



# Does the number of candidates increase turnout? Causal evidence from two-round elections

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## Abstract

A long-lasting question in comparative politics is whether the number of candidates/parties increases turnout. Existing observational studies on the topic find mixed results. We thus apply a regression discontinuity design to data 13,910 legislative and cantonal electoral districts in France since 1978. In the two-round system used in these elections, the candidates who pass a certain vote threshold in the first round can participate in the second round. We use this discontinuity to estimate the causal effect of having a third candidate in the second round: it increases turnout by 3.5% points and the share of valid votes by 7.3% points. We confirm these findings with survey data from the 2012 legislative election. Further, we investigate the mechanism and find evidence supporting the alienation theory, according to which individuals whose preferences do not resonate with the preferences of any of the candidates are likely to abstain.

**Keywords** Turnout · Number of parties · Regression discontinuity design · Causal inference · Spatial model · France

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## Introduction

In the aftermath of the 2016 US Presidential election, Jill Stein, the defeated candidate of the Green party, said in an interview that turnout would have been lower if she had not competed (RealClearPolitics, 2016). When asked about the possibility that her candidacy contributed to the defeat of Hilary Clinton, Stein claimed that her supporters would have abstained if they could not have voted for her. This general intuition is shared by many: in elections in which competition revolves around a few candidates, individuals whose preferences do not resonate with any of them are more likely to abstain because they feel alienated by the system (Blais, 2006). This is a strong case in favor of elections with more than two candidates, and flexible state regulation facilitating candidacy, to increase turnout and reduce inequalities in representation (Gallego, 2014).

Several comparative and cross-sectional studies have investigated this question, but with mixed results: some find that the number of candidates decreases turnout (Jackman, 1987), some that it increases it (Taagepera et al., 2013), and yet others that it has no effect (Fornos et al., 2004). A likely reason for these inconclusive results is that they come from observational studies that cannot disentangle the effect of the number of candidates from other confounding variables. This has led Blais (2006) to conclude that “we have a poor understanding of the relationship between the number of parties and turnout” (p.118).

To fill this gap, we exploit a natural experiment in the electoral rule in France to isolate the causal effect of an extra candidate on turnout. In French legislative and cantonal elections, there are usually two rounds. While all candidates can participate in the first round, only those who reach a certain vote share in the first round, 10 or 12.5%, can participate in the second one. This creates a discontinuity in the likelihood of having three instead of two candidates<sup>1</sup> and an exogenous variation that we can exploit using a regression discontinuity design (RDD).<sup>2</sup> We analyze results from 13,910 electoral districts, among which 1,416 have three candidates in the second round.

To the best of our knowledge, only Pons and Tricaud (2018) use an RDD on the qualifying threshold using French electoral data. The main objective of the authors is to quantify the extent to which voters are rational in their voting decision, and they thus frame their findings within the literature on strategic voting. They use the presence of a third candidate in the second round to estimate the magnitude of expressive voting, and its effects on the electoral outcome. Yet, they also report findings regarding the causal effect of having a third competing candidate on turnout and null and blank votes in auxiliary analyses. Although several of the RDD results in this paper can also be found in Pons and Tricaud (2018), our study contrasts with this study in at least three ways. First, our paper has a different focus: it is about the causes of turnout

<sup>1</sup> There are only a few districts in which there are four candidates in the second round ( $N=64$ , 0.46% of all observations in our dataset, see below). Unfortunately, these are too few to estimate the causal effect of having a fourth candidate on turnout.

<sup>2</sup> On the validity of RDD designs based on close elections, see Caughtey & Sekhon (2011); Eggers et al. (2015).

instead of the consequences of expressive voting. Turnout being a core research topic in political science, it is important to re-evaluate these findings in view of the discipline's scholarship. Second, our study covers a larger sample of elections. We have in fact twice as many observations, which means that we have more statistical power to conduct some extra sub-sample analysis and to investigate the external validity of the findings. We do so in a separate section towards the end of the paper. Third, we complement our RDD with a survey analysis. This secondary analysis confirms our main findings concerning the causal effect and the mechanisms behind this effect.

In the next section, we review the literature on the effect of the number of candidates on turnout, highlighting the problem caused by confounding variables. Then, we present our RDD as well as survey analysis, and discuss the main effects of the number of candidates on turnout. Third, we probe the mechanism with supplementary tests. Finally, we evaluate and discuss the external validity of our findings. We find that having three rather than two candidates in the second round increases turnout by 3.5% points and decreases the proportion of null and blank votes by about 3.7% points. These two effects combined lead to the result that a third candidate increases the share of valid votes by about 7.3% points. These estimates are further validated by an analysis of survey data from the 2012 legislative election in which there was an unusually high number of districts with three candidates qualified for the second round. Further, we find evidence for the alienation mechanism, according to which individuals whose preferences are not covered by any of the participating candidates are likely to abstain.<sup>3</sup>

## Turnout and number of candidates

The question of why people decide to vote or abstain has attracted much attention among political scientists (Dhillon & Peralta, 2002; Blais, 2006). This question is of tremendous importance given the normative implications of low turnout. When abstention is large, there is a possibility that a large subgroup of the population is under-represented in the democratic process (Adams et al., 2006). This pattern is so well-known that turnout rates are sometimes considered as direct indicators of democratic vitality (Powell, 1982).

There are many studies that seek to explain variations in turnout across and within countries (Blais, 2000; Franklin, 2004). One, among others, important explanatory macro-level factor in this literature is the number of candidates and their ideological position.<sup>4</sup> Meanwhile, the key mechanism behind this supposed relationship is alienation. This mechanism holds that many abstainers are in fact politically alienated because their preferences are not shared by any candidate. Consequently, they

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<sup>3</sup> We also offer extra tests discarding other potential mechanisms. For example, we do not find any evidence of an increase in competitiveness due to the presence of a third candidate.

<sup>4</sup> Note that these studies usually study the effect on the number of parties, whereas we focus in this paper on the number of candidates. In some countries, especially those using proportional representation, parties nominate several candidates in each district. Hence, the addition of an extra party in a district often means the addition of a slate of candidates. For this reason, our results might not apply to countries using proportional representation.

do not identify with the political system, reject its institutions, and do not participate in elections (Blais, 2006; Downs, 1957). As the number of candidates increases, the coverage of individuals' preferences expands, at least in terms of probability. Hence, there are less individuals who are alienate, and turnout increases.

To our knowledge, almost all the empirical tests of the effect of the number of candidates on turnout are comparative or cross-sectional, at the exception of Pons and Tricaud (2018) see above. The authors estimate regressions predicting turnout with data from multiple countries or multiple districts within countries. Hence, the identification strategy relies on the inclusion of all relevant control variables accounting for all potential confounding effects. This literature finds mixed evidence of the effect of the number of candidates on turnout. In one of the first studies on the topic, Jackman (1987) shows a strong negative effect at the country level. However, follow-up studies demonstrate that this effect is not robust, as it becomes null when more data and control variables are included (Blais & Dobrzynska, 1998; Fornos et al., 2004). By contrast, cross-sectional studies at the district-level find a positive effect. Within countries, turnout is on average higher in districts where there are many candidates compared to districts where there are only a few (Taagepera et al., 2013; Grofman & Selb, 2011; Boulding & Brown, 2015).

Other studies focus on the mechanism linking the number of candidates and turnout. Following the alienation hypothesis, they evaluate whether turnout increases as parties or candidates take diverging ideological positions and thus expand the coverage of individual preferences. However, empirical evidence is also mixed: some studies find that turnout increases as polarization increases (Crepaz, 1990; Lefkofridi et al., 2004), while another finds that it decreases (Rogowski, 2014). Finally, a few studies look at specific groups of candidates, such as independent/local (Kapoor & Magesan, 2018; Fiva & Smith, 2017), and those affiliated with a populist (Leininger & Meijers, 2021) or radical-right party (Hobolt & Hoerner, 2020). Yet again, the results are inconclusive, as the effect of the arrival of candidates from a certain ideological camp varies depending on the study.

We argue that the results of cross-sectional studies are mixed because the effect of the number of candidates/parties on turnout are sensitive to the set of control variables included. The main problem is that the key independent variables, i.e., the number of candidates and their ideological position, are endogenous to other variables. For example, the type of electoral system used in an election is known to affect both the number of parties (Duverger, 1954), and their ideological position (Bol et al., 2019). Proportional representation leads to larger and more polarized party systems than plurality rule. However, proportional representation itself might be associated with higher turnout levels for reasons that are independent from the party system. For example, individuals can be more willing to vote under proportional representation because they consider it fairer than majority rule (Banducci et al., 1999). Note that this issue can be solved by relying on a within-country observational design and local variations in the number of competing candidates/parties (Grofman & Selb, 2011).

Yet, cross-district studies also suffer from similar problems of endogeneity. There are variables that vary at the level of the district that are also confounding the effect of the number of candidates/parties on turnout, such as the number of salient issues. Ordeshook and Shvetsova (1994) show that the number of parties is in part a function

of the number of relevant issues or cleavages in the society. This means that when a new social conflict emerges in a district, a new party is likely to appear. In turn, the arrival of this new party can increase turnout, but so can the very emergence of a new salient issue (Stoll, 2011). For these reasons, cross-sectional studies are likely to lead to inconclusive findings. This calls for a research design that can causally identify the effect of the number of candidates on turnout. This is what we do in this paper by using a RDD empirical strategy that we complement with a survey analysis.

## Main effect

In this section, we first present our RDD analysis (data, methodology, results) and then our survey analysis.

## RDD data

We analyze official results of French legislative and cantonal elections between 1978 and 2012. We rely on official electoral results data made available on the *Ministère de l'Intérieur*'s website (<https://www.data.gouv.fr/en/posts/les-donnees-des-elections/>). Legislative elections are often considered as the second most important elections in France after presidential elections. French citizens elect 577 deputies in single-member districts every five years. Since 2001, legislative elections are organized a month after the presidential election, which means that the campaign is highly influenced by the newly elected president (Lewis-Beck et al., 2011). Yet, legislative elections are still of great importance, and their results are not mere reflections of the preceding legislative election. For example, the personality of local candidates matters a great deal for vote choice (Brouard & Kerrouche, 2013).

In cantonal elections, French citizens elect members of general councils. France is divided into more than 1,000 cantons, and each has a general council elected in single-member districts. Cantonal parliaments have less power than the national parliament, but they make some important local decisions. Although there is a substantial portion of non-partisan candidates, cantonal elections follow the same partisan dynamics as legislative and presidential elections. The main parties typically nominate candidates in most cantons (Gougou & Labouret, 2011). In our analysis, we pool data from all legislative and cantonal elections from 1978 to 2012. Specifically, we analyze the results of the cantonal elections held in 1988, 1992, 1994, 1998, 2001, 2004, 2008, and 2011, and those of the legislative elections held in 1978, 1981, 1988, 1993, 1997, 2002, 2007, 2012. In total, we thus cover more than 30 years of elections in France.

Legislative and cantonal elections in France are held under a two-round majority system. If a candidate receives a vote share larger than 50% of the total number of valid votes in the first round, and if this number is higher than 25% of the total registered voters in the district, they are elected and there is no second round. This happens in 28% of the districts covered in this paper (13% of the legislative elections' districts, and 32% of cantonal elections' districts). We exclude those districts from our dataset. The second round is held one week following the first one. The two candidates with the largest number of votes in the first round are automatically quali-

fied to the second round. Yet, if another candidate receives a vote share higher than the qualifying threshold, they also qualify to the second round. Importantly, the vote share for this threshold is calculated out of the number of registered voters. For legislative elections, the qualifying threshold is 12.5%. In cantonal elections, it is 10%, except in 2011 for which it was 12.5%. We also remove the few districts with less than three candidates in the first round from our dataset (0.3% of districts with two rounds), as well as those with four candidates or more in the second round (0.46% of our sample). In our final dataset, we exclusively have districts with two rounds, and two or three competing candidates in the second round ( $N=13,910$  districts).<sup>5</sup>

Table A1 in the appendix shows the most relevant descriptive statistics about the districts in our dataset. On average, there are 6.9 candidates in the first round of election and 2.1 in the second round. In the second round, there are three candidates in 1,416 districts (10%), and two in others. The table also reports the average turnout, share of valid votes, and share of blank and null votes across both rounds. We define turnout as the proportion of votes out of registered voters. We define the share of valid votes as the proportion of votes for one of the competing candidates out of registered voters. We define the share of blank and null votes as the proportion of ballots cast empty or declared invalid by the *Ministère de l'Intérieur* out of registered voters.

We observe that, on average, turnout decreases in the second round relative to the first round, while the share of blank and null votes increases. When we split the sample depending on the number of candidates in the second round, we observe that turnout in the second round is 4% points higher when there are three competing candidates. However, we observe that turnout is also higher in these districts in the first round (by 4% points as well). This suggests the presence of confounding variables that affect both the number of candidates and turnout. Hence, it is important to adopt an RDD approach to estimate the causal effect of the number of candidates.

Despite passing the qualifying threshold, a feature of the two-round system is that some of the qualified candidates form alliances between the two rounds resulting in one candidate dropping out of the race before the second round (Golder, 2006). In our data, this concerns 64% of the districts with three qualified candidates. In these districts, 99% of the time it is the second or third candidate who drops out.<sup>6</sup> Removing these observations from the dataset would bias the results, as the districts in which one candidate drops out might be systematically different from others on some variables confounding turnout. Hence, we adopt a fuzzy RDD approach, which is standard in situations where the threshold does not perfectly determine the treatment status (Angrist & Pischke, 2008; Cattaneo et al., 2019). In a series of robustness tests, we also use a wide range of alternative approaches including simple OLS regressions with district and election fixed effects. We also reproduce the analysis by excluding the districts where one of the candidates drops out before the second round.

<sup>5</sup> In a robustness test below, we re-introduce the few districts with four competing candidates in the second round.

<sup>6</sup> Note that the third candidate of the first round only rarely wins (only 4% of the time when they are qualified). It is the first candidate that most often wins (82% of the time). The presence of a third candidate only mildly affects this pattern: the first candidate still wins 80% of the time when there are three candidates in the second round.

Which candidates drop out between rounds? Table A2 in the appendix shows the alliances between the candidates across the two rounds by ideological groups, whereas Tables A3 and A4 shows the details of the ideological classification. From this analysis, we find that ideological proximity is an important covariate of the alliances but does not perfectly predict which candidate decides to drop out. Importantly for our empirical analysis, we show that there is variation in the ideology of the candidates who decide not to participate in the second round even when they are qualified.

**RDD methodology**

We use a fuzzy RDD on the qualifying threshold. In a sharp RDD, the discontinuity deterministically defines the treatment status. In a fuzzy RDD, the threshold creates a discontinuity in the *probability* of receiving the treatment. Following the standard approach in the literature (Angrist & Pischke, 2008; Cattaneo et al., 2019), the discontinuity then becomes an instrumental variable for the treatment status. In short, fuzzy RDD is a weighted two-stage least squares (2SLS) estimation. In the first stage, we regress the likelihood of having three candidates in the second round on the running variable, i.e., the score of the third candidate in the first round over the number of registered voters relative to the threshold (10% or 12.5% depending on the election), and a first-order polynomial of this running variable. In the second stage, we use the predictions of this estimation as an instrumental variable to estimate the effect of a third candidate in the election on turnout in the second round.

Formally speaking, let  $D_i$  denote the presence of three candidates in the second round (i.e., the treatment),  $x_i$  the score of the third candidate in the first round, and  $x_0$  the qualifying threshold (10% or 12.5%). There is a jump in the probability of receiving the treatment at the qualifying threshold  $x_0$  so that<sup>7</sup>:

$$P(D_i = 1|x_i) = \begin{cases} g_1(x_i) & \text{if } x_i \geq x_0 \\ g_0(x_i) & \text{if } x_i < x_0 \end{cases}$$

Where  $T_i = 1(x_i \geq x_0)$  denotes the point where  $P(D_i|x_i)$  is discontinuous. A fuzzy RDD is estimated using a 2SLS estimation strategy as follows:

First stage:

$$D_i = \gamma_0 + \pi T_i + \gamma_1 f(x_i) + \gamma_2 T_i \times f(x_i) + v_i$$

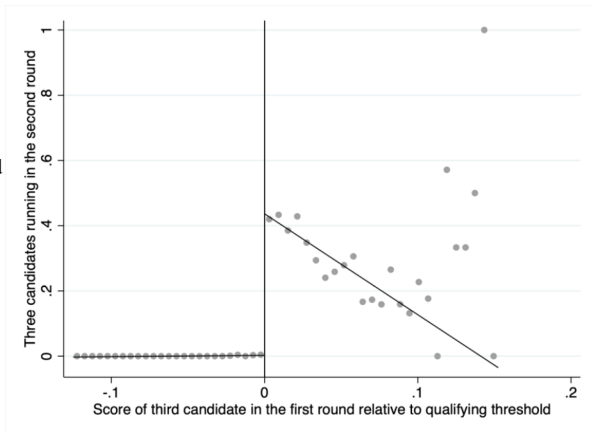
Second stage:

$$Y_i = \alpha_0 + \beta \hat{D}_i + \alpha_1 f(x_i) + \alpha_2 \hat{D}_i \times f(x_i) + u_i$$

Where the  $Y_i$  denotes the outcome variables: turnout, share of valid votes, and share of null and blank votes in the second round. We follow Cattaneo and Jansson (2018) and use a standard specification for the baseline estimation: a local linear regression

<sup>7</sup> We allow for a flexible function  $g(x_i)$  that differs on each side of the qualifying threshold.

**Fig. 1** RDD first stage results (visual), Note: The first-stage estimate is 0.40 (standard error 0.03,  $p < 0.001$ ). Dots represent means of grouped data into 25 bins on each side of the threshold. Lines are estimated mean functions smoothed using a local linear polynomial fit and weighted using a kernel (uniform) function



with an optimal bandwidth around the discontinuity calculated using the mean square error method (MSERD) and a kernel triangular weighting function used to construct the local- polynomial estimator. We test the sensitivity of the results to alternative specifications below.

In Fig. 1, we show a graphical representation of the results of the first stage. It shows that when the third candidate does not pass the qualifying threshold in the first round (running variable  $< 0$ ), there are two candidates in the second round.<sup>8</sup> When the third candidate passes the qualifying threshold (running variable  $> 0$ ), there are three candidates participating in the second round about 40% of the time. The first stage estimation is very efficient as the effect of the running variable is statistically significant at a level of  $p < 0.001$ . More details about the point estimates of the first stage across our three main outcomes are in the third row of Table 1 below. The appendix then contains a range of tests proving the internal validity of our RDD, see Figures A1-A4 and Tables A5-A7.

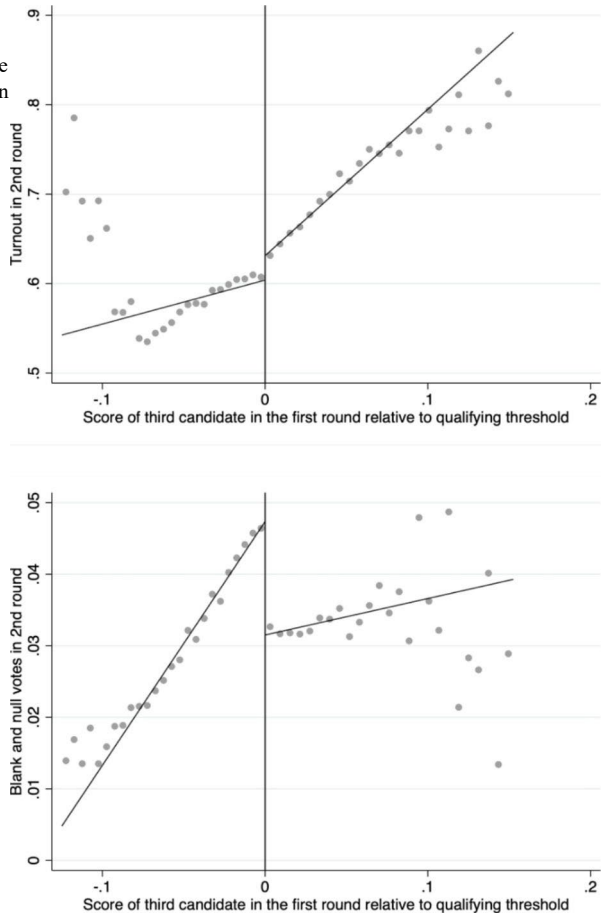
## RDD results

Figure 2 presents a visual representation of the results of the second stage. For each of the three outcome variables, there is a jump at the qualifying threshold. This suggests that having three instead of two candidates in the second round has a positive effect on turnout and the share of valid votes, and a negative effect on the share of null and blank votes. Table 1 gives the full results and reveals that the treatment increases turnout by 3.5% points and decreases the share of blank and null votes by 3.7% points. These two effects put together mean that a third candidate increases the share of valid votes by 7.3% points. These three estimates are highly statistically significant.

<sup>8</sup> There are a few districts in which the third candidate does not pass the qualifying threshold, but where there are three candidates in the second round anyway ( $N=51$ , 0.5% of all districts covered). These are most likely errors in the official data of the *Ministère de l'Intérieur*. We decided to keep them in our sample to alter as little as possible the official data but reproduce the analysis without them in a robustness test.



**Fig. 2** RDD results (visual), Note: Dots represent means of grouped data into 25 bins on each side of the threshold. Lines are estimated mean functions smoothed using a local linear polynomial fit and weighted using a kernel (uniform) function



To give an idea of the magnitude of these effects, we calculate their size as a function of the mean value of the outcome variable: having a third candidate running in the district increases turnout by 6% of the mean, decreases the share of blank and null votes by 120%, and increases the share of valid votes by 12%. The local average treatment effects are thus substantial and suggest that the number of competing candidates affects potential voters in two different ways: it mobilizes them (increase in turnout), and it discourages them from casting a protest vote in the form of ballot spoilage (decrease in null and blank votes). The appendix contains a discussion and a range of robustness and placebo tests confirming these results (Tables A8-A17).

**Survey analysis**

To corroborate the RDD results, we analyze individual-level survey data from a two-wave internet panel survey conducted in France in June 2012 (Stephenson et al., 2017). The first wave was conducted the week before the first round of the legislative election, and the second wave the week after the second round. The 2012 legislative election is an interesting case study because there were three candidates running in

**Table 1** RDD results (numerical)

	Turnout (2nd round)	Null/Blank votes (2nd round)	Valid votes (2nd round)
RDD Estimate	0.035*** (0.012)	-0.037*** (0.003)	0.072*** (0.014)
First stage estimate	0.423	0.435	0.418
First stage SE	0.018	0.016	0.020
Robust 95% CI	[0.011; 0.071]	[-0.043; -0.031]	[0.041; 0.111]
Kernel type	Triangular	Triangular	Triangular
BW type	MSERD	MSERD	MSERD
Left bandwidth	0.034	0.044	0.028
Right bandwidth	0.034	0.044	0.028
Observations	13,906	13,906	13,909
Effective observations (left)	4,766	6,274	3,987
Effective observations (right)	2,733	3,127	2,464
Order local polynomial	1	1	1
Order bias	2	2	2
Mean (outcome)	0.61	0.03	0.58

Note: RDD estimates are local average treatment effects of having three candidates in the district in the second round in % points. Robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

34 districts in the second round. This is the largest number of three-candidate districts in a legislative election since the qualifying threshold was set to 12.5% in 1976. The reason is the extraordinary mobilization that followed the victory of the first socialist President since 1995 François Hollande a month before the legislative election (Lewis-Beck et al., 2011).

The survey sample is composed of 1,418 respondents from the two most populous regions in France: Ile-de-France (IDF, Paris and its surroundings) and Provence-Alpes-Côte d'Azur (PACA, Marseille and its surroundings).<sup>9</sup> Respondents were recruited based on age, gender, and education quotas, as to be as representative as possible from the population of the two regions on these characteristics. There were three candidates running in the second round in 10% of the 119 electoral districts covered by the survey, representing 17% of the overall sample. The key outcome variable is whether the respondents report having voted (0=no, 1=yes) in the second round of the legislative election (post-election survey wave). The reported turnout as per the aggregated answers to this question is 80% (78% in IDF and 82% in PACA). Turnout reported in surveys is often higher than in reality because of a social desirability bias that pushes abstainers to conform to the social norm and lie in saying that they voted (Karp & Brockington, 2005). However, in our dataset, the discrepancy

<sup>9</sup> The final sample is composed of 846 respondents because we remove those living in a district (1) where there was no second round (8% of the total sample), or (2) where at least one of the three first candidates in the first round is an independent candidate or is registered with one of the main parties (20% of the total sample). Given the nature of one of our key measures (see below), we can only calculate the ideological proximity of the respondents and candidates that are registered with one of the major parties.

**Table 2** Survey results

	Voting (no/ yes) (2nd round)	Voting (no/ yes) (2nd round)	Voting (no/yes) (2nd round)
Number of candidates (two/ three)	0.066** (0.027)	0.075** (0.036)	0.081** (0.035)
Socio-demographic controls	NO	YES	YES
Attitudinal controls	NO	NO	YES
Observations	846	846	846
R-squared	0.004	0.048	0.119

Note: Entries are coefficient estimates from linear probability OLS regressions. Socio-demographic controls include: age, gender, education, and income, and region. Attitudinal controls include self-reported interest in politics, subjective importance of the election, partisan identity, perception that voting is a duty rather than a choice, and margin of victory between two first candidates in the 2nd round. Standard errors are in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

between reported and actual turnout is small, +3% points in the survey IDF and +2% points in PACA, probably because the survey was conducted online.

In Table 2, we report the results of a series of regressions predicting voting (0=no, 1=yes) on the number of candidates (0=two, 1=three), using linear probability OLS regressions. In the first regression, we do not include any control variables. In the second one, we control for the socio-demographic characteristics of the respondents (age, gender, education, and income), and their region (IDF/PACA). In the last one, we add attitudinal variables that are usually associated with a high probability of voting (Blais, 2000): interest in politics (0–10), subjective importance of the election (0–10), partisan identity (0=no, 1=yes), perception that voting is a duty (0=choice, 1=duty), and the margin of victory between the first and second candidate in the second round (0.16–34.2%).<sup>10</sup> Results show that having three candidates running instead of two in the district in the second round is associated with an increase in the probability of voting by 6–8% points ( $p < 0.05$ ). This is further evidence of the causal effect of the number of candidates on turnout.

## Mechanism

The literature usually considers that the key mechanism is alienation: when there are few parties participating in elections, there is a good chance that a segment of the electorate has political preferences that do not resonate with the preference of any

<sup>10</sup> All the questions capturing the variables used in our survey analysis except the one about vote choice were asked in the pre-election wave of the survey. Note also that we remove the respondents that have a missing value in any of these control variables in all three regressions to make the estimate comparable. That said, the share of non-response is minimal in all the questions that we use (less than 5%), the notable exception being the question about turnout. The share of non-response for this question is around 25%. A t-test reveals that there are no more missing values in districts with two candidates running in the second round than in those with three (25% vs. 26%,  $p = 0.64$  from a t-test).

candidate, and they thus feel alienated by the system and do not vote. Consequently, when there are more candidates participating in the election, there are more chances that these candidates cover a larger portion of the ideological space (Blais, 2006; Downs, 1957). In this section, we report a series of empirical evidence aiming at testing the alienation mechanism. On top of providing evidence for the alienation mechanism, these tests discard two well-known mechanisms: (1) having a third candidate in the second round does not increase the degree of competitiveness of the election (which could also increase turnout), (2) the increase in turnout is not due to voters who become less indifferent about the competing candidates when a third candidate participates.

### Additional RDD tests

We first reproduce the same RDD analysis as the one presented above by splitting the sample depending on the ideology of the three first candidates in the first round to test the alienation mechanism. To do so, we code the candidates in four ideological groups based on the party name given by the *Ministère de l'Intérieur*: EXTREME LEFT (*Parti Communiste, Front de Gauche, Extrême Gauche*), LEFT (*Parti Socialiste, Les Verts, Parti Radical de Gauche, Divers Gauche*), RIGHT (*RPR/UMP, UDF/MODEM, and Divers Droite*), and EXTREME RIGHT (*Front National, and Extrême Droite*).<sup>11</sup> We acknowledge that the ideological divisions in French politics are more complex and cannot be fully captured by four categories. Unfortunately, we are not able to use a technique estimating the ideological position of the candidates from their party manifesto because, in France, there is a substantial portion of candidates who do not compete under any party label, and use a generic label instead (e.g., *Divers Gauche*, which translates into ‘Various Left’), especially in cantonal elections.

We then reduce the sample to those districts in which the two first candidates are from the same ideological bloc, either LEFT/EXTREME LEFT or RIGHT/EXTREME RIGHT, and the third candidate is from the other bloc.<sup>12</sup> French voters have indeed a strong ‘bloc-identity’ and are more willing to vote for a candidate of the same bloc than they are for a candidate of a different bloc (Lewis-Beck et al., 2011). If the third candidate participates in the second round, they should thus mobilize voters from the ideological bloc not represented by the two first candidates. Table 3 shows that the local average treatments are much larger when the third candidate is from a different ideological bloc than the first two: in these districts, having a third candidate competing in the second round increases turnout and the share of valid votes by 9.1% and 18.9% points respectively, and decrease the share of blank and null votes by 9.8% points. This is substantially more than the local average treatment effects in the baseline analysis above.

Second, we investigate the competitiveness mechanism. In Figure A4 in the appendix, we show that the margin of victory in the first and second round, i.e., the difference of vote share between the first and second candidate, is no different in

<sup>11</sup> For the detail of the classification, see Tables A3 and A4.

<sup>12</sup> Note that we cannot run a separate sub-sample analysis with the left and right ideological blocs because we do not have enough observations.

**Table 3** Sub-sample RDD results (third candidate from different bloc)

	Turnout (2nd round)	Null/Blank votes (2nd round)	Valid votes (2nd round)
RDD Estimate	0.091*** (0.026)	-0.098*** (0.011)	0.189*** (0.030)
First stage estimate	0.504	0.501	0.504
First stage SE	0.046	0.048	0.046
Robust 95% CI	[0.044; 0.167]	[-0.125; -0.071]	[0.132; 0.274]
Kernel type	Triangular	Triangular	Triangular
BW type	MSERD	MSERD	MSERD
Left bandwidth	0.032	0.032	0.035
Right bandwidth	0.032	0.032	0.035
Observations	1,940	1,940	1,940
Effective observations (left)	655	614	659
Effective observations (right)	576	548	580
Order local polynomial	1	1	1
Order bias	2	2	2

Note: RDD estimates are local average treatment effects of having three candidates in the district in the second round in % points. Robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

districts just below or just above the threshold. The margin of victory can be seen as a proxy of the competitiveness of the election (actual competitiveness for the margin of victory in the second round, and projected competitiveness for the margin of victory in the first round). In Table A17 in the appendix, we reproduce the RDD analysis by replacing the outcome variable by the margin of victory in the second round. We show that having a third candidate in the second round does not change the margin of victory on average. In other words, within our bandwidth, elections are just as competitive regardless of whether there are two or three candidates in the second round. We then test whether the local average treatment effect is larger in districts that are highly competitive in the first round, i.e., where the total vote share of the first two candidates is below the median value, i.e., 65%. We find that it is not the case (see Table A18 in the appendix).

An alternative way of measuring competitiveness is to look at the ideology of the competing candidates. Some configurations of candidates' ideology can indeed increase competition *ex ante* like in districts in which the first candidate in the first round is from the LEFT, the second from the RIGHT and the third from the LEFT (or vice versa, the first is from the RIGHT, the second from the LEFT, and the third from the RIGHT). When the third candidate is qualified in these districts, the uncertainty around the results of the second round might increase. In Table A19 in the appendix, we show that the local treatment effects in this sub-sample are in fact smaller than in the baseline analysis. We can thus safely discard the competitiveness mechanism. Note however that some observational studies analyzing French electoral data do find evidence of the effect of competitiveness on turnout (Fauvelle-Aymar & François, 2006; Indridason, 2008).

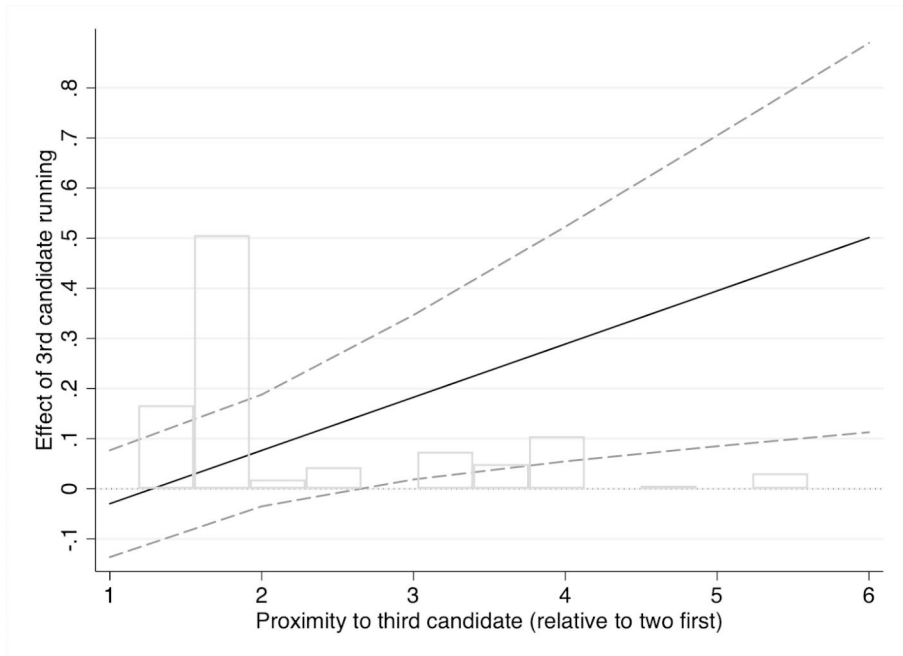
## Additional survey tests

To investigate the mechanism, we use the answers to another question of our survey conducted before and after the 2012 legislative elections, in which respondents are asked to locate themselves and each of the main political parties on a scale going from extreme left 0 to extreme right 10 (pre-election survey wave). We use these placement questions to calculate the ideological proximity between the respondent and the main candidates competing in the district. If the alienation mechanism is correct, we should observe that having a third candidate running in the second round is associated with a higher probability of voting when the respondent is ideologically closer to the party of the third candidate relative to the party of the two first candidates.

Concretely, we follow a common strategy in studies about ideological proximity by calculating the average left-right placement of each party as reported by respondents in the survey. (2007). (2011) Using this common aggregation techniques, the main parties and their 0–10 left-right position are the following: PS (3.60), UMP (7.21), FN (9.03), FdG (1.62), Modem (4.95), EELV (3.10). Then, we take the self-reported left-right position of the respondent on the same scale and calculate their ideological proximity to each of the parties of the three candidates that come first in the district in the first round. Finally, we calculate the difference between how close they are from the party of the third candidate (regardless of whether this party is qualified to the second round or not), and how close they are from the parties of the two first candidates (who are always qualified to the second round).<sup>13</sup> Given that the ideological position variables vary between 0 and 10, this variable varies between  $-10$  and  $+10$  in theory, but  $-7$  and  $+6$  empirically.

We estimate a series of regressions predicting voting by the number of candidates in the second round, the variable measuring the ideological proximity of the respondent to the third candidate in the district relative to the two first, and an interaction between the two (+the same control variables that we use in the first survey analysis above). Table A20 in the appendix reports the full regression results. When we reduce the sample to respondents who are closer to the third candidate relative to the two first, we find that the marginal effect of having three candidates running in the district is positive and statistically significant and so is the interaction term (at a level of  $p < 0.05$ ). To offer a clearer visualization of the results, we plot the marginal effect of the third candidate running on the predicted probability of voting as the proximity to the third candidate changes (based on Model 6 in Table A20). Figure 3 shows that the marginal effect is very small and not statistically significant (at a level of  $p < 0.05$ ) for respondents who are almost as close to the third candidate as they are to the first two. The participation of the third candidate in the second round only increases the probability of voting for those who are closer to this third candidate by three points or

<sup>13</sup> Consistently with the alienation mechanism, we take the proximity to the closest party among the two first parties. For example, imagine a respondent with a self-reported ideological position of 2 in a district where the first candidate is from the PS (3.60), the second UMP (7.21), and the third FdG (1.62). Their distance to the closest party among to the first two parties is thus  $|2 - 3.60| = 1.60$ , and difference in distances is  $|1.60 - 0.39| = 1.21$ . The respondent is 1.21 point closer to the third party (FdG, 1.62) than they are to the closest party among the two first parties (PS, 3.60).



**Fig. 3** Survey analysis: test of mechanism, Note: The solid line is the marginal effect of having a third candidate running on the probability to vote for respondents who are closer to the third candidate relative to the two first. Estimates are based on Model 6 of Table A20. Dashed lines are 95% confidence intervals. The histogram in the background is the distribution of the variable ‘Proximity to third candidate’

more on the 0–10 ideological scale. The marginal effect ranges from a +20% points (for respondents who are three points closer to the third candidate) to +50% points in the probability of voting (for respondents who are six points closer to the third candidate). The moderating effect of ideological proximity to the third candidate is thus substantial. This thus conforms the alienation mechanism.

Further, Table A20 shows the result for the other sub-sample of respondents, i.e., those who are further away to the third candidate relative to the two first. For this sub-sample, the marginal effect of the third candidates running on the predicted probability of voting is small and not statistically significant, which means that respondents who are far away from the third candidate are not more likely to vote when this third candidate participates in the second round. This in turn discards another mechanism: the increase in turnout when there is a third competing candidate is not due to reduction of indifference about the competing candidates.

## External validity

In this section, we discuss the external validity of our findings by evaluating to what extent our results are generalizable over a variety of district configurations within our French case study, and over elections in countries that use different electoral rules.

## Generalizability within France

We first explore whether the local average treatment effects derived from our RDD analysis can be generalized beyond the effective sample of districts contained in the bandwidths. By design, the RDD compares the districts in which the third candidate falls just below the qualifying threshold to those in which this candidate falls just above this threshold. This focused comparison is what allow us to be confident about the internal validity of our estimates. Yet, it also means that our sample is in fact restricted to the specific district configurations where the third candidate is close to the threshold. We then implement a bandwidth sensitivity analysis that consists in re-estimating the local average treatment effect by progressively expanding the bandwidth and thus the number of districts in the effective sample (Hainmueller et al., 2015). Concretely, we re-estimate the baseline specification of our main RDD analysis by manually fixing the bandwidth at each 0.01 increment between  $[0.01; 0.10]$ , i.e., 1 to 10%-points window around the qualifying threshold. Figure A5 in the appendix shows that the point estimates are remarkably stable in all these samples, which suggests that the average treatment effects are not so local in the sense that they apply to a wide range of district configurations.

Second, we explore whether the local average treatment effects are driven by certain types of election or certain periods in French political history. To do so, we reproduce the baseline RDD analysis, but dividing the sample by election's type (legislative and cantonal) and period (before and after 2002). We have several reasons to think that the treatment effects might differ between these groups. On the one hand, although cantonal electoral behavior is increasingly driven by national politics, it is still more local in its dynamics than legislative or presidential elections. Hence, the presence of a third candidate in the second round might have a smaller effect on turnout in cantonal compared to legislative elections. On the other hand, for the first time in 2002, a candidate from an extreme-right party (i.e., Jean-Marie Le Pen from the *Front National*) was qualified to the second round of the presidential election. This resulted in a popular mobilization against him, which took the form of a large protest in Paris in-between the two rounds, and an unprecedented high turnout in the second round (Lewis-Beck et al., 2011). Hence, we can expect the treatment effects to be stronger after this critical event.

The results are summarized in Table 4, while Tables A21-A24 in the appendix show the full results. First, we observe that there is some heterogeneity in local average treatment effects across groups of elections: the effects are larger in legislative elections compared to cantonal elections. For example, having a third candidate in the second round increases the share of valid votes by 11.1% points in legislative elections, and by 6.4% points in cantonal elections. As for period, we observe that the local average treatment effect is larger before 2002. Most importantly, Table 4 reveals that there is a substantial treatment effect for all outcome variables in all groups of elections. The effect of having a third candidate in the second round decreases the share of null/blank votes by 3 to 5% points, increases turnout by 1 to 6% points, and increases the share of valid votes by 4 to 11% points.

Third, still exploring to what extent our results are driven by this particularity of French politics where there is an historical record of popular mobilization against the



**Table 4** Sub-sample RDD results (external validity)

	Turnout (2nd round)	Null/Blank votes (2nd round)	Valid votes (2nd round)
<b>Before 2002</b>			
<b>(N=8,370)</b>			
RDD estimate	0.052 (0.017)***	-0.037 (0.004)***	0.090 (0.019)***
First stage	0.391 (0.021)***	0.400 (0.019)***	0.390 (0.022)***
<b>After 2002</b>			
<b>(N=5,536)</b>			
RDD estimate	0.009 (0.018)	-0.031 (0.005)***	0.041 (0.020)**
First stage	0.486 (0.036)***	0.475 (0.045)***	0.490 (0.040)***
<b>Cantonal</b>			
<b>(N=10,181)</b>			
RDD estimate	0.028 (0.013)**	-0.033 (0.003)***	0.065 (0.015)***
First stage	0.432 (0.021)***	0.446 (0.019)***	0.430 (0.023)***
<b>Legislative</b>			
<b>(N=3,725)</b>			
RDD estimate	0.058 (0.032)*	-0.054 (0.012)***	0.111 (0.038)***
First stage	0.375 (0.042)***	0.374 (0.042)***	0.373 (0.042)***
<b>Third candidate extreme right</b>			
<b>(N=3,740)</b>			
RDD estimate	0.012 (0.007)*	-0.019 (0.001)***	0.031 (0.007)**
First stage	0.903 (0.019)***	0.903 (0.019)****	0.903 (0.019)***
<b>Second candidate extreme right</b>			
<b>(N=854)</b>			
RDD estimate	0.004 (0.018)	-0.044 (0.004)***	0.048 (0.017)***
First stage	0.932 (0.037)***	0.918 (0.032)***	0.932 (0.037)***

Note: RDD estimates are local average treatment effects of having three candidates in the district in the second round in % points. RDD estimates computed from sharp RDD when the third candidate is from an extreme right party because there is almost no candidate dropping out between the two rounds. Robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Full results can be found in Tables A21–A24 in the appendix

Front National, we reproduce the baseline RDD analysis diving on two sub-samples of districts: one where the when the third candidate is from an extreme-right party, or when the extreme-right candidate comes second in the first round and thus has some serious chances of winning in the second round. Table 4 shows that the local average treatment effects are not larger in these configurations. If anything, the effects are even smaller compared to our baseline estimates. We thus do not find any evidence that the treatment effect is driven by an extraordinary mobilization against extreme-right candidates, which suggests that it can be generalized to a wide range of district configurations in France.

## Generalizability to other countries

Our design exploits a rather unique feature of the electoral rule in France. Are estimates of the effect of going from two to three competing candidates informative of elections in other countries that use a different electoral rule? We believe that they are. First, from a theoretical point of view, we believe we estimate an important quantity of interest for scholars in the field of comparative politics. When we think about the effect of adding an extra candidate to an election, we generally do not think about the effect of adding a ‘spoiler’ candidate who will only capture a few votes. We generally think about the effect of adding a ‘relevant’ candidate, that is one that is an important contender (Sartori, 1976). Along this line, our study shows what happens to turnout in those elections when a candidate that it is supported by at least 10% of the registered voters is added to the race.

Second, from an empirical perspective, this quantity is relevant because in many countries district-level electoral competition revolves around two or three candidates.<sup>14</sup> To evaluate this, we use the dataset made available in the Constituency-Level Election Archives which gathers the district-level results of national parliamentary elections in a wide range of countries (Kollman et al., 2019). For the sake of comparability, we focus on elections from 1978 to date (same time window as in our analysis) in established democracies: The ‘EU-15 countries’, plus Australia, Canada, Iceland, New Zealand, Norway, Switzerland, and the United States. Mirroring our French case study, we focus on the main candidates/parties who receive at least 12.5% of the votes. Once we remove small competitors, we observe in countries that use single-member districts (Australia, Canada, New Zealand (after 1996 only the local districts), the UK, the US, and the local districts of Germany), that 95% of all districts have either two or three main candidates (62% have two, 33% have three). Although electoral competition seems to revolve around two main candidates in most districts, there is still a third of all districts in which there are three main candidates. Interestingly, we find that even in countries that use multi-members districts, in 81% of all districts the competition is between two (36%) or three (45%) main parties. However, given that parties usually nominate list of candidates in these countries, we cannot discard the possibility that different dynamics are at play there. Nonetheless, we find that the district configurations that we study in this paper are in fact quite common in established democracies, at least those that use single-member districts.

Third, a threat to the external validity of our results is that in the two-round elections in France voters go to the polling station twice within a week. One can argue that our results can be partially driven by the frustration of not having the possibility to vote for the same set of candidates at these two occasions.<sup>15</sup> However, one should

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<sup>14</sup> That said, it is reasonable to think that the effect of adding an extra candidate when there are already ten candidates participating is probably smaller than what we estimate in this paper, simply because the ten candidates probably cover most of the ideological space already, and the 11th candidate is unlikely to increase ideological coverage

<sup>15</sup> Another related thread to the external validity of our study is about the cost of voting that might be different in France compared to other countries. As French voters vote in the second round one week following the first one, and the second time on a subset of the candidates competing in the first round, they need bear the cost of information acquisition only once. However, some empirical evidence shows that that

not forget that in other countries like the United States people also often go to the polling station, sometimes even several times a year. For example, they vote for a set of candidates in their party's primaries, and then for a reduced set of candidates in the actual election. They might also feel some frustration at these occasions as well. Furthermore, one could argue that our results can also be partially driven by the frustration of voters who see their favorite candidate falling just below the threshold, and then not participating in the second round. This discontinuity could be seen as arbitrary and unfair.

However, one should not forget that elections in other countries also involve thresholds and discontinuities that can be perceived as equally arbitrary and unfair. For example, in many countries, candidates need to receive a certain number of signatures from voters or local politicians proving support for their candidacy to participate in elections (in Canada, it is 100 signatures from voters in districts that can be as small as 20,000 voters). Another example is that in many countries, some parties do not present a candidate in all districts. This is typically the case of regionalist parties like the Scottish National Party in the United Kingdom or the *Bloc Québécois* in Canada, but also smaller parties like the Green Party in the United Kingdom (in 2019 general election, the Green party did not present a candidate in 81 districts, so 15% of all districts). For voters who live close to the boundary of a district in which these candidates do not participate, this can be seen as arbitrary and unfair, as they would have been able to vote for them if they had lived on the other side of the boundary. For these reasons, we believe that our causal estimates are generalizable to single-round plurality elections, and to some extent to those organized under proportional representation.

## Conclusions

We estimate the causal effect of having a third candidate in an election on turnout. To do so, we first apply an RDD to a natural experiment in legislative and cantonal elections in France. These elections are organized under a two-round system, and only the candidates that pass a certain qualifying threshold in the first round can participate in the second round. Hence, this qualifying threshold creates a discontinuity in the probability of having a third candidate in the second round. Analyzing turnout levels in the second round in close to 14,000 districts, we find that having a third competing candidate increases turnout by 3.5% points and decreases the share of blank and null votes by 3.7% points. Put together, this means that the overall effect of this additional candidate on the share of valid votes is substantial, i.e., an increase of 7.3% points. Second, we validate these estimates by analyzing survey data from the 2012 legislative election in France that was characterized by a high number of districts with three candidates qualified for the second round. We find that respondents are more likely to vote in the second round when they are in a district with three qualified candidates, even after controlling for a wide range of individual covariates.

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cost of voting associated to information acquisition is in fact very small, at least in established democracies (Blais et al., 2019).

Further, probing the mechanism, we find that the causal effect of the number of candidates on turnout is most likely due to a decrease in alienation. The alienation mechanism supposes that abstention is, at least partially, explained by the feeling of the electorate that no candidates share their political preferences. We find that the local average treatment effects are the largest when the third candidate is from another ideology than the two first candidates. We confirm these findings with our survey analysis: the presence of a third candidate in the district in the second round only increases the probability of voting of respondents who are perceived as closer in ideological terms to this third candidate relative to the first two.

We believe the findings have important policy implications in two ways. First, it is important to have a precise estimate of the causal effect of having an extra candidate on turnout, as this comes with a potential cost for democracy and representation. When there are many competing candidates, it becomes more difficult for voters to coordinate, which can then lead to wasted votes. Second, high voter turnout is crucial for democracy. Low turnout is often associated with a distortion in political representation, as political elites have few incentives to be responsive to those who abstain. We show that an easy way to increase turnout is to facilitate entry requirements for potential candidates, which is an important insight for decision makers that are considering facilitating entry requirements for potential candidates.

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