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Abstract

To predict others' behavior and make their own choices, voters and candidates can rely on information provided by polls and past election results. We isolate the impact of candidates' rankings using an RDD in French local and parliamentary two-round elections, where up to 3 or 4 candidates can qualify for the second round. Candidates who barely ranked first in the first round are more likely to run in the second round (5.6pp), win (5.8pp), and win conditionally on running (2.9 to 5.9pp), than those who barely ranked second. The effects are even larger for ranking second instead of third (23.5, 9.9, and 6.9 to 12.2pp), and ranking third instead of fourth also increases candidates' second round outcomes (14.6, 2.2, and 3.0 to 5.0pp). These results are largest when the candidates have the same political orientation (making coordination relatively more important and desirable), but they remain strong when two candidates only qualify for the second round (and there is no need for coordination), suggesting that bandwagon effect is an important driver of voter behavior and election outcomes.

Keywords: Strategic voting, Coordination, Bandwagon effect, Regression discontinuity design, French elections

JEL Codes: D72, K16

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1 Introduction

In an election, voters decide whether to vote or abstain and which candidate to vote for based on their own preferences and their expectations about other voters' behavior. For instance, strategic voters might decide to shift their support away from their preferred candidate towards a candidate they like less but they expect to attract more voters and to have higher chances to be in contention for victory (e.g., Duverger, 1954; Myerson and Weber, 1993; Cox, 1997). Similarly, candidates decide whether or not to enter the race based on the fraction of voters they expect to vote for them and for their competitors. Candidates who foresee that they will receive too few votes or that their presence might divide the votes of their camp and lead to the victory of a candidate that is more distant ideologically might choose to stay out of the race. To form their expectations about others' preferences and strategies and make their own decisions, voters and candidates can rely on information provided by polls and past election results. Despite large evidence that political actors' overall level of information matters (e.g., Hall and Snyder, 2015), little is known about which information they actually use to make their decisions.

We focus on a specific piece of information: candidate rankings (the ordering of candidates in polls, in previous elections, or in the previous round, in two-round elections). While past and predicted vote shares provide detailed information on the distribution of preferences, rough-hewn rankings can be used as a coordination device in and of themselves. When more than two candidates are in the running, their past rankings can be used by strategic voters (who vote based on likely outcomes of the election) as a focal point to coordinate on the same subset of candidatesin a decentralized way, and by sister parties to determine which of their candidates should drop out. These coordination mechanisms can be reinforced by behavioral motives akin to the effects of asset rankings on trading behavior (Hartzmark, 2015), hospital rankings on their attractiveness (Pope, 2009), and employees' rankings on their performance (Barankay, 2018). Similarly, in the electoral context, voters who desire to vote for the winner might decide to "jump on the bandwagon" and rally higher-ranked candidates if they derive intrinsic value from voting for candidates who won or had a higher rank in the past or if they rightly anticipate that these candidates are more likely to win in the future.

In this paper, we estimate the impact of rankings on voters and candidates' decisions and examine whether this impact reflects strategic coordination or bandwagon effect. To isolate the effect of rankings from the effect of past vote shares, we use a regression discontinuity design (RDD) and compare the likelihood of running, the likelihood of winning, and the vote share obtained by candidates who had previously received close-to-identical numbers of votes but ranked just below or just above one another.

We implement this strategy in French local and parliamentary elections from 1958 to 2017. In these elections, the winner is designated by a two-round plurality voting rule, and up to three or four first-round candidates can qualify for the second round. This enables us to measure the effect on second-round outcomes of ranking first in the first round (instead of second), second (instead of third), and third (instead of fourth), and to test for impact heterogeneity by the number and type of other candidates qualified for the second round. In addition, all candidates qualifed for the second round can decide to drop out of the race. We can thus estimate the impact of first-round rankings both on voters' choice of candidate in the second round and on candidates' decision to run.

Our analysis builds on previous studies estimating the impact of candidate rankings across elections. First, following Lee (2008), an entire literature has examined the impact of ranking first (instead of second) on future elections and shown that close winners generally benefit from an incumbency advantage when they run again (e.g., Eggers et al., 2015). These studies have been unable to distinguish the effect of holding office from the pure effect of being labeled first, which we can instead isolate by studying two rounds of the same election. Second, Anagol and Fujiwara (2016) show that arriving second (instead of third) increases candidates' likelihood to run in future elections and win them and they attribute these effects to strategic coordination by voters. Our study differs in several important ways. We can estimate the effect of arriving second or third, as well as the effect of arriving first (independently from incumbency advantage). The short time span (one week) between the first and second rounds helps us isolating the direct effect of rankings from reinforcing mechanisms, such as increased notoriety of the higher-ranked candidates and differential likelihood to be replaced by another candidate of their party. And we can isolate the contribution of bandwagon effect to the impact of rankings by focusing on second rounds in which only two candidates qualified and there is thus no room or need for strategic coordination.

We first run an RDD on the vote share difference between the top two candidates in the first round and find that ranking first instead of second increases candidates' likelihood to stay in the second round by 5.6 percentage points and their likelihood to win by 5.8 percentage points. Arriving second instead of third has even larger effects, of respectively 23.5 and 9.9 percentage points. All these effects are measured in races in which both the higher-ranked and lower-ranked candidates qualified for the second round, and they are all significant at the 1 percent level. Arriving third instead of fourth increases candidates' likelihood to run in the second round by 14.6 percentage points and their likelihood to win by 2.2 percentage points. These effects are significant at the 1 and 10 percent level respectively.

The overall effects on winning can be driven both by the effect on running (candidates' decision to stay in the race) and by an effect on vote shares and winning conditional on running (if voters rally to higher-ranked candidates). We cannot directly estimate the latter effects by focusing on elections in which both the lower-ranked and higher-ranked candidates decide to enter the second round, as those who do are not randomly chosen. We derive bounds to deal with this selection issue and we find that arriving first instead of second increases the vote share and likelihood of winning conditional on running by 1.3 to 4.0 percentage points and 2.9 to 5.9 percentage points respectively. The effects of ranking second instead of third (resp. third instead of fourth) are 4.0 to 14.7 and 6.9 to 12.2 percentage points (resp. 2.5 to 10.0 and 3.0 to 5.0 percentage points).

Second, we disentangle the mechanisms responsible for these effects. We show that they are unlikely to be driven by differences in campaign expenditures or by other qualified candidates' decision to stay in the race or drop out. The effects are much larger when the higher- and lower-ranked candidates have the same political orientation. For instance, ranking first instead of second increases the likelihood of running by 35.2 percentage points when the first and second candidates have the same orientation, due to alliances among their parties, and the likelihood of winning by 30.4 percentage points, compared to only 0.1 and 1.7 percentage points when they have distinct orientations. This can come from the fact that shared orientation makes voters' and candidates' coordination against ideologically distant candidates more desirable, but also from the fact that it makes rallying to the higher-ranked candidate less costly, whatever the underlying motive.

To investigate the extent to which coordination can explain our results, we focus on elections in which three candidates or more qualified for the second round (and rankings can be used to coordinate on a subset of them) and compare the effects of ranking first instead of second depending on the challenge posed by the third candidate. We find that the effects on running and winning decrease with the gap between the second and third candidates' vote shares, suggesting that coordination (which is more critical when the gap is lower) explains part of the effects. In addition, the effects of ranking first are larger when the ideological distance between the top two candidates is lower than their distance with the third candidate (making coordination between the top two more desirable). To test whether strategic coordination suffices to explain our results, we turn to elections in which the third candidate is *not* qualified. In these elections, there is no room or need for coordination: all voters should vote for their preferred candidate among the top two, and candidates do not risk contributing to the victory of a disliked competitor by running. Nonetheless, we find that the effects of ranking first instead of second remain large: it increases the probability of running in the second round by 1.8 percentage points and vote share and the probability of winning conditional on running by 1.0 to 1.9 percentage points and 4.9 to 5.8 percentage points respectively. The overall effect of ranking first on winning when the third candidate is not qualified is 5.8 percentage points, which is very close to the effect in the full sample. These results indicate, first, that dropout agreements are not only driven by the desire to avoid the victory or a third candidate and, second, that the desire to vote for the winner is an important driver of voter behavior and that bandwagon effects sway many elections.

The remainder of the paper is organized as follows. We describe our empirical strategy in Section 2. Section 3 presents our empirical results and Section 4 discusses the underlying mechanisms. Section 5 concludes.

1.1 Contribution to the literature

[Forthcoming]

2 Empirical strategy

2.1 Setting

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. All French territories participate in local elections, except for Paris and Lyon (where the departmental council is elected during municipal elections) and some French territories overseas. Until an electoral reform in 2013, each canton elected one departmental council member. Local elections took place every three years and, in each département, only half of the cantons were electing their council member in a given election. After the reform, all cantons participated in elections held every six years and each canton elected a ticket composed of a man and a woman. The reform further reduced the number of cantons from 4035 to 2054, to leave the total number of council members roughly unchanged. 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 races, 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 if they obtain a first-round vote share higher than a predetermined threshold. This rule is essential for our study design, as it enables us to estimate the impact of ranking first instead of second (using all races in which no candidate wins in the first round) as well as the impact of ranking second, instead of third, and third, instead of fourth (using all races in which three or four candidates qualified for the second round).

Importantly, all candidates qualified for the second round can decide to drop out of the race between rounds. This allows us to estimate the impact of first-round rankings both on voters' choice of candidate in the second round and on candidates' decision to stay in the second round.

The qualification threshold changed over time: 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.[1] In parliamentary elections, the required vote share was 5 percent of the voters in 1958 and 1962, it was changed to 10 percent of the registered citizens in 1966, and increased to 12.5 percent of the registered citizens in 1976.

Our sample includes 14 parliamentary elections and 12 local elections: all parliamentary elections of the Vth Republic from 1958 to 2017 except for the 1986 election (which used proportionality rule), and all local elections from 1979 to 2015. We do not include local elections held before 1979 as the electoral rule allowed any candidate to run in the second round, irrespective of their vote share in the first round and even if they were absent from the first round.[2]

2.2 Data

Our sample includes a total of 22,556 races: 16,221 (71.9 percent) from local elections and 6,335 (28.1 percent) from parliamentary elections. Official results of local and parliamentary elections were digitized from printed booklets for the 1958 to 1988 parliamentary elections and for the 1979 to 1988 local elections, and obtained from the French Ministry of the Interior for the 1993 to 2017 parliamentary elections and for the 1992 to 2015 local elections. We exclude races where only one round took place and those with only one candidate in the first round. Table 1 gives the breakdown of the sample data by election type and year.

To measure the impact of ranking first instead of second (henceforth "1vs2"), we further exclude races in which two of the top three candidates[3] obtained an identical number of votes in the first round (sample 1). Indeed, we do not have any way to choose which candidate to treat as first,

[1] In the 2011 local elections, the threshold remained at 10 percent in the 9 cantons belonging to Mayotte département.

[2] Each of the 26 elections we consider took place at a different date. In 1988, both parliamentary and local elections were held, but in different months. The 2001 and 2008 elections took place at the same date as mayoral elections. Our results are robust to excluding these two elections.

[3] By "two of the top three candidates", we mean two of the top two candidates (i.e. the top two) if two candidates only competed in the first round, and two of the top three candidates if three candidates or more competed in the first round. The same applies to the next restrictions.

when the top two candidates obtained the same number of votes, and which candidate to compare to the first, when the two candidates ranked below her obtained the same number of votes. To measure the impact of ranking second instead of third (henceforth "2vs3"), we restrict our sample to races where three candidates at least competed in the first round and the third candidate qualified for the second round, and we exclude races in which two of the top four candidates obtained an identical number of votes in the first round (sample 2). To measure the impact of ranking third instead of fourth (henceforth "3vs4"), we restrict our sample to races where four candidates at least competed in the first round and the third and fourth candidates qualified for the second round, and we exclude races in which two candidates among the second, third, fourth and fifth obtained an identical number of votes in the first round (sample 3).

Table 1: Number of races by election type and year

Election type	Year	Nb of races	Election type	Year	Nb of races
Parliamentary elections	1958	433	Local elections	1979	1,086
	1962	374		1982	1,061
	1967	405		1985	1,230
	1968	319		1988	1,177
	1973	430		1992	1,425
	1978	423		1994	1,369
	1981	334		1998	1,513
	1988	455		2001	1,301
	1993	497		2004	1,516
	1997	565		2008	1,074
	2002	519		2011	1,564
	2007	467		2015	1,905
	2012	541			
	2017	573			
	Total	6,335		Total	16,221
	Total	22,556			

Thanks to the large number of elections we consider and the large number of races in each election, we have a large number of close races: the vote share difference between the candidates ranked first and second (resp. second and third, third and fourth) is lower than 2 percentage points in 2,581 races in sample 1, 1,874 races in sample 2, and 758 races in sample 3.

Table 2 presents some descriptive statistics on our full sample.

Table 2: Summary statistics

	Mean	Sd	Min	Max	Obs.
Panel A. 1st round					
Registered voters	28,295	28,157	258	200,205	22,556
Turnout	0.636	0.125	0.094	0.921	22,556
Candidate votes	0.613	0.122	0.093	0.914	22,556
Number of candidates	6.5	3.1	2	48	22,556
Panel B. 2nd round					
Turnout	0.628	0.134	0.117	0.968	22,556
Candidate votes	0.595	0.138	0.103	0.963	22,556
Number of candidates	2.1	0.4	1	6	22,556

In the average race, 63.6 percent of registered citizens turned out in the first round and 61.3 percent cast a valid vote for one of the candidates (henceforth "candidate votes"), as opposed to casting a blank or null vote.[4] On average, 6.5 candidates competed in the first round. Turnout in the second round was slightly higher than in the first round (62.8 percent on average) but the fraction of candidate votes was slightly lower (59.5 percent on average). The number of candidates competing in the second round ranged from 1 to 6 with an average of 2.1.

Tables A1, A2, and A3 in the Appendix present descriptive statistics on all races in samples 1, 2, and 3 as well as close races between the first and second candidates in sample 1, the second and third in sample 2, and the third and fourth in sample 3. Overall, samples 1, 2, and 3, and close races in these samples are very similar to the full sample. The most noticeable differences are as follows: in sample 1, turnout and the share of candidate votes in the second round were slightly higher in close races. In sample 2, the average number of candidates in the first round was slightly higher in close races but the number of candidates in the second round was almost identical, and turnout and the share of candidate votes were slightly lower in close races in both rounds but the increase between rounds was similar as in the full sample.

All the statistics shown in Tables 2, A1, A2, and A3 are at the race level. Importantly, the analysis below is conducted at the candidate level and uses exactly two observations per race, for the higher-ranked and lower-ranked candidates. We 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.[5]

[4]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. Casting a blank vote means putting an empty envelope in the ballot box, and a null vote writing something on the ballot or inserting multiple ballots in the envelope.

[5]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

2.3 Evaluation framework

We exploit close races to estimate the impact of candidates' first round rankings on their second round outcomes. To measure the impact of ranking 1vs2, we use two observations per race, corresponding to the candidates arrived first and second, and define the running variable X_1 as the difference between each candidate's vote share and the vote share of the other top-two candidate. For the candidate ranked first, the running variable is equal to her vote share minus the vote share of the candidate ranked second, and for the candidate ranked second it is equal to her vote share minus the vote share of the candidate ranked first:

$$X_1 = \begin{cases} voteshare_1 - voteshare_2 & if\, ranked\, 1st \\ voteshare_2 - voteshare_1 & if\, ranked\, 2nd \end{cases}$$

Similarly, for 2vs3 and 3vs4, we define the running variables X_2 and X_3 as:

$$X_2 = \begin{cases} voteshare_2 - voteshare_3 & if\, ranked\, 2nd \\ voteshare_3 - voteshare_2 & if\, ranked\, 3rd \end{cases}$$

$$X_3 = \begin{cases} voteshare_3 - voteshare_4 & if\, ranked\, 3rd \\ voteshare_4 - voteshare_3 & if\, ranked\, 4th \end{cases}$$

We define the treatment variable T as a dummy equal to 1 if the candidate was better ranked in the first round $(X > 0)$ and 0 otherwise, and evaluate the impact of higher rank 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 for candidate i. We run this specification separately for 1vs2, 2vs3, and 3vs4. It estimates the impact of rankings at the limit when both candidates have an identical vote share, and thus enables us to isolate the impact of ranking from the impact of differential vote share.

Following Imbens and Lemieux (2008) and Calonico et al. (2014), our main specification uses a non-parametric approach, which amounts to fitting two linear regressions on candidates respectively close to the left, and close to the right of the threshold. We test the robustness of our results

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 D shows the mapping between labels and political orientations for each election.

to a quadratic specification, including X_i^2 and its interaction with T_i as regressors in equation [1].

Since we use two observations per race (one on the left, and one on the right of the threshold), we cluster our standard errors at the race level (district x year level). Our results are left unchanged if we instead cluster at the district level (results available upon request).

Our estimation procedure follows Calonico et al. (2014), which provides robust confidence interval estimators. Our preferred specification uses the MSERD bandwidths developed by Calonico et al. (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) and to using tighter bandwidths by dividing the MSERD bandwidths by 2.

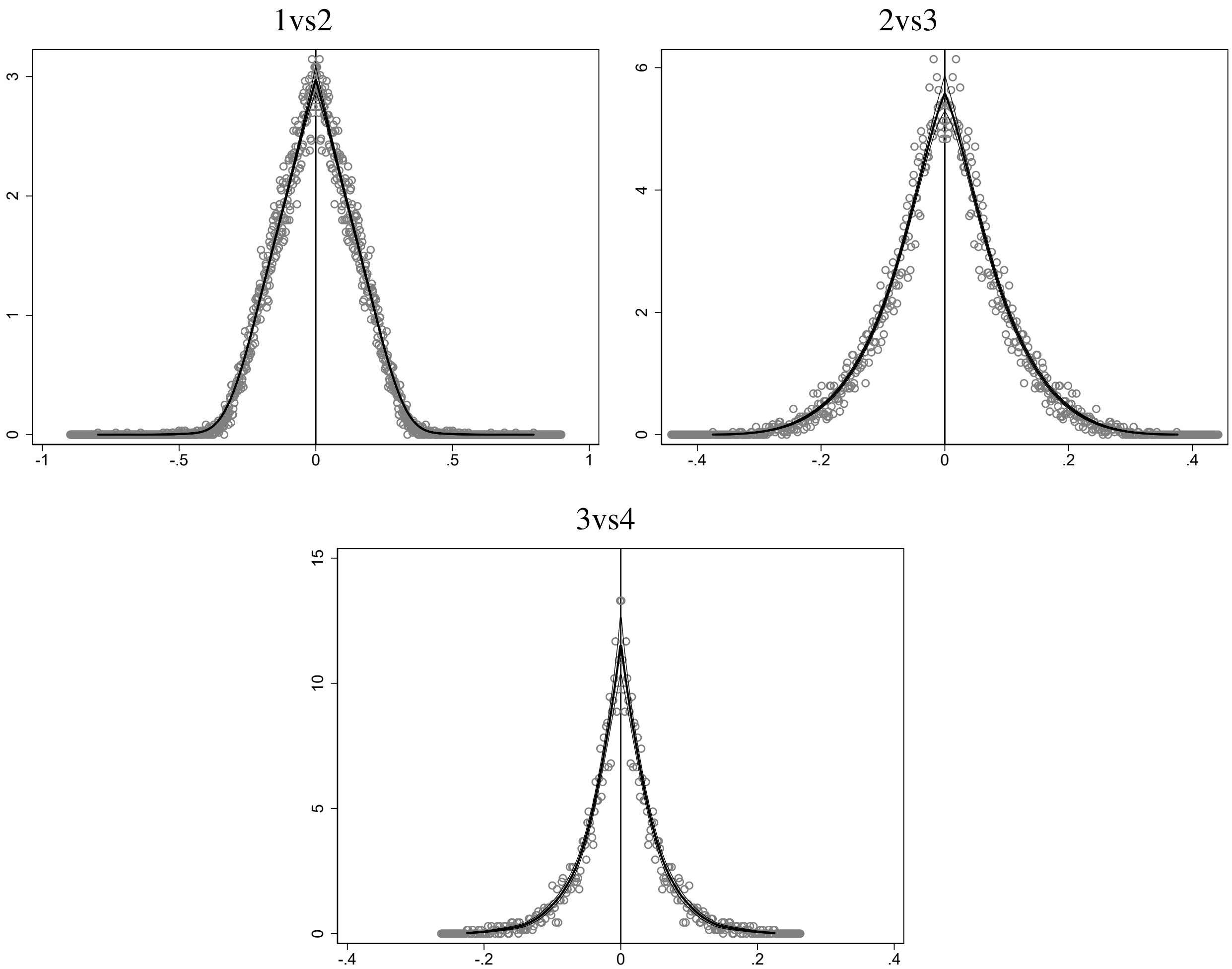
The bandwidths used for the estimations are data-driven and therefore vary depending on the outcomes and samples we consider.

2.4 Identification assumption

The identification assumption is that the distribution of candidate characteristics changes continuously around the threshold, so that the only discrete change occurring at this threshold is the shift in candidates' ranking. Sorting of candidates across the threshold only threatens the validity of this assumption if it occurs at the cutoff, with candidates of a particular type pushed just above or just below the threshold (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 et al., 2015). In our setting, manipulation of the threshold is perhaps even more unlikely than in other RDDs using vote share thresholds as very limited information is available about voters' intentions in the first round of French parliamentary or local races. In particular, district-level polls are very rare during parliamentary elections, and nonexistent during local elections, due to small district size and limited campaign funding.

To bring empirical support for the identification assumption, it is customary for RDDs to check if there is a jump in the density of the running variable at the threshold using a test designed by McCrary (2008). In our setting, this test is satisfied by construction since we consider the same set of races on both sides of the threshold and in each race the higher- and lower-ranked candidate are equally distant to the cutoff (see Figure 1).

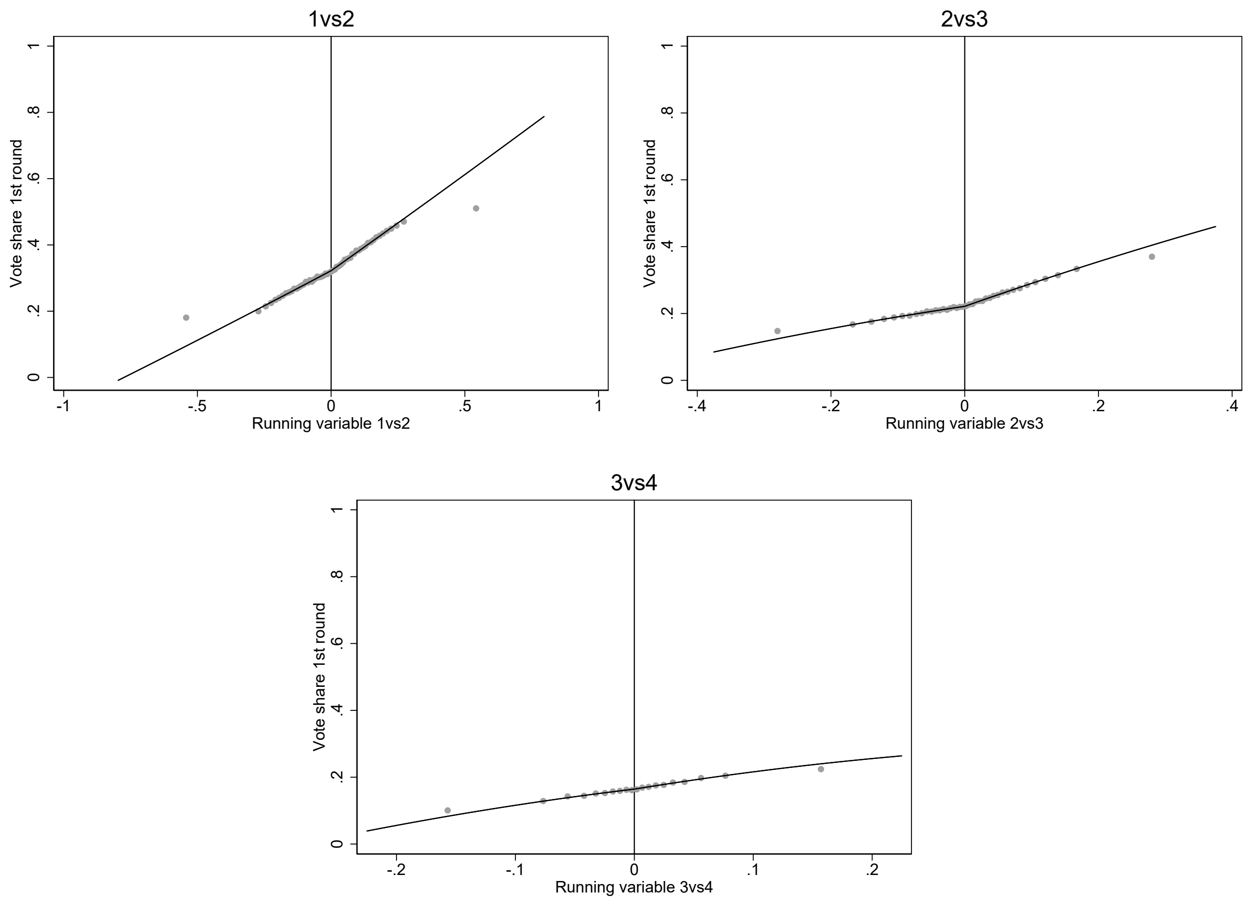
Figure 1: Density of the running variable



Similarly, first round outcomes such as district size, the total number of candidates, voter turnout, or the candidate's vote share are smooth by construction at the threshold. Figure 2 plots the first round candidate vote share against the running variable. For this graph as well as for graphs showing the effects of rankings in Section 3, each dot represents the average value of the outcome within a given bin of the running variable. Observations corresponding to higher-ranked candidates are on the right of the threhold, and those corresponding to lower-ranked candidates on the left. To facilitate visualization, a quadratic polynomial is fitted on each side of the threshold.

We observe that in sample 1, on average, the candidates ranked first and second in the first round received around 30 percent of candidate votes at the threshold. In sample 2 (resp. 3), the first round vote share of candidates ranked second and third (resp. third and fourth) was 20 percent (resp. 18 percent) at the threshold.

Figure 2: Vote share in the first round

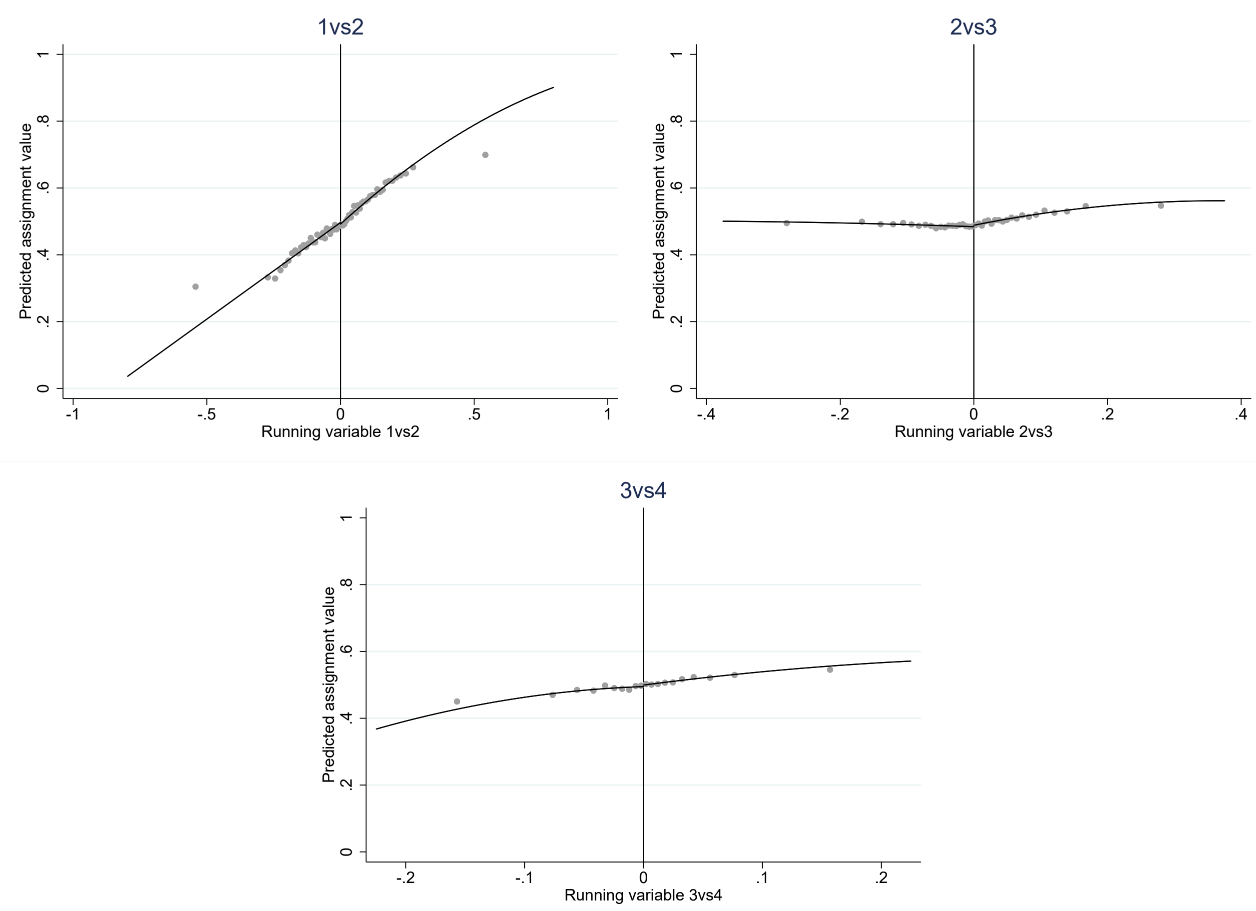


Notes: Dots represent the local averages of the candidate's vote share in the first round (y-axis). Averages are calculated within quantile-spaced bins of the running variable (x-axis). The running variable (the vote share difference between the two candidates in the first round) is measured as percentage points. Continuous lines are a quadratic fit.

To bring additional support for the identification assumption, we consider variables whose distribution at the threshold is not mechanically symmetric: the candidate's gender, a set of six dummies indicating her political orientation, the number of other candidates who have the same orientation who were competing in the first round, and her strength in the first round, defined as the sum of first-round vote shares of all candidates of the same orientation. We conduct the following general test for imbalance. We regress the assignment variable D on these variables, use the coefficients from this regression to predict assignment status for each candidate, and test whether the predicted value jumps at the threshold. Figure 3 shows the lack of any jump at the cutoff for predicted assignment to first rank (instead of second), second rank (instead of third), and third rank (instead of fourth). As shown in Table 3 the coefficients are small and non-significant.

We also examine whether there is a discontinuity in any of the variables used to predict assignment, taken individually (the corresponding graphs and tables are included in Appendix B). For 1vs2, one coefficient out of nine is significant at the 1 percent level: the probability to be on the center. For 2vs3, two coefficients are significant out of nine: the probability to be on the left (at the 5 percent level) and the probability to be a woman (at the 10 percent level). Finally, for 3vs4, one coefficient out of nine is significant at the 5 percent level: the probability to be on the left. Since the general balance test shows no discontinuity, we are confident that there is no systematic sorting of candidates at the threshold. In addition, the results shown in the rest of the paper are robust in sign, magnitude, and statistical significance to controlling for baseline variables that are statistically significant.

Figure 3: General balance test



Notes: Dots represent the local averages of the predicted assignment status (y-axis). Other notes as in Figure 2.

Table 3: General balance test

Outcome	(1)	(2)	(3)
	Predicted treatment		
	1vs2 (sample 1)	2vs3 (sample 2)	3vs4 (sample 3)
Treatment	-0.003	0.002	0.003
	(0.004)	(0.003)	(0.007)
Robust p-value	0.350	0.668	0.825
Observations left	12,340	5,497	1,222
Observations right	12,341	5,497	1,222
Polyn. order	1	1	1
Bandwidth	0.110	0.072	0.038
Mean, left of threshold	0.466	0.486	0.492

Notes: Standard errors clustered at the race level are in parentheses. Statistical significance is computed based on the robust p-value and ***, **, and * indicate significance at 1, 5, and 10%, respectively. The unit of observation is the candidate. Each column reports the results from a separate local polynomial regression. The outcome is the value of the treatment predicted by the following baseline variables: political orientation of the candidate (indicated by a set of dummies), candidate's gender, candidate's strength in the first round and number of candidates who have the same orientation as the candidate in the first round. The independent variable is a dummy equal to 1 if the candidate is better ranked in the first round. Separate polynomials are fitted on each side of the threshold. The polynomial order is 1 and the bandwidths are derived under the MSERD procedure. The mean, left of the threshold gives the value of the outcome for the lower ranked candidate at the threshold. It is computed by taking as outcome the probability of winning with all values on the right of the threshold replaced by 0.

3 Empirical results

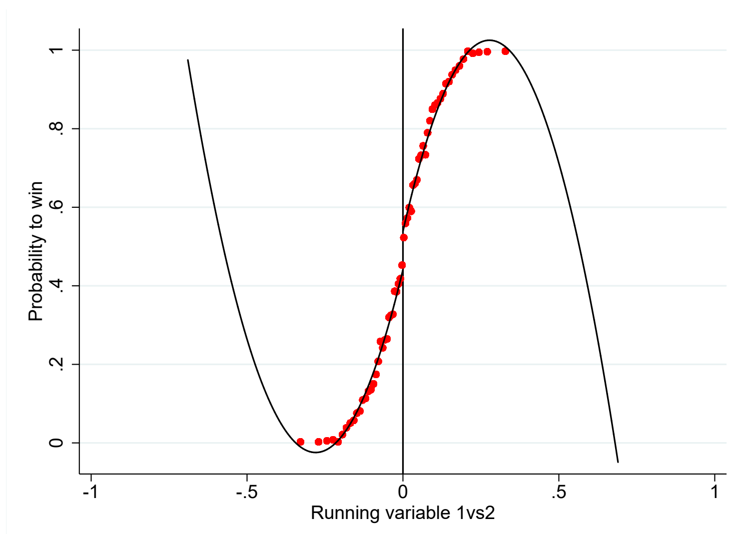
3.1 Impact on winning

We first measure the impact of candidates' first-round rankings on their unconditional likelihood to win the race: an outcome defined whether the candidate chooses to participate in the second round or not, and equal to 1 if the candidate wins, and 0 if she enters the second round and loses or if she drops out between rounds.

Figure 4 plots the likelihood that the first and second candidates win the election against the running variable. We observe a clear discontinuity at the cutoff: ranking 1vs2 in the first round has a large and positive impact on winning. Figure 5 shows an even larger jump for the impact of ranking 2vs3. A jump remains visible on Figure 6, which shows the impact of ranking 3vs4, but it is smaller: very few candidates ranked third and fourth in the first round are in a position to win the second round, limiting the scope for impact.

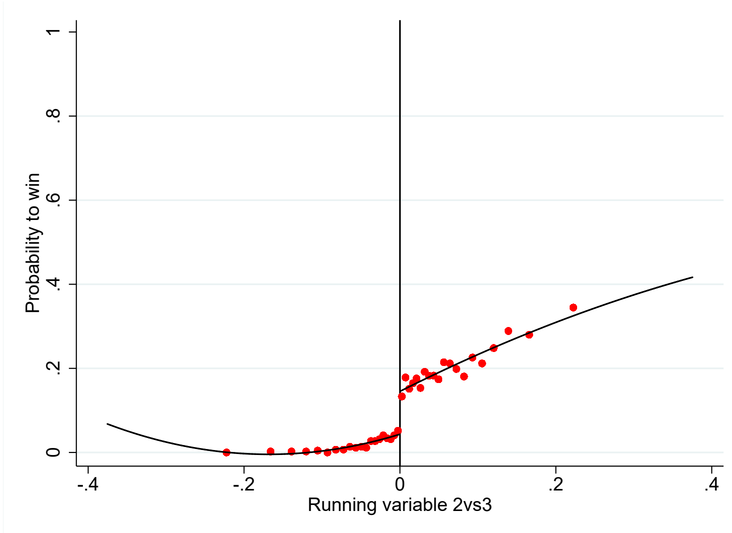
Table 4 provides the formal estimates of the effects using our preferred specification. On average, ranking 1vs2 in the first round increases the likelihood to win the election by 5.8 percentage points (column 1), which represents a 12.7 percent increase compared to the mean chance of victory of close second candidates at the threshold (45.6 percent). Ranking 2vs3 has an even larger effect, of 9.9 percentage points (column 2): it more than doubles the likelihood of victory of close third candidates (4.8 percent). The effect of ranking 3vs4 is smaller in magnitude (2.2 percentage points, column 3), but it amounts to a three-fold increase compared to the very small fraction of races won by close fourth candidates (0.6 percent). The effects of ranking 1vs2 and 2vs3 are significant at the 1 percent level and the effect of ranking 3vs4 at the 10 percent level.

Figure 4: Impact on winning 1vs2



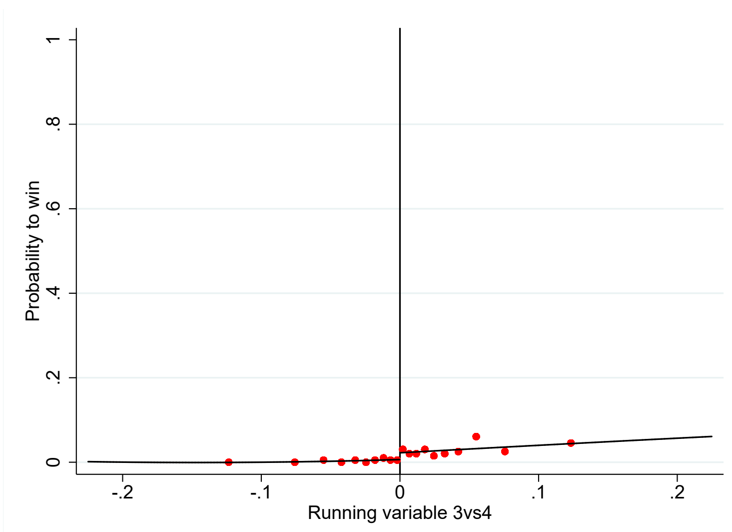
Notes: Dots represent the local averages of the probability that the candidate wins in the second round (y-axis). Averages are calculated within quantile-spaced bins of the running variable (x-axis). The running variable (the vote share difference between the two candidates in the first round) is measured as percentage points. The graph is truncated at 70 percent on the x-axis to accommodate for a single outlier. Continuous lines are a quadratic fit.

Figure 5: Impact on winning 2vs3



Dots represent the local averages of the probability that the candidate wins in the second round (y-axis). Averages are calculated within quantile-spaced bins of the running variable (x-axis). The running variable (the vote share difference between the two candidates in the first round) is measured as percentage points. Continuous lines are a quadratic fit.

Figure 6: Impact on winning 3vs4



Notes as in Figure 5.

Table 4: Impact on winning

	(1)	(2)	(3)
Outcome	Probability to win in the 2^{nd} round		
	1vs2	2vs3	3vs4
	(sample 1)	(sample 2)	(sample 3)
Treatment	0.058***	0.099***	0.022*
	(0.017)	(0.013)	(0.011)
Robust p-value	0.004	0.000	0.051
Observations left	8,020	4,375	1,119
Observations right	8,020	4,375	1,119
Polyn. order	1	1	1
Bandwidth	0.066	0.052	0.033
Mean, left of threshold	0.456	0.048	0.006

Notes: Standard errors clustered at the race levelare in parentheses. Statistical significance is computed based on the robust p-value and ***, **, and * indicate significance at 1, 5, and 10%, respectively. The unit of observation is the candidate. Each column reports the results from a separate local polynomial regression. The outcome is a dummy equal to 1 if the candidate wins the election. The independent variable is a dummy equal to 1 if the candidate is better ranked in the first round. Separate polynomials are fitted on each side of the threshold. The polynomial order is 1 and the bandwidths are derived under the MSERD procedure. The mean, left of the threshold gives the value of the outcome for the lower ranked candidate at the threshold. It is computed by taking as outcome the probability of winning with all values on the right of the threshold replaced by 0.

To probe the robustness of the results to alternative specification and bandwidth choices, we estimate the treatment impacts using a quadratic specification (Table C1 in Appendix C, columns 2, 4 and 6), the optimal bandwidths computed according to Imbens and Kalyanaraman (2012) (Table C2, columns 2, 4 and 6), and tighter bandwidths obtained by dividing the MSERD bandwidths by 2 (Table C3, columns 2, 4 and 6). All regressions use Calonico et al. (2014)'s estimation procedure, which provides robust confidence interval estimators. The estimates obtained using these different specifications are very close in magnitude and they remain statistically significant at the same level. In addition, the effects of ranking 2vs3 are robust to excluding races in which the second candidate is close to the first candidate in the first round and the effects of ranking 3vs4 to excluding races in which the third candidate is close to the second, indicating that our estimates are not driven by cases in which several vote share discontinuities overlap.

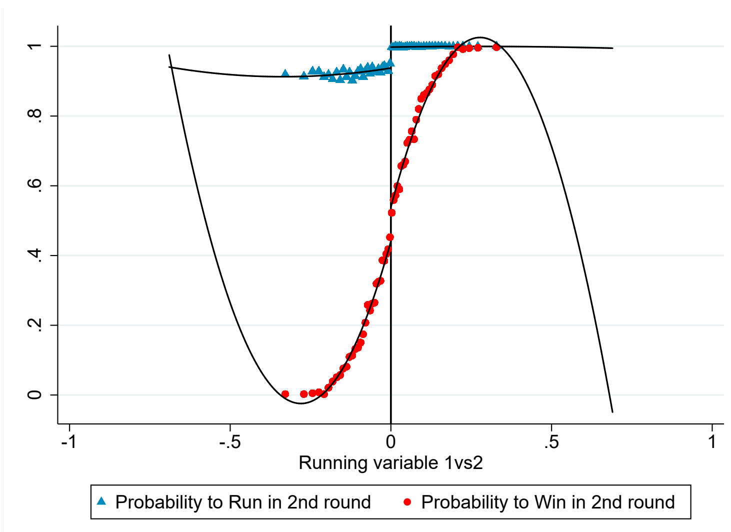
The effects of rankings on winning the race can result both from an increased likelihood to run in the second round, as any qualified candidate can decide to drop out and winning requires staying in the race, and from an increased likelihood to win the election, conditional on running, if voters rally to higher-ranked candidates. We now use our RDD framework to estimate the effects of rankings on both outcomes and disentangle these two channels. We also estimate the impact on vote shares conditional on running, to determine which fraction of voters drives the impact on winning conditional on running.

3.2 Impact on running

We begin again with a graphical analysis. Figure 7 plots both the likelihood of running (in blue) and the likelihood of winning (in red, replicating Figure 4) of the first and second candidates against the running variable. The quadratic polynomial fit for running indicates a large upward jump at the cutoff. The jump is even more spectacular for ranking 2vs3 (Figure 8) and 3vs4 (Figure 9), and in both cases it is larger than the discontinuity observed for winning.

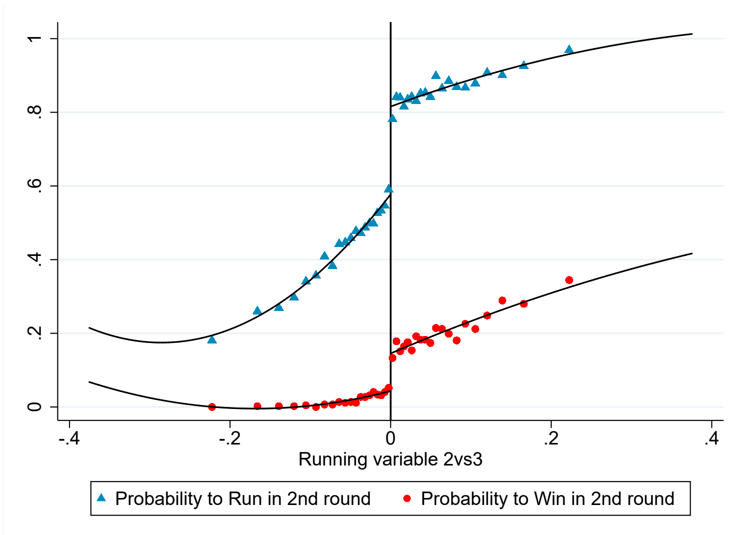
Consistent with the graphical analysis, the estimates reported in Table 5 indicate that ranking 1vs2 increases candidates' likelihood to run in the second round by 5.6 percentage points (6.0 percent of the mean at the threshold on the left): while 5.9 percent of close second candidates decide not to enter the second round, all first place candidates do (column 1). Ranking 2vs3 and 3vs4 has larger effects still: it increases running by 23.5 percentage points (40.9 percent) and 14.6 percentage points (48.0 percent) respectively (columns 3 and 5). All three effects are significant at the 1 percent level.

Figure 7: Impact on winning and running 1vs2



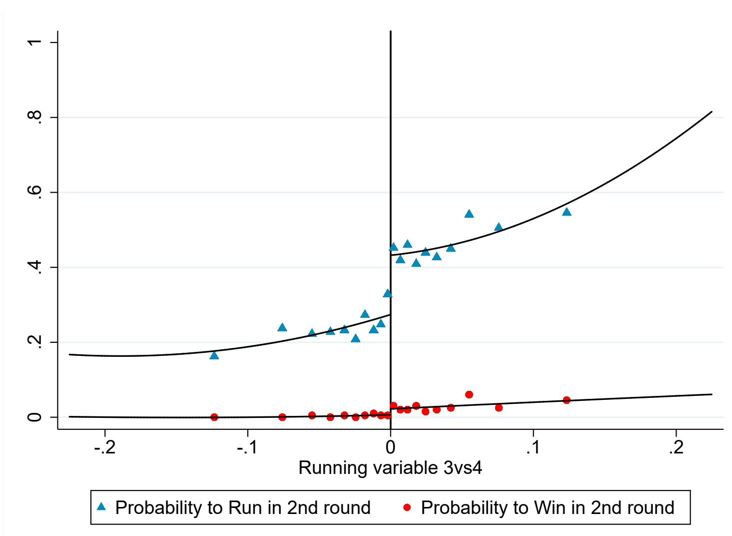
Notes: Triangles (resp. circles) represent the local averages of the probability that the candidate runs (resp. wins) in the second round (y-axis). Other notes as in Figure 4.

Figure 8: Impact on winning and running 2vs3



Notes: Triangles (resp. circles) represent the local averages of the probability that the candidate runs (resp. wins) in the second round (y-axis). Other notes as in Figure 5.

Figure 9: Impact on winning and running 3vs4



Notes as in Figure 8.

Table 5: Impact on winning and running

Outcome	(1)	(2)	(3)	(4)	(5)	(6)
	1vs2 (sample1)		2vs3 (sample 2)		3vs4 (sample 3)	
	Run	Win	Run	Win	Run	Win
Treatment	0.056***	0.058***	0.235***	0.099***	0.146***	0.022*
	(0.005)	(0.017)	(0.018)	(0.013)	(0.040)	(0.011)
Robust p-value	0.000	0.004	0.000	0.000	0.003	0.051
Observations left	12,209	8,020	5,350	4,375	1,157	1,119
Observations right	12,209	8,020	5,350	4,375	1,157	1,119
Polyn. order	1	1	1	1	1	1
Bandwidth	0.109	0.066	0.068	0.052	0.036	0.033
Mean, left of threshold	0.941	0.456	0.574	0.048	0.304	0.006

Notes: In columns 1, 3 and 5 (resp. 2, 4 and 6), the outcome is a dummy equal to 1 if the candidate runs (resp. wins) in the second round. Other notes as in Table 4.

Once again, these effects have a similar magnitude and remain statistically significant when using a quadratic specification or the two alternative bandwidths (see Appendix C), and the effect of ranking 2vs3 (resp. 3vs4) is robust to excluding races in which the second candidate was close to the first candidate in the first round (resp. the third candidate was close to the second).

3.3 Impact on winning and vote shares conditional on running

We now turn to the second channel which might underlie the impacts of rankings on winning: an increased vote share and likelihood of winning *conditional on running* in the second round.

To estimate these effects, we cannot simply run an RDD on elections in which both the lower-ranked and higher-ranked candidates decide to enter the second round. Indeed, the fact that close candidates are similar at the threshold does not imply that close candidates who decide to run in the second round are similar as well.

To address this selection issue, we follow Anagol and Fujiwara (2016), who adapt Lee (2009)'s bounds method to RDDs. To estimate the impact of ranking 1vs2 on the likelihood of winning conditional on running, we first decompose it mathematically into observed and unobserved components.

Using the potential outcomes framework, we define R_0 and R_1 as binary variables indicating if the candidate runs in the second round when $T = 0$ (the candidate ranked second in the first round) and $T = 1$ (the candidate ranked first in the first round), respectively. In the data, we only observe $R = TR_1 + (1-T)R_0$: we know whether the candidate ranked first decides to run in the second round but not whether she would have run if ranked second, and conversely. Similarly, we define

W_0 and W_1 as binary variables indicating if the candidate wins in the second round conditional on running when $T = 0$ and $T = 1$, respectively. We only observe $W = R[TW_1 + (1-T)W_0]$: when the candidate does not run in the second round ($R = 0$), she does not win ($W = 0$) and we do not observe whether she would have won if she had stayed in the race. When she runs in the second round ($R = 1$), we observe whether the candidate ranked first wins the election but not whether she would have won if ranked second, and conversely.

We further define four types of candidates: "always takers," who always run in the second round, whether they ranked first or second in the first round; "never takers," who never run in the second round; "compliers," who run in the second round if ranked first but not if ranked second; and "defiers," who run in the second round if ranked second but not if ranked first. The key assumption we use to derive bounds is that there are no defiers: all candidates who ranked second and enter the second round would also have run if ranked first. Under this assumption, we have that $R_1 \geq R_0$ and we can write the impact on the unconditional likelihood of winning (estimated in Section 3.1) as the sum of the impact on running in the second round (estimated in Section 3.2), multiplied by the likelihood that close second-place compliers would win if they entered the race; and the impact on the likelihood of winning conditional on running (for compliers and always takers), multiplied by the probability of running of first-place candidates at the threshold:

$$\underbrace{E(W_1R_1 - W_0R_0|x=0)}_{RD\ effect\ on\ W} = \underbrace{Prob(R_1 > R_0|x=0)}_{RD\ effect\ on\ R} \cdot \underbrace{E(W_0|x=0, R_1 > R_0)}_{Unobservable}$$

$$+ \overbrace{E[W_1 - W_0|x=0, R_1 = 1]}^{Effect\ on\ win\ cond\ on\ being\ always-taker\ or\ complier} \cdot \underbrace{E(R_1|x=0)}_{lim_{x\downarrow 0}E[R|x]}$$

From this expression, we get:

$$\overbrace{E[W_1 - W_0|x=0, R_1 = 1]}^{Effect\ on\ win\ cond\ on\ being\ always-taker\ or\ complier} = \frac{1}{\underbrace{E(R_1|x=0)}_{lim_{x\downarrow 0}E[R|x]}}[\underbrace{E(W_1R_1 - W_0R_0|x=0)}_{RD\ effect\ on\ W} - \underbrace{Prob(R_1 > R_0|x=0)}_{RD\ effect\ on\ R} \cdot \underbrace{E(W_0|x=0, R_1 > R_0)}_{Unobservable}] \quad (2)$$

$E(W_0|x=0, R_1 > R_0)$ is the likelihood that compliers would win if they entered the race, absent treatment (i.e., when they rank second). By definition, compliers do not run when they rank second (but only when they rank first). This term is thus unobservable. Since all the other terms on the right-hand side of equation [2] are observed, we can derive bounds on the effect on winning conditional on running by making assumptions about this term.

To obtain an upper bound, we set $E(W_0|x=0,R_1>R_0)=0$, as the largest possible effect occurs if we assume that close second-ranked compliers would never win in the second round if they decided to run. To obtain a lower bound, we replace the unobservable term by the probability that a close first-ranked complier wins the election: 51.8 percent. The choice of this high probability (which is higher than the probability of victory of close second-rank candidates who actually run in the second round: 48.4 percent) makes our lower bound conservative.

We use the same method to derive bounds on the impact of ranking 2vs3 and 3vs4 on the likelihood of winning conditional on running. The probabilities that close second-ranked and third-ranked compliers win the election, which we use to replace the unobservable term when computing the lower bounds of both impacts are 18.3 and 6.2, respectively, which is much higher than the probability of victory of close third-ranked (resp. fourth-ranked) candidates who do run in the second round: 8.5 (resp. 1.6).

To derive bounds on the effects on second round vote shares conditional on running, we replace the RD effect on the unconditional likelihood of winning by the RD effect on unconditional vote shares (an outcome equal to 0 if the candidate drops out between rounds), in Equation [2]. This effect corresponds to the jumps observed on Figure 10, which plots unconditional vote shares of the lower-ranked and higher-ranked candidates against the running variable. In addition, to derive the lower bound 1vs2, we replace the unobservable term by the vote share obtained in the second round by close first-ranked compliers: 48.6 percent. Again, we use the same method for 2vs3 and 3vs4. The second round vote share of close second-ranked and third-ranked compliers, which we use to compute their lower bounds are 37.0 and 23.1 respectively.

Finally, we use a bootstrapping procedure to estimate the standard errors of the bounds: we draw a sample from our data with replacement, compute the lower and upper bounds as indicated above, repeat these two steps a very large number of times, and estimate the empirical standard deviation of both bounds.

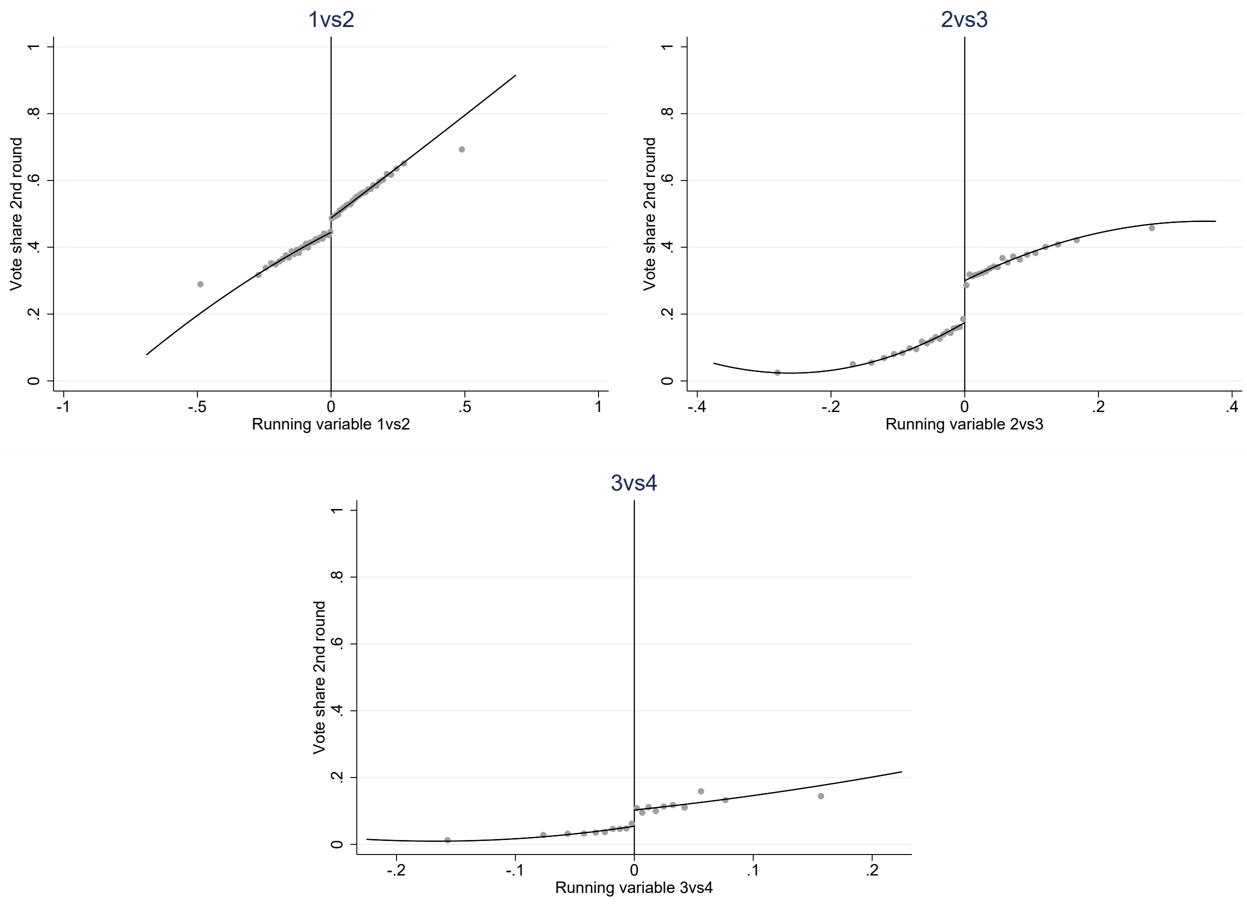
Table 6 provides the resulting bounds and bootstrapped standard errors of the effects of ranking 1vs2, 2vs3 and 3vs4 on conditional vote shares and likelihood of winning.

As shown in column 1, conditional on running in the second round, ranking 1vs2 in the first round increases the likelihood of winning by 2.9 to 5.9 percentage points (6.0 to 12.2 percent of the mean for candidates ranked second who run in the second round at the threshold). The upper bound is significant at the 5 percent level, but not the lower bound. The effect on vote shares conditional on running is 1.3 to 4.0 percentage points (2.8 to 8.5 percent), where both the upper and lower bounds are significant at the 1 percent level (column 2).

Ranking 2vs3 has larger effects, conditional on running. First, it increases the likelihood of winning by 6.9 to 12.2 percentage points (81.2 to 143.5 percent, column 3). In other words, ranking 2vs3 roughly doubles candidates' likelihood of winning, conditional on running. Second, it increases the conditional second round vote share by 4.0 to 14.7 percentage points (12.9 to 47.3 percent, column 4). Both the upper and lower bounds of both effects are significant at the 1 percent level.

Finally, ranking 3vs4 increases the conditional likelihood of winning by 3.0 to 5.0 percentage points, which amounts to a two-fold or three-fold increase, compared to the mean at the threshold on the left (column 5). It increases the second round vote share by 2.5 to 10.0 percentage points (12.7 to 50.8 percent), conditional on running (column 6). All these bounds are significant at the 10 percent level or at a higher level.

Figure 10: Vote share in the second round



Notes: Dots represent the local averages of the predicted assignment status (y-axis). Other notes as in Figure 2.

Table 6: Bounds on winning and vote share, conditional on running

Outcome	(1)	(2)	(3)	(4)	(5)	(6)
	1vs2 (sample 1)		2vs3 (sample 2)		3vs4 (sample 3)	
	Win	Vote share	Win	Vote share	Win	Vote share
Upper bound	0.059	0.040	0.122	0.147	0.050	0.100
Boot. std error	(0.025)**	(0.004)***	(0.017)***	(0.012)***	(0.023)**	(0.023)***
Lower bound	0.029	0.013	0.069	0.040	0.030	0.025
Boot. std error	(0.024)	(0.003)***	(0.014)***	(0.005)***	(0.018)*	(0.012)**
Mean $T = 0$	0.484	0.472	0.085	0.311	0.016	0.197

Notes: ***, **, and * indicate significance at 1, 5, and 10%, respectively. The mean, left of the threshold gives the value of the outcome for the lower ranked candidate at the threshold, conditional on running in the second round. It is computed by taking as outcome the probability of winning or the vote share, with all values on the right of the threshold replaced by 0.

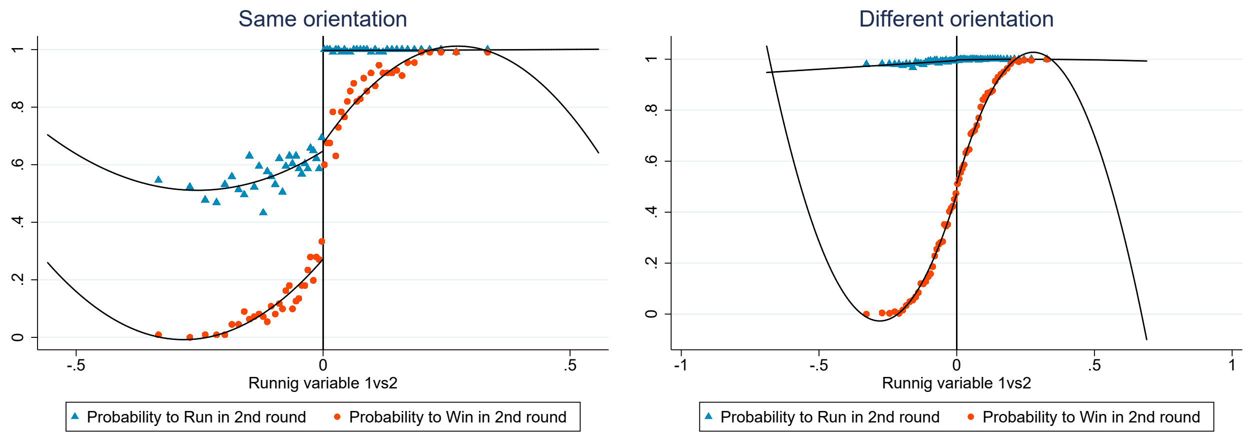
4 Mechanisms

4.1 Impact depending on political orientation

To investigate the mechanisms underlying the large effects of ranking 1vs2, 2vs3, and 3vs4 on running in the second round, winning, and winning and vote shares conditional on running, we first compare effect size when the higher- and lower-ranked candidates have the same political orientation or, instead, distinct orientations.

As shown on Figures 11, 12 and 13, the effects of rankings on running and winning are much larger in races in which candidates have the same orientation. When the first and second candidates have the same orientation, ranking 1vs2 increases the likelihood of running and winning by 35.2 and 30.4 percentage points (Table 7, columns 2 and 5). Both estimates are significant at the 1 percent level. Instead, the effects are close to zero and not significant when they have distinct orientations (columns 3 and 6). We find a similar difference, although not as important, for ranking 2vs3: its effects on running and winning are 62.7 and 22.3 percentage points, significant at the 1 percent level, when the second and third candidates have the same orientation. When they have distinct orientations, the effects remain significant at the 5 percent level but decrease to 5.2 and 4.1 percentage points (Table 8). Finally, when the third and fourth candidates have the same orientation, the effect of ranking 3vs4 on running is 40.1 percentage points and significant at the 1 percent level, and the effect on winning 4.0 percentage points and not significant. Both point estimates are lower and not significant when they have distinct orientations (Table 9).

Figure 11: Impact depending on political orientation 1vs2



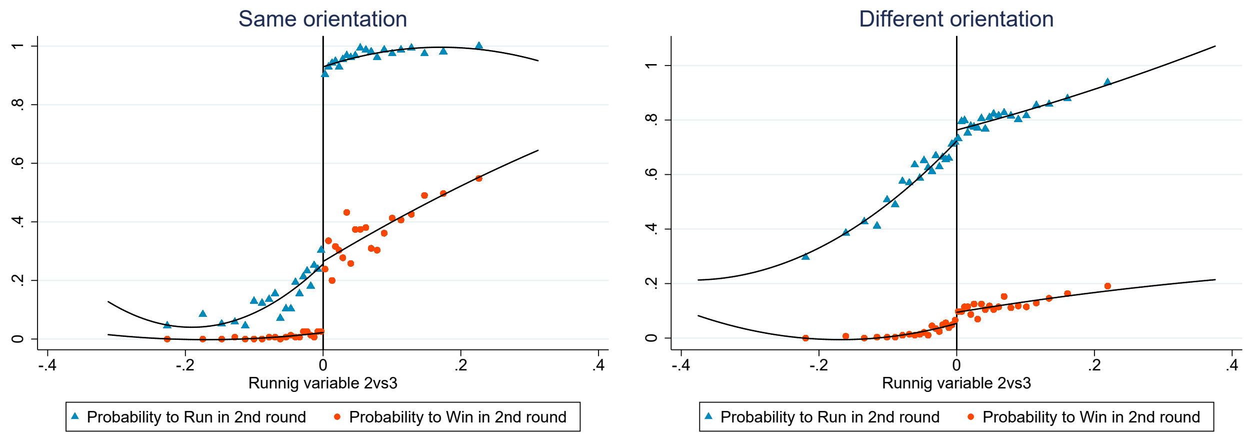
Notes as in Figure 7.

Table 7: Impact depending on political orientation 1vs2

Outcome	(1)	(2)	(3)	(4)	(5)	(6)
	Probability to run 1vs2			Probability to win 1vs2		
	Full	Same	Diff	Full	Same	Diff
Treatment	0.056***	0.352***	0.001	0.058***	0.304***	0.017
	(0.005)	(0.022)	(0.002)	(0.017)	(0.038)	(0.018)
Robust p-value	0.000	0.000	0.693	0.004	0.000	0.623
Observations left	12,209	2,046	7,219	8,020	1,394	7,243
Observations right	12,209	2,046	7,219	8,020	1,394	7,243
Polyn. order	1	1	1	1	1	1
Bandwidth	0.109	0.121	0.071	0.066	0.076	0.072
Mean, left of threshold	0.941	0.647	0.996	0.456	0.315	0.480

Notes: In columns 1, 2 and 3 (resp. 3, 4 and 5), the outcome is a dummy equal to 1 if the candidate runs (resp. wins) in the second round. In columns 2 and 5 (resp. 3 and 6) the two candidates have the same orientation (resp. distinct orientations). Other notes as in Table 4.

Figure 12: Impact depending on political orientation 2vs3



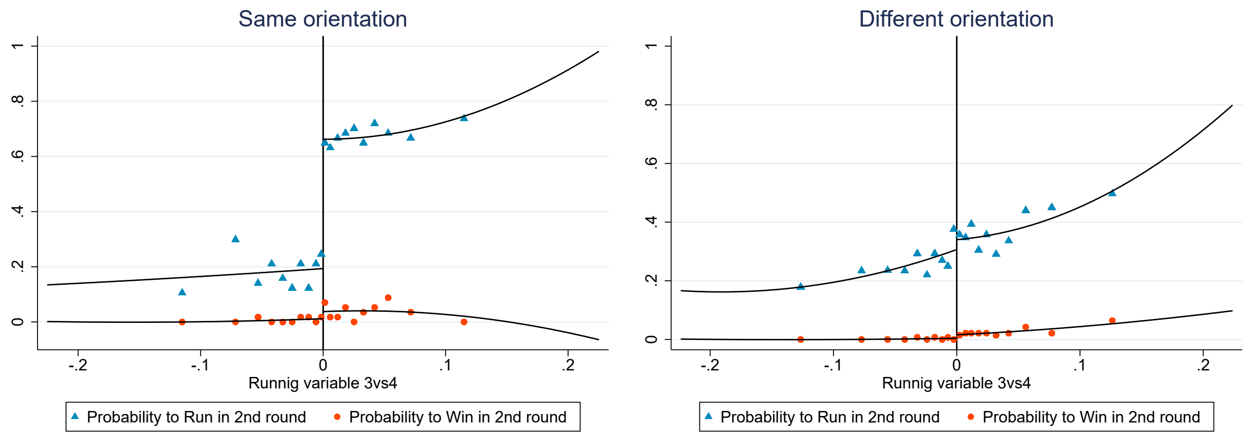
Notes as in Figure 7.

Table 8: Impact depending on political orientation 2vs3

Outcome	(1)	(2)	(3)	(4)	(5)	(6)
	Probability to run 2vs3			Probability to win 2vs3		
	Full	Same	Diff	Full	Same	Diff
Treatment	0.235***	0.627***	0.052**	0.099***	0.223***	0.041**
	(0.018)	(0.029)	(0.021)	(0.013)	(0.027)	(0.013)
Robust p-value	0.000	0.000	0.045	0.000	0.000	0.011
Observations left	5,350	1,489	3,727	4,375	1,343	3,490
Observations right	5,350	1,489	3,727	4,375	1,343	3,490
Polyn. order	1	1	1	1	1	1
Bandwidth	0.068	0.055	0.073	0.052	0.048	0.066
Mean, left of threshold	0.574	0.286	0.706	0.048	0.023	0.059

Notes: In columns 1, 2 and 3 (resp. 3, 4 and 5), the outcome is a dummy equal to 1 if the candidate runs (resp. wins) in the second round. In columns 2 and 5 (resp. 3 and 6) the two candidates have the same orientation (resp. distinct orientations). Other notes as in Table 4.

Figure 13: Impact depending on political orientation 3vs4



Notes as in Figure 7.

Table 9: Impact depending on political orientation 3vs4

Outcome	(1)	(2)	(3)	(4)	(5)	(6)
	Probability to run 3vs4			Probability to win 3vs4		
	Full	Same	Diff	Full	Same	Diff
Treatment	0.146***	0.401***	0.026	0.022*	0.040	0.014
	(0.040)	(0.065)	(0.049)	(0.011)	(0.027)	(0.009)
Robust p-value	0.003	0.000	0.758	0.051	0.127	0.156
Observations left	1,157	349	812	1,119	325	847
Observations right	1,157	349	812	1,119	325	847
Polyn. order	1	1	1	1	1	1
Bandwidth	0.036	0.038	0.035	0.033	0.034	0.037
Mean, left of threshold	0.304	0.233	0.330	0.006	0.013	0.002

Notes as in Table 7.

A possible interpretation is that the effects of rankings are driven by coordination: strategic voters use them to all coordinate on the same subset of candidates in a decentralized way, and parties to decide which candidates should drop out of the race. Shared political orientation makes coordination more *desirable*: it increases the value that the lower-ranked candidate and her supporters associate with the victory of the higher-ranked candidate against ideologically distant candidates and makes them more willing to contribute to it (by dropping out and voting for her, respectively), resulting in larger effects of rankings. But other interpretations are possible, since shared orientation also makes it *easier* for sister parties to reach dropout agreements (Pons and Tricaud, 2018) and less costly for voters to rally the higher-ranked candidate, whatever the underlying motive.

In the next two sections, we focus on the impact of ranking 1vs2 and consider separately races in which a third candidate qualified or failed to qualify, to disentangle the different possible mechanisms at play.

4.2 The role of coordination

To investigate the extent to which coordination explains the effects of ranking 1vs2, we focus on elections in which three candidates or more qualified for the second round (sample 2). In these elections, the top two candidates and their supporters might want to coordinate against lower-ranked candidates and use rankings to do so. We conduct two distinct tests.

First, the first and second candidates and their supporters should be more willing to coordinate when the candidate ranked third is stronger and more likely to challenge the victory of one of them. If coordination against the third candidate drives our results, we should thus expect the second candidate to be more likely to drop out of the race and voters to be more likely to rally the first when the third candidate's vote share is closer to the second candidate's. Consistent with this prediction, Table 10 shows that the effects of ranking 1vs2 on entering the second round and winning are larger when the gap in first round vote shares between the second and third candidates is lower than 5 percentage points than in the full sample (columns 1 through 4). Effect size further increases when the gap is lower than 2.5 percentage points (columns 5 and 6).[6]

Second, the top two candidates and their supporters should be more likely to coordinate together (instead of coordinating with other candidates and groups of voters) when their ideological distance is relatively lower than their distance with the third candidate. To the extent that our results are driven by coordination, we should first expect the effects to be larger when the third candidate has a different orientation than both top two than when she has the same orientation, in races in which the top two candidates have the same orientation. The results shown in Table 11 are aligned with this prediction: ranking 1vs2 increases the likelihood of running by 12.8 percentage points when the third candidate has the same orientation and 48.0 percentage points when she has a different orientation (columns 3 and 5); its effects on the likelihood of winning are -3.1 percentage points (which is not statistically significant) and 45.2 percentage points respectively (columns 4 and 6). When the top two candidates have distinct orientations, we should expect larger effects when the third candidate is on the right or on the left of both of them, on the left-right axis, than when she has the same orientation as one of them or is located in between. Support for this prediction is weaker as none of the effects found on running and winning in these two cases is significant

[6]We observe the same patterns when we restrict the sample to races in which the top two candidates have the same orientation (see Table A4 in the Appendix).

(Table 12).

Overall, effect size heterogeneity in races in which three candidates or more qualified for the second round supports the interpretation that coordination by candidates and voters explains at least part of the effects of ranking 1vs2. To test whether coordination can explain them entirely, we now turn to races in which the third candidate is *not* qualified for the second round (races of sample 1 where the third candidate received a vote share below the qualification threshold in the first round).

Table 10: Impact on 1vs2 depending on the strength of the 3rd

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome	1vs2					
	Full		Gap<5%		Gap<2.5%	
	Run	Win	Run	Win	Run	Win
Treatment	0.096***	0.053	0.130***	0.099*	0.185***	0.150**
	(0.010)	(0.025)	(0.017)	(0.040)	(0.030)	(0.046)
Robust p-value	0.000	0.119	0.000	0.065	0.000	0.012
Observations left	4505	3534	1950	1496	810	1073
Observations right	4505	3534	1950	1496	810	1073
Polyn. order	1	1	1	1	1	1
Bandwidth	0.087	0.065	0.089	0.066	0.065	0.089
Mean, left of threshold	0.899	0.450	0.864	0.392	0.807	0.350

Notes: Sample includes only the races where the third candidate is qualified for the second round. In columns 2 and 5 (resp. 3 and 6) the sample is further restricted to elections where the gap in the vote share between the candidates ranked second and third in the first round is lower than 5 (resp. 2.5) percentage points. In columns 1, 2 and 3 (resp. 4,5 and 6), the outcome is a dummy equal to 1 if the candidate runs (resp. wins) in the second round. Other notes as in Table 4.

Table 11: Impact on 1vs2 depending on the political orientation of the 3rd - same orientation

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome	1vs2 - same orientation					
	Full		3rd same		3rd diff	
	Run	Win	Run	Win	Run	Win
Treatment	0.420***	0.371***	0.128**	-0.031	0.480***	0.452***
	(0.036)	(0.045)	(0.049)	(0.122)	(0.041)	(0.044)
Robust p-value	0.000	0.000	0.023	0.523	0.000	0.000
Observations left	869	854	177	138	707	802
Observations right	869	854	177	138	707	802
Polyn. order	1	1	1	1	1	1
Bandwidth	0.071	0.069	0.088	0.063	0.070	0.082
Mean, left of threshold	0.580	0.274	0.874	0.567	0.521	0.220

Notes: Sample includes only the races where the third candidate is qualified for the second round and the top two candidates have the same political orientation. In columns 3 and 4 (resp. 5 and 6) the sample is further restricted to elections where the third candidate has the same political orientation as the top two (resp. has a different political orientation). In columns 1, 3 and 5 (resp. 2,4 and 6), the outcome is a dummy equal to 1 if the candidate runs (resp. wins) in the second round. Other notes as in Table 4.

Table 12: Impact on 1vs2 depending on the political orientation of the 3rd - distinct orientations

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome	1vs2 - distinct orientations					
	Full		3rd same or middle		3rd on the left or right	
	Run	Win	Run	Win	Run	Win
Treatment	0.003	-0.021	-0.006	-0.003	0.028	-0.020
	(0.005)	(0.026)	(0.004)	(0.027)	(0.015)	(0.056)
Robust p-value	0.745	0.277	0.140	0.782	0.103	0.470
Observations left	2,843	3,158	1,662	2,952	801	658
Observations right	2,843	3,158	1,662	2,952	801	658
Polyn. order	1	1	1	1	1	1
Bandwidth	0.069	0.078	0.050	0.101	0.098	0.076
Mean, left of threshold	0.991	0.491	1.002	0.491	0.964	0.456

Notes: Sample includes only the races where the third candidate is qualified for the second round and the top two candidates have distinct political orientations. In columns 3 and 4 (resp. 5 and 6) the sample is further restricted to elections where the third candidate has the same political orientation as on of the top two or has a different orientation and is located in the middle of the top two on the left-right axis (resp. has a different political orientation and is located either on the right or on the left of the top two). In columns 1, 3 and 5 (resp. 2,4 and 6), the outcome is a dummy equal to 1 if the candidate runs (resp. wins) in the second round. Other notes as in Table 4.

4.3 Bandwagon channel

When the third candidate is not qualified for the second round, there is no room or need for the top two candidates and their voters to coordinate against a lower-ranked candidate. Nonetheless, the effects of ranking 1vs2 remain substantial. As shown in Table 13, it increases candidates' likelihood of running and winning by 1.8 and 5.8 percentage points overall (columns 1 and 4). These estimates are significant at the 1 percent and 5 percent level respectively.

When the first and second candidates have distinct orientations, none of them drops out between rounds, at the threshold (column 3). Ranking 1vs2 increases the likelihood of winning by 4.9 percentage points (column 6), but this impact is not statistically significant (p-value 0.108).

When the top two candidates have the same orientation, the first candidate always enters the second round but the second drops out in 18.7 percent of the races, at the threshold. This difference is significant at the 1 percent level (column 2). A preliminary analysis of press articles covering such instances of candidates dropouts indicates that they often result from agreements between left-wing parties. These parties argue that they want to prevent voters supporting candidates eliminated after the first round from deciding of the outcome of the race between their candidates. Instead, the dropout agreements ensure that roughly half of the races are won by the candidates of either of the competing parties, at the threshold. The effect on winning is almost as large as the effect on running (16.8 percentage points), and significant at the 5 percent level.

Table 13: Impact on 1vs2 in races where the third is not qualified

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome	Probability to run 1vs2			Probability to win 1vs2		
	Full	Same	Diff	Full	Same	Diff
Treatment	0.018***	0.187***	-0.000	0.058**	0.168**	0.049
	(0.004)	(0.031)	(0.000)	(0.021)	(0.054)	(0.022)
Robust p-value	0.000	0.000	0.269	0.034	0.015	0.108
Observations left	7,440	759	3,129	4,979	689	4,661
Observations right	7,440	759	3,129	4,979	689	4,661
Polyn. order	1	1	1	1	1	1
Bandwidth	0.120	0.125	0.051	0.075	0.111	0.078
Mean, left of threshold	0.982	0.813	1.000	0.471	0.418	0.476

Notes: Sample includes only the races where the third candidate is not qualified for the second round. In columns 2 and 5 (resp. 3 and 6) the sample is further restricted to elections where the two candidates have the same orientation (resp. distinct orientations). In columns 1, 2 and 3 (resp. 4,5 and 6), the outcome is a dummy equal to 1 if the candidate runs (resp. wins) in the second round. Other notes as in Table 4.

To test whether voters respond to the top two candidates' first round rankings as well, in races in which the third candidate is not qualified for the second round, Table 14 derives bounds for the effects on winning and vote share conditional on running. We find that ranking 1vs2 increases candidates' likelihood of winning by 4.9 to 5.8 percentages points overall (column 1). The lower and upper bounds are significant at the 10 percent and 5 percent levels, respectively. The behavior of voters rallying the first candidate in these races cannot be explained by the desire to coordinate against lower-ranked candidates (which, again, are not present, as they are not qualified). Instead, it suggests that these voters derive intrinsic value from siding with the winner of the first round, or that they desire to vote for the winner of the race and rightly anticipate that the candidate ranked first in the first round has increased chances of also winning the second round.

Interestingly, the fraction of voters whose choice of candidate is based on these behavioral motives is relatively small: the effect on vote shares is between 1.0 and 1.9 percentages points (column 2), where both the lower and upper bounds are significant at 1 percent. This fraction is sufficient to sway a larger fraction of close elections, demonstrating the importance of bandwagon effect for election outcomes.

Table 14: Bounds on winning and vote share 1vs2 - absent third

Outcome	(1)	(2)
	1vs2 absent the 3$^{\text{rd}}$	
	Win	Vote share
Upper bound	0.058	0.019
Boot. std error	(0.030)**	(0.004)***
Lower bound	0.049	0.010
Boot. std error	(0.029)*	(0.003)***
Mean, left of threshold	0.480	0.499

4.4 Discussion of alternative channels

This section discusses two alternative channels which could explain the effects of rankings. First, we have so far attributed the effects on candidates' likelihood of winning and on their vote shares conditional on running to choices made by voters. We now examine whether these effects might also be driven by campaign choices made by the higher- and lower-ranked candidates between the two rounds.

While we lack data on candidates' precise political platforms, we collected data on their campaign expenditures for the 1992 to 2015 local elections and for the 1993 to 2012 parliamentary elections.[7] We do not measure candidates' expenditures between rounds separately, but only know the total amounts of money they received and spent over the entire course of the campaign. We measure the impact of rankings on these two outcomes divided by the number of registered citizens in the district. The effects, shown in Table 15, are small overall and in general not significant. Ranking 2vs3 increases campaign expenditures by 0.05 euros per citizen (column 5). This effect is significant at the 10 percent level, but it might mechanically result from the 15.7 percentage points increase on the likelihood of running: close second candidates might spend a bit more in total because they more often continue to campaign and spend money between rounds, and not because they spend more, conditional on running. Beyond this particular effect, the lack of systematic impact of rankings on total campaign expenditures and contributions is perhaps not too surprising, since the first and second rounds are separated by one week only.

Table 15: Impact on campaign expenditures and contributions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Outcome		1vs2			2vs3			3vs4	
	Run	Expend.	Contrib.	Run	Expend.	Contrib.	Run	Expend.	Contrib.
Treatment	0.037***	-0.010	-0.018	0.157***	0.047*	0.032	0.109	0.012	0.007
	(0.005)	(0.012)	(0.014)	(0.032)	(0.024)	(0.023)	(0.115)	(0.080)	(0.081)
R. p-value	0.000	0.363	0.163	0.000	0.054	0.159	0.301	0.820	0.936
Obs l	6,179	5,852	4,670	1,344	1,342	1,575	98	92	92
Obs r	6,179	5,852	4,670	1,344	1,342	1,575	98	92	92
Polyn.	1	1	1	1	1	1	1	1	1
Bdw	0.113	0.105	0.079	0.045	0.045	0.055	0.019	0.018	0.018
Mean	0.962	0.607	0.616	0.708	0.435	0.427	0.649	0.367	0.362

Notes: Sample includes only the elections for which campaign expenditure data are available. In column 1 to 3 (resp. 4 to 6, 7 to 9) we further restrict the analysis to races where campaign expenditures and contributions are available both for the candidate ranked first and the candidate ranked second (resp. second and third, third and forth). In columns 1, 4 and 7 the outcome is a dummy equal to 1 is the candidate runs in the second round. In columns 2, 5 and 8 (resp. 3, 6 and 9) the outcome is the candidate's total expenditures (resp. contributions) spent (resp. received) during the electoral campaign. Other notes as in Table 4.

[7] All data come from the French National Commission on Campaign Accounts and Political Financing (CNCCFP). Data on campaign expenditures for recent years are available on the Commission's website (http://www.cnccfp.fr/index.php?art=584). We collected and digitized the data for the 1992, 1994, 1998, 2001 and 2004 local elections. 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). Data are only available for candidates who received more than 1 percent of the candidate votes in the first round and, in local elections, for cantons above the 9,000 inhabitants threshold.

Second, we check whether the effects might be driven by choices made by a third political actor, different from voters and the higher- and lower-ranked candidates on whom we have focused so far: other candidates qualified for the second round. These candidates' decision to stay in the race or drop out between rounds might depend on the rankings of top candidates and it might in turn affect the higher- and lower-ranked candidates' vote shares and likelihood of winning. For instance, if third candidates are more likely to drop out of the race when the candidate ideologically closest to them among the top two is ranked first than when she is ranked second, then that candidate should receive more votes by the third candidate's supporters when ranked first.

To examine this mechanism in a systematic way, we define two outcomes at the candidate level: a dummy equal to 1 if a lower-ranked candidate with the same orientation is present in the second round, and the number of such candidates. Both outcomes directly reflect dropout decisions of lower-ranked candidates.[8] For ranking 1vs2 (resp. 2vs3 and 3vs4), we consider candidates ranked third and below (resp. fourth and below and fith and below).

The effects are shown in Tables 16, 17, and 18: ranking 1vs2, 2vs3, or 3vs4 does not have any significant effect on the presence of lower ranked candidates of the same orientation in the second round (columns 1 and 3). We test the robustness of this result in the subsample of races in which such effects are most likely to occur: races in which the two candidates of interest have distinct political orientations and at least one lower-ranked candidate qualified (columns 2 and 4 of each table). Again, we do not find any significant impact, except for a positive effect of ranking 3vs4 on the likelihood that a lower-ranked candidate of the same orientation is present, which is significant at the 10 percent level (Table 18, column 2).

We conclude that rankings' effects on electoral outcomes are driven neither by differential campaign expenditures nor by dropout decisions of other candidates.

[8]Effects on these outcomes should not be driven by the likelihood that a lower-ranked candidate with the same orientation qualified for the second round or the number of such candidates, as we do not observe any discontinuity at the cutoff for these outcomes, as should be expected (see the placebo checks in Section 2.4).

Table 16: Impact on the presence of same-orientation lower ranked candidates - 1vs2

	(1)	(2)	(3)	(4)
Outcome	Dummy lower ranked		Number of lower ranked	
	Full	Subsample	Full	Subsample
Treatment	-0.002	-0.011	-0.003	-0.017
	(0.005)	(0.013)	(0.005)	(0.014)
Robust p-value	0.510	0.401	0.393	0.223
Observations left	11,443	2,804	11,181	2,676
Observations right	11,444	2,804	11,181	2,676
Polyn. order	1	1	1	1
Bandwidth	0.100	0.068	0.098	0.064
Mean, left of threshold	0.034	0.069	0.037	0.073

Notes: In columns 2 and 4 we only include races where the third candidate is qualified and the top two candidates have distinct political orientations. In columns 1 and 3 the outcome is a dummy equal to 1 if a lower ranked candidate who has the same orientation as the candidate is running in the second round. In columns 2 and 4 the outcome is the number of lower ranked candidates who have the same orientation as the candidate and are running in the second round. Other notes as in Table 4.

Table 17: Impact on the presence of same-orientation lower ranked candidates - 2vs3

	(1)	(2)	(3)	(4)
Outcome	Dummy lower ranked		Number of lower ranked	
	Full	Subsample	Full	Subsample
Treatment	-0.004	-0.022	-0.005	-0.024
	(0.005)	(0.028)	(0.006)	(0.030)
Robust p-value	0.471	0.435	0.449	0.421
Observations left	5,082	693	4,851	687
Observations right	5,082	693	4,851	687
Polyn. order	1	1	1	1
Bandwidth	0.064	0.047	0.060	0.047
Mean, left of threshold	0.022	0.074	0.023	0.077

Notes: In columns 2 and 4 we only include races where the fourth candidate is qualified and the candidates ranked second and third have distinct political orientations. In columns 1 and 3 the outcome is a dummy equal to 1 if a lower ranked candidate who has the same orientation as the candidate is running in the second round. In columns 2 and 4 the outcome is the number of lower ranked candidates who have the same orientation as the candidate and are running in the second round. Other notes as in Table 4.

Table 18: Impact on the presence of same-orientation lower ranked candidates - 3vs4

Outcome	(1) Dummy lower ranked Full	(2) Dummy lower ranked Subsample	(3) Number of lower ranked Full	(4) Number of lower ranked Subsample
Treatment	0.013	0.080*	0.011	0.065
	(0.009)	(0.050)	(0.008)	(0.044)
Robust p-value	0.112	0.082	0.167	0.155
Observations left	1,188	195	1317	246
Observations right	1,188	195	1317	246
Polyn. order	1	1	1	1
Bandwidth	0.037	0.041	0.044	0.057
Mean, left of threshold	0.006	0.023	0.006	0.023

Notes: In columns 2 and 4 we only include races where the fifth candidate is qualified and the candidates ranked third and fourth have distinct political orientations. In columns 1 and 3 the outcome is a dummy equal to 1 if a lower ranked candidate who has the same orientation as the candidate is running in the second round. In columns 2 and 4 the outcome is the number of lower ranked candidates who have the same orientation as the candidate and are running in the second round. Other notes as in Table 4.

5 Conclusion

This paper shows that past rankings have large effects on future electoral outcomes. Using a regression discontinuity design in French two-round parliamentary and local elections since 1958, we find that arriving first in the first round increases candidates' likelihood to run in the second round by 5.6 percentage points, compared to arriving second, and that arriving second and third increase running by 23.5 and 14.6 percentage points respectively, compared to arriving third and fourth. In addition to being more likely to stay in the race, higher-ranked candidates obtain larger vote shares and they are more likely to win, conditional on running. Voters rallying the candidate ranked first increase her conditional vote share and likelihood of winning by 1.3 to 4.0 and 2.9 to 5.9 percentage points. The effects of arriving second instead of third are even larger – 4.0 to 14.7 and 6.9 to 12.2 percentage points –, and arriving third instead of fourth also has significant effects on vote shares and winning, conditional on running.

Overall, candidates and voters' combined response to rankings produces large effects on candidates' likelihood to win: arriving first instead of second and second instead of third increase winning by 5.8 and 9.9 percentage points, respectively.

We find suggestive evidence that coordination by parties and voters against other candidates qualified for the second round drives part of these effects: when the third candidate is more likely to challenge the top two candidates, candidates ranked second are more likely to drop out between rounds and the effect of ranking on winning first is larger. In addition, the effects of ranking first are larger when the top two candidates are of the same political orientation, and their size further increases when in addition the third candidate has a different orientation. We infer that rankings facilitate coordination by candidates and that they help strategic voters to focus on the same subset of candidates in a decentralized way.

But the effects of ranking first instead of second remain large in elections in which the third candidate is *not* qualified, showing that coordination cannot explain everything. In this case, party-level agreements lead the second candidate to drop out in 18.7 percent of the races, when she has the same orientation as the first, and voters rallying to the first increase her vote share by 1.0 to 1.9 percentage points and her likelihood of winning by 4.9 to 5.8 percentage points on average, conditional on running. We infer that behavioral motives such as bandwagon effect can greatly affect electoral outcomes.

This last result is perhaps the most striking and unsettling. Mainstream political economy models predict that election outcomes and policies implemented by elected leaders correspond to voters' preferences. In citizen-candidate models, the candidate proposing the platform preferred by the largest group of voters gets elected (Osborne and Slivinski, 1996; Besley and Coate, 1997), and in the voter median theorem, competing parties align their platforms with the policy preference of the voter who is the most representative by virtue of being located in the median (Downs, 1957). Instead, we find that a large number of elections are swayed by a relatively small fraction of voters driven by their desire to vote for the winner instead of substantial differences between candidates such as valence and policy platforms.

The next iterations of the paper will build on the results discussed in the present version and estimate the total fraction of races (including those away from the threshold) swayed by rankings effects; extend the analysis of underlying mechanisms to the effects of ranking second instead of third and third instead of fourth; use evidence from press articles to discuss an alternative interpretation for our findings, which combines learning from differences in votes shares with limited information and attention (leading voters to assume that higher-ranked candidates were chosen by a substantially larger share of voters); and test whether the results are driven by voters who abstained in the first round, voted for the two candidates of interest, or for lower-ranked candidates by exploiting the fact that each district includes diverse precincts and using precinct-level results.

References

Anagol, S. and Fujiwara, T. (2016). The Runner-Up Effect. *Journal of Political Economy*, 124(4):927–991.

Barankay, I. (2018). Rank incentives: Evidence from a randomized workplace experiment. *Working Paper*.

Besley, T. and Coate, S. (1997). An Economic Model of Representative Democracy. *The Quarterly Journal of Economics*, 112(1):85–114.

Calonico, S., Cattaneo, M. D., Farrell, M. H., and Titiunik, R. (2018). Regression Discontinuity Designs Using Covariates. *Forthcoming in Review of Economics and Statistics*.

Calonico, S., Cattaneo, M. D., and Titiunik, R. (2014). Robust nonparametric confidence intervals for regression-discontinuity designs. *Econometrica*, 82(6):2295–2326.

Cox, G. W. (1997). *Making votes count: Strategic coordination in the world's electoral systems*. Cambridge University Press, Cambridge.

de la Cuesta, B. and Imai, K. (2016). Misunderstandings about the Regression Discontinuity Design in the Study of Close Elections. *Annual Review of Political Science*, 19:375–396.

Downs, A. (1957). An economic theory of political action in a democracy. *Journal of Political Economy*, 65(2):135–150.

Duverger, M. (1954). *Political Parties*. Wiley, New York.

Eggers, A. C., Fowler, A., Hainmueller, J., Hall, A. B., and Snyder, J. M. (2015). On the Validity of the Regression Discontinuity Design for Estimating Electoral Effects: New Evidence from Over 40,000 Close Races. *American Journal of Political Science*, 59(1):259–274.

Fauvelle-Aymar, C. and François, A. (2005). Campaigns, Political Preferences and Turnout: An Empirical Study of the 1997 French Legislative Elections. *French Politics*, 3(1):49–72.

Foucault, M. and François, A. (2005). Le rendement des dépenses électorales en France. *Revue Economique*, 56(5):1125–1143.

Hall, A. B. and Snyder, J. M. (2015). Information and Wasted Votes: A Study of U.S. Primary Elections. *Quarterly Journal of Political Science*, 10(4):433–459.

Hartzmark, S. M. (2015). The Worst, the Best, Ignoring All the Rest: The Rank Effect and Trading Behavior. *Review of Financial Studies*, 28(4):1024–1059.

Imbens, G. and Kalyanaraman, K. (2012). Optimal bandwidth choice for the regression discontinuity estimator. *Review of Economic Studies*, 79(3):933–959.

Imbens, G. and Lemieux, T. (2008). Regression discontinuity designs: A guide to practice. *Journal of Econometrics*, 142(2):615–635.

Lee, D. S. (2008). Randomized experiments from non-random selection in US House elections. *Journal of Econometrics*, 142(2):675–697.

Lee, D. S. (2009). Training,Wages, and Sample Selection: Estimating Sharp Bounds on Treatment Effects. *Review of Economic Studies*, 76(3):1071–1102.

McCrary, J. (2008). Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of Econometrics*, 142(2):698–714.

Myerson, R. B. and Weber, R. J. (1993). A Theory of Voting Equilibria. *American Political Science Review*, 87(1):102–114.

Osborne, M. and Slivinski, A. (1996). A Model of Political Competition with Citizen-Candidates. *The Quarterly Journal of Economics*, 111(1):65–96.

Pons, V. and Tricaud, C. (2018). Expressive Voting and Its Cost: Evidence from Runoffs with Two or Three Candidates. *Forthcoming in Econometrica*.

Pope, D. G. (2009). Reacting to Rankings: Evidence from "America's Best Hospitals". *Journal of Health Economics*, 28(6):1154–1165.