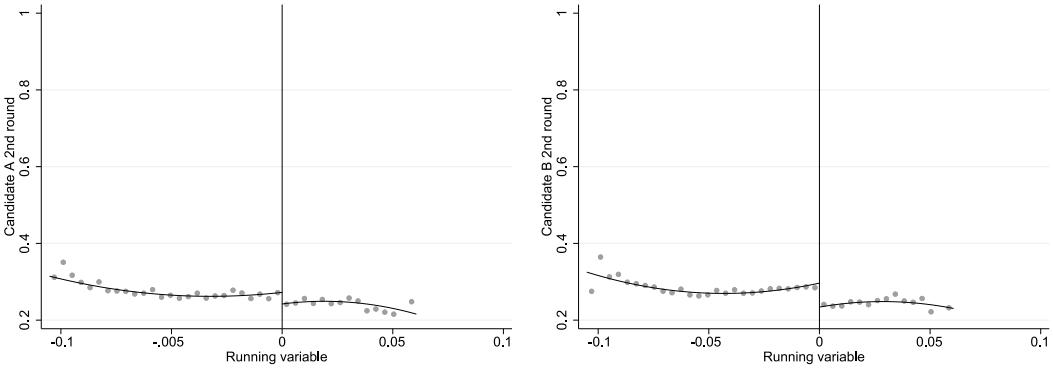
4.4. *Impact on the Top Two Candidates Depending on the Strength of the Third*

The rest of this section focuses on the first and second settings, where we can identify which candidate is ideologically closest to the third candidate and suffers the most from her presence. We now test whether the presence of the third candidate reduces the number of votes cast for the top two candidates even when she has low foreseeable chances of being a front-runner in the second round.

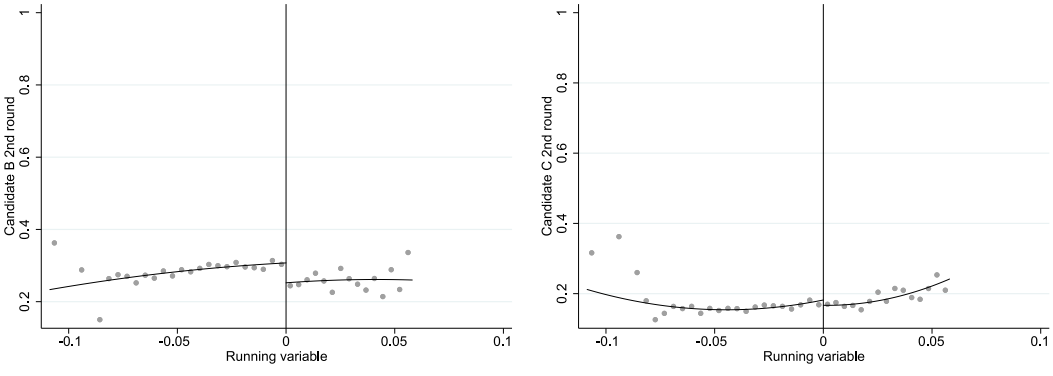
We estimate and compare the impact of the presence of the third candidate on the vote shares of the top two candidates in a series of subsamples. In each new subsample, we impose additional restrictions which, arguably, make it less plausible that the third candidate could pose a challenge on the top two.

The first subsample combines the first and second settings as defined in Section 4.3, without imposing any further restrictions: it includes all elections in which the three top candidates have distinct political orientations, and the third candidate is either on the left or the right of both top two candidates. In this sample, although the third candidate does rank behind the top two candidates in the second round in the vast majority of cases, she

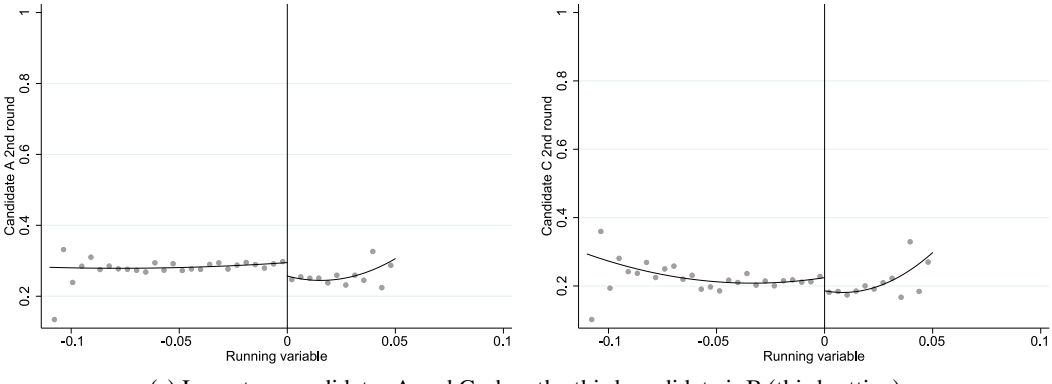
[12]In 97.3 percent of the elections corresponding to the first setting, the third candidate is on the far-right (C), one of the top two candidates is on the right (B), and the other is on the left (A). In 94.6 percent of the elections corresponding to the second setting, the third candidate is on the left (A), one of the top two candidates is on the right (B), and the other is on the far-right (C). In 62.7 percent of the elections corresponding to the third setting, the third candidate is on the right (B), one of the top two candidates is on the left (A), and the other is on the far-right (C). In 36.4 percent, the third candidate is on the center (B), one of the top two candidates is on the left (A), and the other is on the right (C).



(a) Impact on candidates A and B when the third candidate is C (first setting).



(b) Impact on candidates B and C when the third candidate is A (second setting).



(c) Impact on candidates A and C when the third candidate is B (third setting).

FIGURE 4.—Impact on the top two candidates depending on political orientation. *Notes*: Figure 4 includes the elections where the top three candidates have distinct political orientations. Figure 4(a) (resp. 4(b)) includes only the elections where the third candidate is located to the right (resp. left) of both the first and the second candidates. Figure 4(c) includes only the elections where the third candidate is located between the first and the second candidates. Other notes as in Figure 2.

nonetheless wins in 11 elections near the threshold and ranks second in 28 (Table VI, column (3), sample 1).

To define the next subsamples, we consider the total voter support that each of the top three candidates may expect to receive in the second round, based on the votes obtained

TABLE VI

IMPACT ON THE VOTE SHARE OF THE TOP TWO CANDIDATES DEPENDING ON THE STRENGTH OF THE THIRD[a]

	(1)	(2)	(3)	(4)	(5)
Impact 3rd present	Top 2 Candidates	*Bandwidth*/ *Observations*	3rd becomes 1st/ 3rd becomes 2nd	Closest Candidate	Furthest Candidate
Sample 1	−0.082***	0.014	11	−0.061***	−0.027**
	(0.017)	546	28	(0.008)	(0.013)
Sample 2	−0.080***	0.019	0	−0.054***	−0.026**
	(0.015)	609	3	(0.009)	(0.010)
Sample 3	−0.088***	0.014	0	−0.050***	−0.037***
	(0.020)	331	0	(0.010)	(0.013)
Sample 4	−0.132***	0.008	0	−0.060***	−0.074***
	(0.029)	107	0	(0.016)	(0.018)

[a]Column (2) gives the bandwidths used for the estimation of the impact on the vote share of the top two candidates as well as the number of observations lying in those bandwidths. Column (3) displays the number of cases where the third candidate ranks first or second in the second round in the elections included in the bandwidths defined in column (2). Other notes as in Table III.

by other candidates of the same political orientations in the first round. A candidate from the left, for instance, may expect to receive votes not only from her supporters but also from supporters of other left-wing candidates who did not qualify for the second round. We thus define her "strength" as the sum of first-round vote shares of all candidates belonging to the left.

We restrict the second sample to observations from the first sample in which the third candidate's strength is lower than that of each of the top two candidates. For example, if the third candidate is on the left, the second candidate is on the far-right, and the first candidate is on the right, we consider only elections where the left candidates gathered fewer votes in total in the first round than those on the right or far-right. This restriction makes it arguably less likely that the third candidate could be a front-runner in the second round—and indeed, such a candidate never wins and ranks second in only three cases near the discontinuity in this sample (Table VI, column (3), sample 2).

Candidates' strengths computed based on first-round results only provide imperfect information on the level of support that candidates can hope to receive in the second round, not least because not everyone votes sincerely in the first round. Thus, the third and fourth samples further impose a difference of at least five and ten percentage points, respectively, between the strength of the third candidate and the strength of each of the top two. In samples 3 and 4, the average gap between the strength of the third candidate and of each of the top two candidates is as large as 11.4 and 13.5 percentage points in the first round, close to the discontinuity. Hence, these additional restrictions make it even less plausible that the third candidate had reasonable chances to be in contention for victory—and indeed, such a candidate never ranked first or second in those two subsamples (Table VI, column (3), samples 3 and 4).

As shown in Table VI, the impact of the presence of the third candidate on the vote share of the top two is robust across the four samples and close in magnitude: all estimates are significant at the 1 percent level and included between 8.0 and 13.2 percentage points (column (1)).

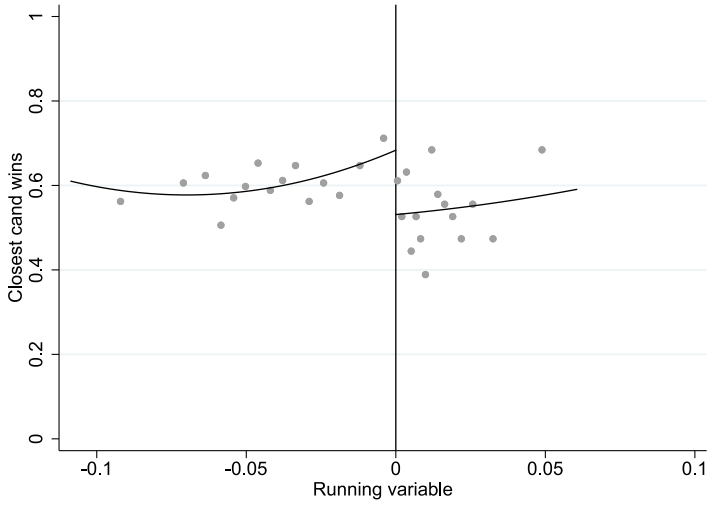


FIGURE 5.—Impact on the probability that the closest candidate wins. *Note*: We use elections of sample 2 as defined in Section 4.4. Dots represent the local averages of the probability that the candidate ideologically closest to the third wins in the second round. Averages are calculated within quantile-spaced bins of the running variable (x-axis). The running variable (the qualifying margin of the third-highest-ranking candidate in the first round) is measured as percentage points. Continuous lines are a quadratic fit.

4.5. *Impact on Winner Identity*

We turn to the last and perhaps most important outcome, the winner of the election, and test whether the presence of the third candidate decreases the likelihood that the candidate ideologically closest to her wins the election. Formally, we use a dummy equal to 1 if the closest candidate wins (and 0 if she loses) as the outcome. We run the analysis for the elections in sample 2, in which the candidate ideologically closest to the third is clearly identified, and the third candidate never wins (as shown in Table VI), ensuring that the results are not artificially driven by elections in which the outcome takes the value 0 at the right of the threshold due to the victory of the third candidate.

As shown in Figure 5, the presence of the third candidate has a negative impact on the probability that the closest candidate wins, thus harming the third candidate's supporters who prefer the closest over the furthest candidate. The jump is large but noisier than in the other graphs, due to the fact that the outcome we consider is not a continuous variable but a dummy. Table VII provides the formal estimates. In our preferred specification (column (1)), we find a negative effect of 19.2 percentage points on average. This estimate is significant at the 10 percent level and robust to using the IK optimal bandwidth (column (2)). This result means that, in around one-fifth of the elections we consider, the candidate among the top two that is ideologically closest to the third loses as a result of her presence whereas she would have won absent the third, in a two-candidate race against the other top-two candidate.

Given our results in Section 4.3, the candidate ideologically closest to the third candidate would most likely also win a two-candidate race against the third, making her the Condorcet winner of the second round. Indeed, in elections of the first setting, where the candidate who arrived third in the first round is C, B should be expected to win a race against C, as she obtained more votes in the first round and would attract relatively more voters of candidate A (based on estimates from Table A-VII in the Supplemental Material Appendix). Similarly, in elections of the second setting, in which the candidate who

TABLE VII

IMPACT ON THE PROBABILITY THAT THE CLOSEST CANDIDATE WINS[a]

	Closest Candidate Wins			
Outcome	(1)	(2)	(3)	(4)
3rd present	−0.192*	−0.178**	−0.101	−0.205
	(0.089)	(0.069)	(0.140)	(0.094)
Robust *p*-value	0.083	0.032	0.607	0.194
Observations	686	1,567	553	1,567
Polynomial order	1	1	2	2
Bandwidth	0.021	0.043	0.017	0.043
Band. method	MSERD	IK	MSERD	IK
Mean, left of the threshold	0.656	0.622	0.678	0.622

[a]We use elections of sample 2 as defined in Section 4.4. The outcome is a dummy variable equal to 1 if the candidate ideologically closest to the third wins in the second round. Other notes as in Table IV.

arrived third in the first round is A, B obtained more votes in the first round than A and she would attract relatively more voters of candidate C, in a race against A (based on estimates of Table A-VI in the Appendix). In sum, in around one-fifth of the elections we consider, the presence of the third candidate causes the defeat of the likely Condorcet winner, harming the third candidate's supporters and a majority of voters.

We next explore what these results tell us about the factors affecting voters' participation and voting choice as well as candidates' decision to compete or drop out.

5. INTERPRETATION OF THE RESULTS AND DISCUSSION

5.1. *Voters' Behavior*

The effects of the third candidate's presence on electoral outcomes may in theory be driven by the response of both voters and other candidates. In our setting, however, there is only one week between the two rounds, leaving little time for the top two candidates to adjust their strategies to the presence of an additional competitor. While we lack data on candidates' precise political platforms, we collected data on their campaign expenditures for the 2011 and 2015 local elections and for the 1993, 1997, 2002, 2007, and 2012 parliamentary elections (collectively accounting for 77.8 percent of our sample).[13] As shown in Appendix D of the Supplemental Material, we find no impact of the presence of the third candidate on the top two candidates' campaign expenditures or contributions, suggesting that they do not intensify their political campaign when the third candidate is present and that our results are primarily driven by voters' response to changes in the electoral offer. Accordingly, we now discuss what our aggregate effects can teach us about individual voters' behavior and motivations.

5.1.1. *Loyals and Switchers*

When the third candidate is absent, voters may choose to either vote for one of the top two or refrain through abstaining or voting blank or null. When the third candidate is

[13]All data come from the French National Commission on Campaign Accounts and Political Financing (CNCCFP). Data on campaign expenditures for the 1993, 1997, and 2002 parliamentary elections were collected and digitized by Abel François and his co-authors (see Fauvelle-Aymar and François (2005), Foucault and François (2005)).

3rd absent/3rd present	Abstain or blank or null	Vote for one top-two candidate	Vote for the third candidate
Abstain or blank or null	Type 1	Type 3	Type 5
Vote for one top-two cand.	Type 2	Type 4	Type 6

FIGURE 6.—Matrix of citizens' behavior.

present, they have a third possible option: voting for her. The corresponding two-by-three matrix (Figure 6) defines six different types of citizens. Our effects on participation and on the vote share of the top two candidates are driven by the four types of citizens (2, 3, 5, and 6) who behave differently depending on whether the third candidate is present or absent.

The large increase in the number of candidate votes reported in Section 4.1 first suggests that the third candidate has a large number of "loyal" supporters who vote for her when she is present but abstain or vote blank or null otherwise (type 5 citizens). However, this effect might also result from the heightened mobilization of the top two candidates' supporters, resulting in a larger number of type 3 citizens (who do not cast a candidate vote when the third is absent and vote for one of the top two when she is present) than type 2 citizens (who follow the opposite trajectory). Indeed, the presence of the third candidate in the second round reduces the winning margin by 5.8 percentage points on average (Figure A4 and Table A-IX in the Supplemental Material Appendix), and more contested elections may drive additional supporters of the top two candidates to the polls.

To assess the relative importance of both mechanisms, we compare the effects on participation in settings where one or the other channel is likely to dominate. In elections in which the top two candidates have distinct political orientations, the presence of the third candidate substantially increases closeness (Table A-X in the Appendix, column (3)) by disproportionately decreasing the vote share of the front-runner ideologically closest to her. Instead, when the top two candidates have the same political orientation, they are equally distant from the third, so that the third candidate's presence does not significantly affect closeness (Table A-X in the Appendix, column (2)) but adds more diversity to the existing political offer. We find much larger effects on the number of candidate votes in races of the latter type (Table A-XI in the Appendix), suggesting that the effects on participation are mostly driven by "loyals" voting for the third candidate.

We now interpret the large decrease in the total vote share of the top two candidates reported in Section 4.2. This effect is first driven by the behavior of another type of third candidate's voters: "switchers," who vote for one of the top two candidates when she is absent but switch to the third when she is present (type 6 citizens). The loss of these voters could be compensated by the increased mobilization of the top two candidates' supporters, measured by the difference between the number of type 3 and type 2 citizens, but again, our test above suggests that this mechanism only has modest importance on average. The fact that the top two candidates' vote shares decrease in proportion to their ideological proximity with the third brings additional support for the interpretation that switchers are responsible for most of the effect. It also rules out the possibility that switchers are simply noisy voters, randomly splitting their votes among competing candidates (such noisy voting should affect the top two candidates equally). Instead, this result suggests that the candidate among the top two that most switchers prefer, and vote for when the third candidate is absent, is the one closest to the third.

The results in Sections 4.4 and 4.5 further imply that the number of switchers remains very high even when the third candidate has low foreseeable chances of being a front-

runner in the second round, and that their choice to vote for the third candidate when she is present often causes the defeat of the top-two candidate they prefer.

5.1.2. *Theoretical Implications*

When the third candidate has a reasonable chance of finishing first or second in the second round, switchers' behavior can easily be rationalized within pivotal models. Following Downs (1957), these models posit that voters face a cost of voting and receive instrumental benefits depending on their likelihood to be pivotal and on the differential utility associated with one candidate defeating another (e.g., Palfrey and Rosenthal (1983, 1985)). Voters who face a sufficiently low cost of voting, whose instrumental benefits are maximized by voting for the third candidate, but who are not indifferent between the top two, will vote for one of the top two when the third is absent and for the third when she is present, as switchers do. The behavior of loyals is more difficult to rationalize, as it requires these voters to all receive sufficiently low instrumental benefits from choosing between the top two candidates. For loyals who abstain when the third candidate is absent, these benefits need to be lower than the cost of voting, itself bounded by the instrumental benefits of voting for the third candidate when she is present. For loyals who vote blank or null when the third candidate is absent, casting a vote for one of the top two candidates would not generate much additional cost, and the associated benefits thus need to be close to null (for instance, as a result of these voters being exactly indifferent between the top two candidates).

The behavior of loyals and switchers is even more difficult to rationalize when the third candidate is unlikely to be a front-runner in the second round. Rational voting models (e.g., Myerson and Weber (1993)) assume that voters care only about the winner of the election, predicting a positive vote share for the third candidate only when she and the second candidate have an equal probability to be in contention for victory. Similarly, in models positing that vote choices are driven by group rules rather than pivot probabilities (Coate and Conlin (2004), Feddersen and Sandroni (2006)), groups' aggregate utility is assumed to depend only on who wins the election. As a result, in three-candidates' races, the sincere equilibrium in which all voters choose their most-preferred candidate only exists when the third candidate is sufficiently strong. When her chances of victory are too low, we end up in a Duvergerian equilibrium where only the top two receive votes (Bouton and Ogden (2017)). Instead, we find that the number of switchers remains equally high in races where the third candidate's strength is lower than that of each of the top two candidates, the third never wins, and where switchers' behavior often leads to the defeat of their preferred top-two candidate. We now discuss four explanations that could rationalize this behavior within voting models centered on instrumental motives.

First, in rational voter and group rule-utilitarian models, the emergence of a sincere equilibrium hinges both on the strength of the third candidate and on her supporters' differential utilities: how much more utility they derive from the victory of their favorite candidate than the victory of the closest candidate among the top two, and from the victory of that candidate than the victory of their least favorite candidate. A possible interpretation of our results is thus that the low chances of the third candidate are compensated by switchers being close to indifferent between the top two and deriving a much higher utility from the victory of the third candidate than the victory of the closest top-two. Bouton and Ogden (2017) showed that, in runoff elections in which three candidates can compete in the second round, the conditions for sincere voting in the first round are relatively similar to the conditions for sincere voting in the second round, so that first-round results provide information about the likelihood of a sincere equilibrium in the second round. In line with

this model, the fact that the third candidate' s first-round vote share is sufficiently high to be at the threshold, in the elections we consider in our analysis, could signal preferences or other conditions conducive to sincere voting equilibrium in both the first and second rounds. On the other hand, based on first-round results, districts close to the threshold are relatively similar on average to the full sample, as discussed in Section 3.1 and shown in Table A-II in the Supplemental Material Appendix. In particular, the share of candidate votes obtained by the third candidate is only higher by 4.1 percentage points, in districts close to the threshold, and the top two candidates' vote share lower by 3.2 percentage points, suggesting that the likelihood of a sincere equilibrium is not much higher in these districts than in the full sample. In addition, while we do not observe the differential utility that switchers would obtain from the victory of the third candidate, the fact that they vote for one of the top two candidates when the third is absent suggests that they are not indifferent between the top two and that their preference for the closest candidate among the top two over their least favorite candidate is sufficiently strong to overcome their cost of voting.

Second, in rational voting models, aggregate uncertainty on the level of candidates' support can lead to an equilibrium in which more than two candidates receive a substantial fraction of votes (Myatt (2007), Fisher and Myatt (2017)). But these models also predict that strategic coordination on the top two increases with the distance from contention, which is not what we observe: as shown in Section 4.4, the negative impact on the top two candidates' total vote share remains strong and stable in samples 3 and 4, which include elections with a gap of at least five and ten percentage points, respectively, between the third candidate's strength and that of each of the top two candidates. Building on previous models, Bouton, Castanheira, and Llorente-Saguer (2015) further demonstrated that a sincere equilibrium exists as long as voters conceive that the third candidate could win, with even a very low probability. While the third candidate never ranks first or second in samples 3 and 4, we cannot entirely exclude that some voters thought ex ante that she had a nonzero probability of winning. However, Bouton, Castanheira, and Llorente-Saguer (2015) showed that the sincere equilibrium also requires that voters give a sufficiently large probability to the existence of a state of nature where the third candidate has a stronger support than one of the top two, or that they give a positive probability to a full reversal of support between the third and the candidate ideologically closest. Both conditions seem unlikely to be satisfied when the third candidate lags far behind the top two in the first round. In addition, while existing models are mostly silent about equilibrium selection, one could expect such configuration to facilitate the coordination of instrumental voters on the Duvergerian equilibrium, which again we do not observe.

A third, complementary, way in which our results could be reconciled with instrumental motives is if voters had limited information about, or gave little attention to, the three candidates' first-round rankings and vote shares. Not collecting or not paying attention to freely available and directly relevant information may itself be considered at odds with strategic behavior. In addition, if switchers' voting behavior was driven by limited information, we would expect it to be less prevalent in districts where voters are more informed, which we do not observe. We proxy the level of information by the salience of the race (parliamentary elections being more salient than local elections) as well as three different measures of media exposure: local newspaper consumption, measured at the département level, and radio and TV news audiences, measured at the département and region level, respectively.[14] We find that the impact on the top two candidates' vote share stays

[14]Proxying the level of information by the salience of the race is a strategy also used by Hall and Snyder (2015). Data on local newspaper circulation were collected by Julia Cagé (see Cagé (2017)). We collected the

equally high in parliamentary elections and in districts with media exposure higher than the median or the second tercile (Tables F-I, F-IV, and F-V in Appendix F of the Supplemental Material), and that it remains unaffected by the gap between the strength of the third candidate and of each of the top two in these subsamples (Tables F-II and F-VI to F-VIII in Appendix F).

A fourth possible interpretation for switchers' behavior that is consistent with instrumental motives is that these voters are not *short-term* but *long-term* instrumentally rational (Castanheira (2003)). Vote shares in the second round only determine who wins the election, and they are not taken into account for other purposes such as campaign expenditure reimbursement (which is based on first-round vote shares only). Hence, voters should not expect their candidate or party to benefit directly from a higher vote share in the second round. However, they may choose to vote for the third candidate in order to signal their preferences and affect the policies implemented by the winner, or to influence the opinions and future votes of other voters (Piketty (2000)). To the extent that dynamic strategic motives are driving voters' behavior, we should expect voters to trade off the impact of their vote on present elections and on future elections and policies. We should see fewer people vote for the third candidate when their vote is likely to matter more for the result of the current election: for instance, when the second round is expected to be close. Instead, we find that the impact on the vote share of the top two candidates is equally strong in elections where the top two candidates were very close in the first round (Tables E-I and E-II in Appendix E of the Supplemental Material), including in parliamentary elections and in districts with higher media exposure (Tables F-III and F-IX to F-XI in Appendix F). These results suggest that switchers are willing to decrease the vote share of the top-two candidate they prefer whether or not they expect the race to be close, which further suggests that dynamic strategic motives are unlikely to explain the bulk of our results.[15]

In summary, it is difficult to rationalize our results within rational or group-rule utilitarian voting models assuming that the individual or group's utility is only affected by who wins the election, even when allowing for imperfect information, aggregate uncertainty, or dynamic strategic motives. Instead, our results suggest that voters' choice of candidate, as well as their decision whether to vote or abstain, might be better explained by taking into account expressive benefits independent of the election results. For many voters, the expressive utility of voting for their favorite candidate outweighs the cost of voting.[16] For others, this expressive utility outweighs the instrumental cost of contributing to the victory of their *least* favorite candidate. A simple way to account for expressive benefits in a theoretical model would be to introduce a share of expressive voters who always vote for their preferred candidate, next to strategic voters behaving according to the predictions

data on radio and TV news audiences from Médiamétrie. Data on radio news audience are available at the département level on a yearly basis for the years 2003, 2007, 2011, 2012, and 2015. Data on TV news audience are available at the region level for the years 2010, 2011, 2012, and 2015. For each of the three measures of media exposure (local newspaper consumption, radio news audience, and TV news audience), we split our sample based on medians and terciles estimated separately for each election year, to control for time trends. See Appendix F of the Supplemental Material for more details.

[15] Alternatively, switchers might continue voting for the third when this threatens the victory of the top-two candidate they prefer because they reason that the associated signal is all the more powerful as it is costly. This interpretation requires a large number of voters to be sufficiently sophisticated and to believe that candidates and other voters are sufficiently sophisticated as well to interpret their vote in this way, making it perhaps less likely.

[16] For other recent evidence on expressive motives of turnout, see Fiva and Smith (2017) and Ujhelyi, Chatterjee, and Szabó (2017).

of existing canonical models. Such a hybrid model would be prima facie consistent with our comparative statics showing that the impact of the presence of the third candidate varies neither with her strength nor with the closeness of the race (Table 6 and Tables E-I and E-II in Appendix E of the Supplemental Material). Alternatively, each voter's choice to behave strategically or expressively when choosing a candidate and deciding whether to vote or abstain could be endogenized in a full-fledged model of costly voting in elections with more than two candidates. Future work along these lines could build on Shayo and Harel (2012), whose theoretical framework includes a tradeoff between instrumental and non-instrumental voting motives, and on Kawai and Watanabe (2013) and Fisher and Myatt (2017), who introduced a share of sincere voters in rational models of vote choice.

5.2. *Candidates' Decision to Drop out*

The negative impact of the third candidate's presence on the chances of victory of the top-two candidate ideologically closest to her sheds light on the motives underlying third candidates' behavior as much as voters'. Third candidates could prevent this effect by simply dropping out of the race between the first and second rounds. The fact that they do not drop out more systematically, especially when their own likelihood of being a front-runner is very low, implies that they often value the benefits associated with competing in the second round more than they care about influencing the race's outcome. In this last section, we provide additional evidence to better understand why, and under which circumstances, third candidates decide to stay in the race instead of dropping out. This evidence also allows us to better characterize complier districts, in which the effects of the third candidate's presence were estimated, and to bring additional support for the exclusion restriction underlying these estimates.

Formally, using our regression discontinuity design framework, we regress a dummy equal to 1 if the third candidate drops out on the assignment variable, and compare the effects in different configurations. The most important factor affecting candidates' decision to drop out is political orientation. As mentioned in Section 3.2, the third candidate drops out of most races (91.1 percent, at the threshold) in which she has the same orientation (far-left, left, center, right, or far-right) as one of the top two candidates. Conversely, she stays in the race in the large majority of elections (85.2 percent, at the threshold) in which she has a different orientation than both top two candidates (Figure G1 and Table G-I in Appendix G of the Supplemental Material).

To better understand this difference, we gahered descriptive evidence from press articles covering instances of candidates dropping out. Using Factiva's research tool, we collected all articles released between the two rounds of all elections in our sample and containing the entity "désist."[17] We obtained a total of 1,678 articles published in 86 different newspapers in election years 1997, 2002, 2007, 2011, 2012, and 2015 (more information in Appendix H of the Supplemental Material). In each, we systematically coded the context in which the dropout took place (decision made by the party, existence of an agreement among parties, or decision made individually by the candidate); the reasons provided by the party or candidate (preventing the victory of another candidate or feeling ideologically close to a top-two); and whether the article mentions the reactions of the candidate's party, voters, or competing candidates. All statistics are reported in Tables H-I to H-III in Appendix H.

[17]This entity is present in all forms of the verb "se désister" (to drop out) and in the noun "désistement" (dropout).

The most striking lessons of this investigation are as follows. First, articles covering dropouts are nearly ten times more likely to report that the third candidate's decision to drop out was the result of a party-level agreement when she has the same orientation as one of the top two candidates than when she has a different orientation than both. Conversely, articles are ten times more likely to mention that she took the decision to drop out on her own, independently from any party's instructions, when she has a different orientation than both top two candidates. Second, when the third candidate has a different orientation, 63.1 percent of articles report that she dropped out in order to prevent the victory of another candidate (against 29.2 percent when she has the same orientation as one of the top two), and none that she dropped out because she felt ideologically close to one of the top two candidates (against 15.9 percent).

These patterns suggest that third candidates who have a different orientation than both of the top two only drop out in rare circumstances, motivated by their aversion for one of the top two more than ideological proximity with the other. In general, they fail to internalize the cost that staying in the race generates for the ideologically closest top-two candidate. Instead, when the third candidate has the same orientation as one of the top two, ideological proximity (as well as, perhaps, the habit to govern together) helps their parties reach an agreement which internalizes this cost and, in an overwhelming majority of cases, results in the third candidate dropping out. Such agreements are often département-wide or even nationwide, so that dropouts of candidates of the two parties balance each other, and the cost for one candidate to drop out is mitigated by the increased likelihood of victory of another candidate of her party in another district.

Interestingly, when the third candidate has the same orientation as one of the top two, her likelihood to drop out is not only much higher, but also varies more with first-round results. Same-orientation third candidates are relatively more likely to drop out in competitive races, characterized by a small difference between the strengths of the top two candidates (Table G-II in Appendix G of the Supplemental Material). This brings additional support for the interpretation that their decision to drop out is motivated by their party's desire to ensure the victory of a sister party's candidate. However, same-orientation third candidates are less likely to drop out when they are closer to the top two candidates in the first round (Table G-IV in Appendix G), suggesting that candidates trade off party instructions with their desire to stay in the race, and that their immediate individual interest is more likely to prevail when they have a chance of being a front-runner in the second round. Instead, the dropout decision of third candidates with a different orientation than both top two does not follow any such pattern (Tables G-III and G-V in Appendix G).[18]

Our analysis of the factors affecting third candidates' dropout decision has two implications for the interpretation of our effects on voters' behavior. First, voters' difficulty to behave strategically in our sample might be driven by the overrepresentation, among

[18]The third candidate's decision to drop out or stay in the race only occurs conditional on qualifying for the second round. Observing this decision could, in theory, affect voters' behavior directly, independently of the third candidate's presence, thus violating the exclusion restriction (previously discussed in Section 3.2). The evidence we collected on factors affecting dropouts suggests this is unlikely to be the case, in particular in elections where the third candidate has a different orientation than both top two, which account for the majority of our compliers, and which we focus on to measure the effects on winner identity and on the vote shares of the top two depending on their political orientation or on the strength of the third candidate (Sections 4.3 through 4.5). First, in these districts, the fact that the third candidate's decision does not systematically vary with first-round results alleviates the worry that it might increase the salience of some features of the race, including its level of competitiveness. Second, in addition to providing information, the decision of the candidate could provoke specific voters' reactions. However, less than one percent of dropout articles report an adverse reaction following the decision to drop out.

complier districts, of second-round races where the third candidate has a different orientation than both top two, resulting from the low likelihood of third-candidate dropouts in this setting. Second, this feature of our sample is not idiosyncratic. It results from the intrinsic difficulty for candidates of distinct orientations to find an agreement leading to the dropout of the lower ranked. The tradeoff between expressive and instrumental motives might well be particularly difficult for voters to solve when they have to choose between candidates of different orientations, but this tradeoff is also likely to occur systematically more often in this context.

6. CONCLUSION

This paper highlights the motivations and consequences of citizens voting for lower-ranked candidates in elections held under plurality rule. Using a fuzzy regression discontinuity design around the qualification threshold for the second round of French local and parliamentary elections, we compare electoral outcomes when voters have to choose between two or three candidates.

The presence of the third candidate increases the share of registered citizens who vote for any candidate by 7.8 percentage points; it reduces the vote share of the top two candidates in proportion to their ideological proximity with the third by 6.9 percentage points. The latter impact remains equally strong when first-round results indicate that the third candidate is very unlikely to be a front-runner in the second round, and it causes the defeat of the Condorcet winner in one-fifth of the races.

The behavior of third-candidates' voters, whether they are loyal supporters who abstain or vote blank or null when the third candidate is absent, or switchers who vote for one of the top two candidates in that case, is difficult to rationalize within canonical voting models. In both rational voter and group rule-utilitarian models, the individual or group's utility is only affected by the election's winner. Instead, our results suggest that voters' choice of candidate, as well as their decision whether to vote or abstain, can only be satisfactorily explained by taking into account expressive benefits independent of the result. For many voters, the expressive utility of voting for their favorite candidate outweighs the cost of voting. For others, this expressive utility outweighs the instrumental cost of contributing to the victory of their *least* favorite candidate.

Anticipating voters' behavior, third candidates could drop out of the race between the first and the second rounds to prevent the defeat of the ideologically closest top-two candidate. However, our results suggest that third candidates often value the benefits associated with competing in the second round more than influencing its outcome. When the third candidate has a different political orientation than both top two candidates, dropouts remain an exception. They only become the rule when the third candidate has the same orientation as one of the top two candidates and she follows party-level agreements. In that case, the coordination taking place between parties of the same orientation reduces the likelihood that citizens split their support and waste their vote. This may contribute to explain political parties' very existence, a conjecture which should be tested more directly by future work.

Regardless, our overall results on voter and candidate behaviors suggest that plurality rule often leads to suboptimal outcomes, due to the combination of two phenomena. First, in a large number of elections, voters have to choose between more than two candidates due to the difficulty for parties of differing orientations to reach an agreement. And second, a sufficiently large fraction of voters value expressive more than instrumental motives when confronted with such an electoral offer. These voters simply want to rally for

their favorite, even if that means their least favorite might win and bring in undesirable policies. Ultimately, our findings call into question the widespread use of the plurality rule to aggregate voter preferences.

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