

Media, Spillovers, and Social Norms: The Electoral Impact of Anti-Far Right Protests in the 2002 French Election*

Short title: Anti-Far Right Protests

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We study the electoral impact of protesting against the far right by investigating the demonstrations held during the 2002 French presidential elections against far-right candidate Jean-Marie Le Pen. Instrumenting rally attendance with rainfall while factoring in that some municipalities never host protests, we find that larger protests reduced the number of votes for Le Pen and abstention, while increasing the number of votes for the incumbent president, Jacques Chirac. We find that the effect spread out beyond the municipalities that hosted protests and worked through media exposure. Using survey data, we show that protests reduced support for the policies advocated by Le Pen. Moreover, the positive effect on voting for Chirac resulted from right-wing voters switching from Le Pen to Chirac and left-wing voters not casting a blank ballot, implying that some voters voted expressively. Finally, we show that protests reduced the social desirability of voting for Le Pen.

Keywords: protest, election, demonstration, far right, populism, social pressure, media.

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1 Introduction

Far-right parties have seen their influence grow in countries as diverse as Austria, Brazil, France, Hungary, Italy, Germany, the United Kingdom, and the United States. Although each has unique characteristics, these parties — generally described as far right, radical right, or right-wing populist — share common traits: anti-immigration policies, nationalist or even xenophobic or racist positions, an anti-elite discourse, charismatic leaders, and a defence of traditional values (Guriev and Papaioannou, 2022). Another common characteristic is that they have prompted protests by their opponents not only after their election but also pre-emptively, with the aim to reduce electoral support for the party’s candidate. Protests against Donald Trump started during his 2016 campaign and marked his term in office. In Brazil, the *Ele Não* movement, which means “not him”, was created during the 2018 presidential campaign to protest Jair Bolsonaro and his campaign. In Italy, the *Sardines* movement was set up to oppose far-right politician Matteo Salvini and his party *Lega Nord*. In Hungary, Viktor Orbán’s 2018 re-election was also met with protests. In Germany rallies against far-right party *AfD* were held across the country in January 2024, following reports of a meeting at which members of the party considered the deportations of people of foreign origin. Can these protests reach their stated objective to reduce the influence of far-right parties and, if so, how? These are the questions we address in this paper.

We study the 2002 French presidential election that saw far-right candidate Jean-Marie Le Pen reach the second round of voting. In the first round, on April 21, Jean-Marie Le Pen had to the surprise of all obtained the second largest number of votes behind Jacques Chirac, the right-of-centre incumbent. Jean-Marie Le Pen thus became the first far-right candidate to make it to the second round of presidential elections in the history of the French Fifth Republic, potentially challenging the social stigma attached to the far-right party and its ideas, as observed by Bursztyn et al. (2020) in the case of Donald Trump’s election. The second round took place on May 5. Four days before, on May 1, around 300 peaceful protests against Jean-Marie Le Pen and his party, *Front National*, gathered more than one and a half million participants across the country.

The 2002 French election provides an ideal natural experiment to study the effect of protests against a far-right candidate for at least four reasons. First, the case of France is exemplary in that France was one of the first Western countries to deal with an electorally successful extreme right. *Front National* thus obtained its first electoral breakthroughs in the early to mid-1980s, making it a forerunner of European far-right parties. Second, it is a case where a

far-right candidate obtained an unexpected electoral success potentially challenging the prevailing social norm but also prompting protests on a single day. Third, France's presidential election is a two-round system, and the protests took place between the two rounds of the election. This means that the first round can be used as a measure of the initial performance of the candidates in each municipality to finely evaluate the movement of votes between the two rounds caused by the protests that took place in between. Moreover, as the protests took place only four days before the second round, this enables us to rule out certain mechanisms and threats to identification. Fourth, the weather on the day of the protests varied from beautiful to rainy across municipalities. Under the assumption that rainfall is uncorrelated with determinants of electoral outcomes other than protests, differences in rainfall across municipalities on the day of protests can be used as exogenous source of variation in rally attendance, which allows us to build upon Madestam et al.'s (2013) identification strategy to develop an innovative two-part model (Cameron and Trivedi, 2010, Belotti et al., 2015).

In this two-part model, we construct from two different data-generating processes a rain-based synthetic instrument that factors in the probability of a protest occurring and the number of participants conditional on that probability. The key advantage of the model is that it accounts for the fact that some municipalities are unlikely to host a protest. In particular, because of a municipality's size, residents wishing to protest may typically join a protest in a larger nearby municipality instead.

Our results show that protests were effective in impacting the outcomes of the second round of the election. Specifically, we observe that larger protests in a municipality resulted in a lower score for far-right candidate Jean-Marie Le Pen and a higher score for right-of-centre candidate Jacques Chirac in that municipality. Larger protests also resulted in fewer voters deciding to abstain or cast a blank or invalid ballot. These findings stand up to a series of robustness checks addressing spatial correlation, outliers, the way we code rally attendance, how we construct the rain-based instrument, and the way we define a rainy protest. Our results are also robust to relaxing the exclusion restriction, thus making them immune to Mellon's (2021) criticism that many weather-based instrumental variables fail to meet the exclusion restriction.

A key contribution of the paper is to investigate the different mechanisms that may explain the effects of protests. We first focus on how the informational content of protests spread to other municipalities, as well as the role played by the media in conveying that content, thereby raising public awareness around the issues at stake (Lohmann, 1994, Battaglini, 2017, Wasow, 2020). Conditioning the effect of the number of participants on media exposure, we document that the effect of protests was larger in municipalities with higher levels of media

exposure. This suggests that the local media played a role in conveying information about the protests. We then test whether the effects of protests spilled over to other municipalities. We find that they did. Taken together, those results suggest that protests have an informational content that is channelled at least partly by local media, which is in line with the logic of Lohmann (1994), Battaglini (2017), and Wasow (2020). Our results also suggest that the effect of protests can go beyond the local networks observed by Madestam et al. (2013).

We then leverage individual survey data to understand how protests affected the behaviour of individual voters. We observe that respondents living in municipalities with larger protests showed less support for the views and policies supported by Jean-Marie Le Pen and his party. These results are consistent with the view that protests served as a signal to voters of the potential negative consequences of voting for the far right, in line with the models of Lohmann (1994) and Battaglini (2017).

We then consider separately the effect of protests on the behaviour in the second round of self-declared left- and right-wing voters. Doing so allows us to test the extent to which voters' behaviours were best described by instrumental models, where voters only value the outcome of the election either at the individual (e.g., Downs, 1957, Myerson and Weber, 1993, Bouton, 2013) or group level (e.g., Coate and Conlin, 2004, Feddersen and Sandroni, 2006, Bouton and Ogden, 2021), or received expressive benefits from their vote regardless of its impact on the outcome of the election, as observed by Pons and Tricaud (2018). We find that larger protests increased the probability of right-wing voters voting for Jacques Chirac at the expense of Jean-Marie Le Pen and had no statistically significant effect on their probability of casting a blank or invalid ballot. These findings suggest that some right-wing voters swung between extreme and moderate right-wing candidates, which can be reconciled with the instrumental model if protests convinced those voters that voting for Jean-Marie Le Pen was not in anyone's interest, in the spirit of the models of Lohmann (1994) and Battaglini (2017).

By contrast, although larger protests also increased the probability of left-wing voters to vote for Jacques Chirac and had no statistically significant effect on their probability of voting for Jean-Marie Le Pen, they reduced the probability of left-wing voters casting a blank or invalid ballot. Therefore, some left-wing voters swung between casting a blank or invalid ballot and voting for the only alternative to the far-right candidate. This finding is more difficult to reconcile with the instrumental model because, although he was not their first choice, Jacques Chirac was arguably closer to the preferences of left-wing voters than Jean-Marie Le Pen. Left-wing voters should accordingly have voted for him regardless of the size of protests. Those findings suggest that some left-wing voters obtained expressive utility from casting a blank

ballot, which had no effect on the outcome of the election. This finding complements the evidence reported by Pons and Tricaud (2018).

Last but not least, we find suggestive evidence that the number of participants in the protests emphasized a social norm that voting for the far right was socially undesirable. Bursztyn et al. (2020) argue that election results can signal the prevalence of a social norm in the population, hence changing individuals' behaviours. We argue that protests can play the same role and even compensate the signal sent by an unexpected electoral outcome. A larger number of participants in a protest against a candidate can signal that they consider voting for that candidate inadequate. In the 2002 election, the unexpected outcome of the first round could have challenged the norm of not voting for a far-right candidate. By contrast, the success of the May 1 protests could reinforce the original social norm.

In line with that presumption, we observe that larger protests reduced the probability of respondents declaring that they had voted for Jean-Marie Le Pen in the *first* round of the election. As the survey was carried out after the *second* round and protests took place ten days after the first round, they could by construction not affect votes in the first round. Conversely, we find no effect of protests on reporting a vote for Jacques Chirac or a blank or invalid ballot. We can therefore conclude that protests affected respondents' willingness to reveal that they had voted for the far-right candidate. This finding mirrors the evidence that the election of Donald Trump affected social norms surrounding sexism and racism (Bursztyn et al., 2020, Giani and Méon, 2021). Although the finding pertains to votes reported in a survey as opposed to actual votes, it is suggestive that protests can sway voters by reinforcing the social norm that voting for the far right is undesirable. To our knowledge, our paper is the first to suggest and empirically illustrate this mechanism.

Overall, the present paper contributes to several strands of literature. The first is the literature on populism that has grown by documenting a series of determinants of support for populist parties or politicians (Guriev and Papaioannou, 2022). However, this strand of literature has so far overlooked the role of the public reaction opposing those parties. We show that the 2002 protests reduced support for the populist candidate.

The second strand of literature to which we contribute is research on the consequences of protests. This literature asks whether protests can achieve their stated goals. Evidence from the US on the effect of protests against racial and gender discrimination suggests that while protests can increase the perception of discrimination and the support for policies to reduce it, they simultaneously can result in polarization (Mazumder, 2018, Reny and Newman, 2018, Wasow, 2020, Larrebourg and González, 2021, Klein Teeselink and Melios, 2022). Our

findings show that the French protests affected the outcome of the election as intended. By studying the effect of a protest *against* a party and its candidate, we also complement the empirical contribution of Madestam et al. (2013) and Snyder and Yousaf (2020) who studied the effect of rallies *in favour* of a party or a candidate. Protesting against a candidate likely differs from protesting in favour of a candidate because while participants may agree on the same adversary, they may nonetheless have different political preferences and may not consider building a unified movement or party after the protest as in Madestam et al. (2013). It certainly was the case in France in 2002, where participants came from the whole political spectrum to the left of the far-right candidate. Moreover, the aim of the protest is to convince non-participants not to vote for a candidate rather than to join the movement. It could however backfire if some voters only consider voting for the controversial candidate as a form of protest vote, but do not want him to win the election, in line with Myatt's (2017) theory of protest voting. If those voters interpret a successful demonstration as evidence that the candidate is less likely to win the election, they could feel safer voting for him. To our knowledge, our paper is the first to directly study the effect of a protest against a candidate on his electoral performance.

The main contribution of our paper is to document mechanisms through which protests operate. In line with the theoretical contributions of Lohmann (1994) and Battaglini (2017), we report evidence that protests effectively conveyed information to the public. Further, our finding that protests had a stronger effect in areas with higher levels of media exposure and affected Le Pen's media coverage is consistent with Wasow's (2020) agenda seeding theory. We also report evidence that some voters voted expressively, thus complementing the findings of Pons and Tricaud (2018).¹

Most of all, we suggest a new channel of transmission of the effects of protests: the signalling of a social norm. We thereby contribute to the rising literature on changes in social norms (Bursztyn et al., 2020, Giani and Méon, 2021). The role of social norms has been documented for abstention using field experiments (Gerber et al., 2008, DellaVigna et al., 2016) and for election outcomes (Bursztyn et al., 2020, Giani and Méon, 2021). We report evidence suggesting that the protests in France had a similar effect. In so doing, our paper contributes to the

¹ Another mechanism posits that protests change votes by creating or strengthening networks of activists, in line with the model of Murphy and Shleifer (2004) and the findings of Pons (2018) and Pons and Liegey (2019) on canvassing. In accordance with this theory, Madestam et al. (2013) have shown that the demonstrations of the "Tax Day" that launched the Tea Party in the US allowed it to develop its network of activists and tilted voters in favour of the Republican Party. Conversely, the demonstrations may have also revealed the magnitude of the mobilization in the general public, prompting less committed activists to free ride on the effort of their peers, as observed by Hager et al. (2023). Since only four days elapsed between the protests and the election, and campaigning in the last two days before an election is banned in France, networks of activists likely played a minor role in our case.

literature on social norms and social desirability by showing that protests can reinforce a norm that may have been challenged by an electoral outcome.

The paper also makes a methodological contribution by showing how a two-part model à la Cameron and Trivedi (2010) and Belotti et al. (2015) can be used to account for the fact that protests do not occur randomly across municipalities. That model allows us to leverage exogenous variations in weather shocks affecting the number of participants, while accounting for the fact that some municipalities are unlikely to ever host a protest.

The remainder of the paper is organized as follows. The next section describes the historical and institutional context of the 2002 French presidential election. The third section introduces the data, and the fourth section presents the empirical methodology. The fifth section reports and discusses the baseline results. The sixth section investigates the role of the media in spreading the effect of protests and their spatial spillovers. The seventh section uses survey data to better understand how individual voters reacted to the protests and suggests a series of transmission channels. The eighth section concludes.

2 Historical Context

Since 1965, the president of the French republic has been elected in a two-round direct election. Unless a candidate garners an absolute majority in the first round, which to date has never happened, the second round pits the two candidates who received the most votes against one another in an election that takes place two weeks after the first round. Since 2002, the president's mandate is for five years.

As the requirements for running for president are not stringent, the number of candidates in the first round can be large. In 2002, there were 16 total candidates in the first round. Two candidates were far-right (Jean-Marie Le Pen and Bruno Mégret), four were right (Jacques Chirac, Jean Saint-Josse, Christine Boutin, and Alain Madelin), two were centrist (Corinne Lepage and François Bayrou), five were left (Christiane Taubira, Noël Mamère, Lionel Jospin, Robert Hue, and Jean-Pierre Chevènement), and three were far-left (Daniel Gluckstein, Arlette Laguiller, and Olivier Besancenot). The two candidates who were considered the most likely contenders for the second round were incumbent president Jacques Chirac and the incumbent prime minister, Lionel Jospin (Lewis-Beck, 2004). They had shared the executive since 1997 following an electoral defeat of the right-wing coalition supporting Jacques Chirac's party in a legislative election. The executive was therefore split between a right-wing president and a left-wing prime minister belonging to the socialist party.

On April 21, 2002, contrary to expectations, Jean-Marie Le Pen, leader of far-right xenophobic Front National beat Lionel Jospin in the first round with 16.86 percent of votes against Jospin's 16.18 percent of votes. As a result, the second round pitted Jean-Marie Le Pen against Jacques Chirac, who had gotten the most votes in the first round.²

Whereas moderate right-wing voters had a clear candidate around whom to rally, left-wing voters faced a moral dilemma: They had to vote for a candidate they disapproved of to prevent the election of a candidate they disapproved of even more. The matter was made worse by the fact that Jacques Chirac was suspected of corruption while he was the mayor of Paris and perceived as dishonest and corrupt. Hence, many left-wing voters may have been tempted to abstain or cast a blank or invalid ballot. The dilemma faced by left-wing voters is summarized in the title of an article published by left-wing daily newspaper *Libération*: "Vote for the crook, not the fascist!" (*Libération*, April 23, 2002).

Nonetheless, the main leaders of the left quickly called for citizens to vote for Jacques Chirac. Importantly, about sixty trade unions, associations and political parties called for Labor Day protests to be devoted to expressing an opposition to far-right candidate Jean-Marie Le Pen. On Wednesday, May 1, 2002, around 300 protests were held across France, attracting around one and half million participants. Those protests were peaceful and festive. No violent incident was reported, and the press underlined their peaceful nature. For Instance, France 2, the main public TV channel, described the protests as "good natured" on the 8:00 pm news. Accordingly, there was no reaction by the police that may have affected protest behaviour (González and Prem, 2022).

The official political campaign ended two days later on Friday, May 3 at midnight, after which candidates were no longer allowed to campaign, and the media were forbidden from publishing surveys of voters. On Sunday, May 5, 2002, Jacques Chirac was re-elected in a landslide victory with 82.21 percent of votes against 17.79 for Jean-Marie Le Pen.

3 The Data

Our dataset merges information on electoral outcomes, rally attendance, rainfall, and sociodemographic characteristics for all municipalities in mainland France.

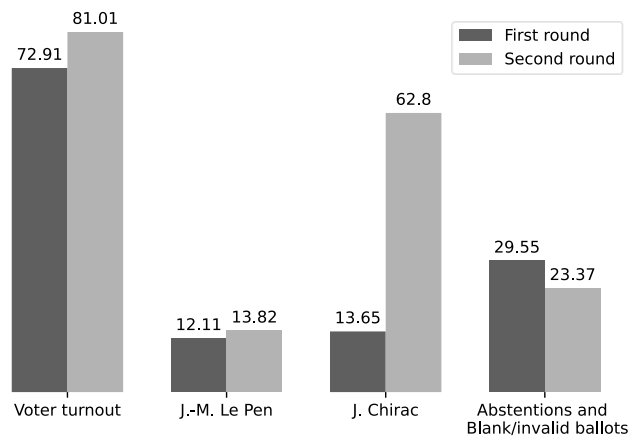
² Unlike in legislative elections, third-place candidates in the first round cannot run in the second round of the presidential election, even if they have garnered more than 12.5 percent of votes. Pons and Tricaud (2018) have found that some voters use those third-place candidates to vote expressively. As there is no third-place candidate in presidential elections, voters had to choose between voting for Jacques Chirac, voting for Jean-Marie Le Pen, abstaining or casting a blank ballot.

Voting Outcomes

The official results of the first and second rounds of the elections reported by the Ministry of the Interior were collected from the public data portal of the French government (Centre de Données Socio-Politiques, 2014). For each municipality and each round, we observe the number of voters registered for the election, the vote share of each competing candidate, and the share of abstentions and blank and invalid ballots.

All figures are scaled down by the number of registered voters in the first round of the election. This allows us to interpret the variations in the scores of the candidates between the two rounds as changes in the absolute number of voters.

Figure 1: Outcomes of the Two Rounds of the Election



Note: Voting outcomes are reported as shares of the number of registered voters, which is the same for the two rounds. The figure reports the outcome’s mean over municipalities in mainland France.

Figure 1 reports the election results of the two rounds averaged over all the municipalities in the sample. It shows that turnout increased in the second round. Likewise, the shares of the two candidates increased, implying that both candidates attracted voters who had not voted for them in the first round while the share of voters who abstained or cast a blank or invalid ballot decreased. Figure A1 in Online Appendix A documents the geographical distribution of the vote share.

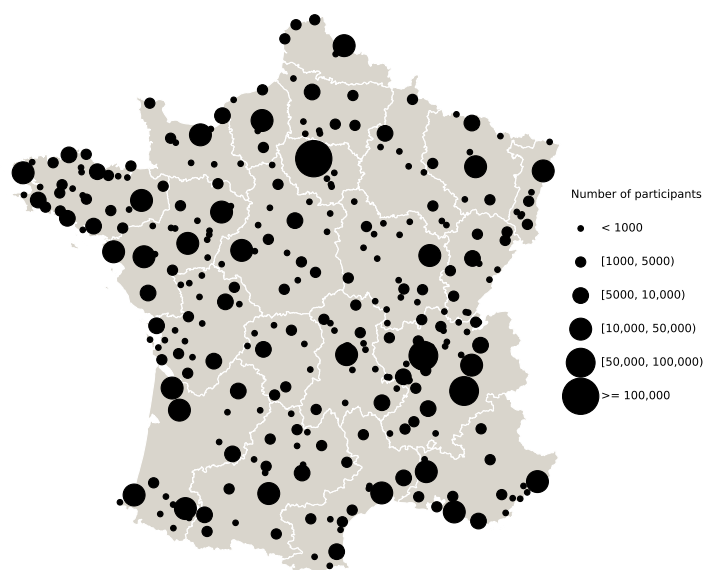
Rally Attendance

Information on protests and rally attendance were drawn from national and local newspapers.³ We hand-collected all news articles that were published between May 1 and May 18 and contained the word “manifestants”, “manifestations”, or “Front National”. We then extracted

³ We contacted the Ministry of the Interior to obtain official figures, to no avail. In any case, the Ministry of the Interior would have likely focused on the protests taking place in the largest municipalities, while using the local press allows us to obtain information on protests that occurred in smaller municipalities.

information regarding the location of the protest and the number of attendees. Rally attendance in our sample ranges from 50 participants in Guebwiller to several hundred thousand participants in Paris. Our sample therefore contains not only the large protests but also very small ones. Rally attendance for municipalities for which we found no news articles was set to zero. Figure 2 describes the size and the location of the protests identified in the sample.

Figure 2. Location of Protests on May 1, 2002



Note: The figure reports the location and the size of the protests held on May 1, 2002, against Jean-Marie Le Pen.

Unsurprisingly, different news articles may report different turnouts for the same protest, as sources of information across newspapers can differ (e.g., some rely on police figures, and others use information from the organizers or from the Ministry of the Interior). As a result, figures may vary since some sources tend to exaggerate, while others tend to minimize rally attendance. We therefore use the average reported number of participants as our main measure of attendance.⁴

Rainfall

We obtained detailed data on rainfall from the public data portal of Météo France, the French national meteorological service (Météo France, 2020). Our database reports information on rainfall (in millimetres) from around 1,500 to 4,000 weather stations spread throughout

⁴ In the robustness checks, we show that the findings are robust to the uncertainty surrounding the number of participants.

mainland France from 1983 to 2002.⁵ To be able to study the municipality level, we matched each municipality with the meteorological information of the closest weather station. For each municipality, we therefore observe the intensity of rainfall on the day of the protests — that is, on May 1, 2002 — as well as the intensity of rainfall that occurred the same day from 1983 to 2001. Table A1 in Online Appendix A shows that rainy and non-rainy municipalities are similar in terms of observable sociodemographic characteristics.

Sociodemographic Data

We complemented the dataset with sociodemographic data on each municipality, including: population size, average age, landmass, variation in the unemployment rate between 1996 and 2002, and the proportion of individuals aged 60 years or older. We also created a dummy *Agglomeration center* that takes the value 1 if the municipality is an agglomeration centre and 0 otherwise, as well as created a dummy *Special administrative status* that takes the value 1 if the municipality is the national capital (Paris), a prefecture, or a cantonal capital (David, 2018, Eco-Santé, 2017, INSEE, 2017, 2020, 2023, OpenDataSoft, 2013).

Finally, we created four dummies which correspond to the four types of municipalities defined by France’s National Institute of Statistics and Economic Studies (INSEE). Thus, a municipality can either be a city centre, a suburb, an isolated municipality, or a rural area. It is a city centre if the municipality represents more than 50% of the population of the urban unit. Suburbs are urban municipalities that are not city centres. When an urban unit is constituted by a single municipality, it is classified as an isolated municipality. A rural municipality is a municipality that does not belong to an urban unit.

4 Empirical Framework

4.1 Identification Strategy

To assess the impact of the protests against Jean-Marie Le Pen on the voting outcome of the second round, we estimate variants of

$$y_{2,m} = \zeta_0 + \zeta_1 y_{1,m} + \zeta_2 \text{Participants}_m + \xi_m + \lambda_d + \epsilon_m, \quad (1)$$

where

⁵ Rainfall is the amount of rain (in millimetres) collected between 06H00 UTC on day D and 06H00 UTC the next day (D+1). The number of weather stations varies in function of the measurement date. Online Appendix Figure A2 shows the localization of the weather stations used.

- $y_{2,m}$ is the relevant post-rally voting outcome in the second round in municipality m . We use the vote share of Jean-Marie Le Pen, the vote share of Jacques Chirac, and the share of abstentions and blank and invalid ballots. All figures are scaled down by the number of registered voters in the first round of the election and therefore range from 0 to 100.
- $y_{1,m}$ is the relevant voting outcome in the first round in municipality m ;
- $Participants_m$ is a measure of the number of participants who rallied against Jean-Marie Le Pen on May 1, 2002, in municipality m ;
- ξ_m is a vector of dummy variables coding the municipality type (city centre, isolated municipality, rural area, or suburb);
- λ_d includes department fixed effects;⁶
- ϵ_m is the error term.

Controlling for the initial performance of the candidates allows us to finely evaluate the change in votes between the two rounds that can be attributed to the between-round protests. Similarly, the inclusion of the department fixed effects enables us to control for unobserved geographic and socio-economic differences between departments. In our baseline estimations, we scale down the number of participants by the population of the municipality and cluster standard errors at the level of departments to allow for arbitrary dependence between the municipalities of the same department.⁷

Our identification strategy consists in comparing voting outcomes across municipalities that hosted protests of different sizes. Doing so implicitly makes the stable unit treatment value assumption (SUTVA). However, a protest in one municipality may have affected the voting outcomes of neighbouring municipalities, which contradicts SUTVA (Lewbel, 2019). By treating municipalities as independent of each other, our baseline estimates measure the direct effect of a protest in a municipality on the voting outcome of that municipality, and hence provide a lower bound of the total effect of protests, as they overlook spillovers to neighbouring municipalities. Although we treat municipalities as independent units in order to follow the standard approach in the literature and keep the baseline results more straightforward, we explicitly consider spillover effects in Section 6.2 and Online Appendix F2. Specifically, we document the existence of spillovers across municipalities and show that even when accounting for those

⁶ Departments are the administrative division between municipalities and regions. In mainland France, there are 94 departments. The average population is 619,436 (s.d. = 465,614), and the average landmass is 5,740 km² (s.d. = 1,957).

⁷ Clustering at the department level assumes zero spatial correlation between departments. In Section 5.2, we investigate the sensitivity of the results to that assumption by computing standard errors that account for spatial dependence.

spillovers, the direct effects of protests change little. In addition, the specification overlooks the nationwide effect of protests, which may for instance be driven by the coverage of protests by national media outlets. As the nationwide effect is likely qualitatively similar to the cross-municipality effect, the estimates must again be interpreted as lower bounds on the total effect of protests on nationwide voting outcomes.

It may be argued that the same variables — for example, political preferences — drive both the score of the candidates and the number of participants in the protests. Similarly, the score of the far-right candidates may have affected the number of participants. To address potential endogeneity, we estimate Equation (1) using two-stage least squares (2SLS) with $Participants_m$ instrumented by an exogenous instrument based on the deviation in rainfall relative to the seasonal average in the municipality on the day of protests. In line with Madestam et al. (2013) and Wasow (2020), we assume that inclement weather shocks deter some potential participants from joining a protest. However, we depart from their approach by accounting for the possibility that some municipalities are unlikely to host a protest because their relatively small size implies that their residents will typically join a protest in a larger nearby municipality.

Specifically, we construct a rain-based synthetic instrument by estimating a two-part model (Cameron and Trivedi, 2010, Belotti et al., 2015) where we allow the occurrence of a protest in a municipality on May 1, 2002, and the number of participants to be generated by two different processes. By factoring in the fact that the intensity of rainfall is irrelevant for predicting rally attendance in a municipality that never experiences a protest, regardless of weather shocks, we avoid a weak instrument. If rainfall on May 1, 2002, is uncorrelated with determinants of electoral outcomes other than protests, then the resulting 2SLS estimator is consistent and identifies the causal impact of the number of participants on electoral outcomes.

The first-stage equation thus reads:

$$\ln(Participants_m) = \pi_0 + \pi_1 y_{1,m} + \pi_2 z_m + \xi_m + \lambda_d + \eta_m. \quad (2)$$

where z_m is our rain-based synthetic instrument described in the next section and η_m the error term.

4.2 A Rain-Based Synthetic Instrument

In the two-part model, the probability of a protest occurring and the number of participants conditional on a protest occurring come from different data-generating processes. Specifically, in the first part, we let the characteristics of municipalities determine the probability of a protest taking place. In the second part, the variation in the deviation in rainfall relative to the seasonal

average across municipalities provides an exogenous source of variation in rally attendance. Doing so increases the precision of the estimates and the strength of the instrument because it factors in the fact that rainfall is irrelevant in municipalities that never host a protest.

The first part models the probability that municipality m has a protest — that is, a strictly positive number of participants. To model this, we use a binomial regression with a complementary log-log link function:

$$\Pr(\textit{Participants} > 0 \mid \mathbf{X}_1) = F(\mathbf{X}'_1 \alpha) = 1 - \exp\{-\exp(\mathbf{X}'_1 \alpha)\}, \quad (3)$$

where \mathbf{X}_1 is a vector of dummies classifying the municipality type (city centre, isolated municipality, rural area, or suburb), and α the corresponding vector of parameters to be estimated. The subscript m denoting the municipality is omitted for convenience.

We expect city centres and isolated municipalities to be more likely than suburbs to experience a protest as city centres are generally larger, more populated, and more important areas, while the isolated municipalities are geographically further away from other large municipalities. Conversely, we expect rural areas to be unlikely to host protests as individuals will tend to rally in larger nearby municipalities.

Because we cannot rule out that the type of municipality also influences voting behaviour, we control for municipality type at each stage of our estimations to restrict the analysis to variations within each type of municipality, as the instrument only needs to be exogenous conditional on covariates (Angrist and Pischke, 2008).

The second part of the model estimates the number of participants attending the protest as a function of rainfall, conditional on the protest taking place in the municipality. Specifically, we take the natural logarithm of *Participants* and estimate the following semi-log linear regression⁸:

$$\begin{aligned} \mathbb{E}(\ln(\textit{Participants}) \mid \textit{Participants} > 0, \textit{Rain Deviation}, \mathbf{X}_1, \mathbf{X}_2) \\ = \alpha + \beta \textit{Rain Deviation} + \mathbf{X}'_1 \gamma + \mathbf{X}'_2 \delta + \epsilon, \end{aligned} \quad (4)$$

where *Rain Deviation* measures the deviation in rainfall relative to the seasonal average on the day of the rally in municipality m , so that higher rain deviation indicates that it rained more

⁸ We estimate a semi-log linear regression to increase the quality of the prediction as the number of participants is right skewed (Cameron and Trivedi, 2010).

than usual, and β is the corresponding parameter to be estimated. The seasonal average is obtained by averaging the amount of rainfall on each May 1 between 1983 and 2001.⁹

\mathbf{X}_1 is the vector of dummies classifying the municipality type also included in the first part. \mathbf{X}_2 is a vector of pre-determined municipality characteristics (population size, average age up to the cube, landmass, variation in the unemployment rate between 1996 and 2002, the proportion of individuals aged 60 years or older, whether the municipality is an agglomeration centre, whether the municipality has a special administrative status, and region fixed effects). Finally, γ and δ are vectors of parameters to be estimated.

We define the instrument z to be used in Equation (2) as the log number of participants predicted by the model. That is, $z = (\hat{p}|\mathbf{X}_1) \times (\ln(\widehat{Participants}) | Participant > 0, Rain Deviation, \mathbf{X}_1, \mathbf{X}_2)$, where $(\hat{p}|X_1)$ is the predicted probability that municipality m has a protest, estimated in Equation (3), and $(\ln(\widehat{Participants}) | Participants > 0, Rain Deviation, \mathbf{X}_1, \mathbf{X}_2)$ is the predicted number of participants in municipality m given that it experiences a protest, which is estimated in Equation (4). We provide more details on the construction and estimation of the synthetic instrument in Online Appendix B1.

Exogeneity of the Rain-based Synthetic Instrument

The exclusion restriction underlying our approach rests on two assumptions. The first is that the probability of a protest occurring in a municipality is orthogonal to rainfall in that municipality. In other words, the first part of our two-part model should not be endogenous to rainfall itself. This assumption is *a priori* plausible, as the different protests that occurred on May 1 were largely organized and planned in advance. Rainfall therefore likely had no effect on the location of protests. Consistent with this idea, we moreover show in Column (1) of Table B1 (see Online Appendix B2) that the deviation in rainfall from the seasonal average on the rally day is uncorrelated with the likelihood that a municipality hosts a protest. In Columns (2) to (3) of Table B1, we further show that the results hold even when we only focus on villages and small municipalities, where rainfall might have been more likely to have affected the organization of a rally.

The second assumption is that the rain-based synthetic instrument is uncorrelated with determinants of electoral outcomes other than protests. We believe this assumption to be

⁹ The average rain deviation in a municipality on the protest day amounted to 7.839 millimetres, with a standard deviation, a minimum and a maximum of 10.947, -8.5, and 55.616 millimetres, respectively. Our identification strategy consists in leveraging this variation in rain deviation across municipalities to construct our rain-based instrument.

reasonable for several reasons. First, both the deviation in rainfall from the seasonal average and the resulting rain-based instrument are uncorrelated with most pre-rally electoral outcomes in the 2002 election (see Table B2 in Online Appendix B2).¹⁰ Both variables are also uncorrelated with the shares of votes for the left and the right and the number of abstentions and blank ballots in past elections (Table B3).¹¹ Second, leveraging survey data that we present in Section 7, we provide evidence that rain and the instrument did not affect the qualitative composition of protests (Table B4).¹² Third, we observe that rain deviation on the day of protests is uncorrelated with rain deviation on the day of the second round (Table B5), which suggests that weather shocks were not persistent over time. Fourth, we show that deviation in rainfall prior to 2002 is mostly uncorrelated with the 2002 second-round voting outcomes (Figure B1).¹³ Fifth, because protests took place just four days before the vote, there was little room for the weather to affect voting outcomes through a channel other than protests. Finally, following Mellon's (2021) advice, we surveyed the literature to look for possible violations of the exclusion restriction of rainfall in our context and found no result suggesting that the weather four days before an election could affect its outcome. Possibly, the weather *on* the day of the election may affect the mood of voters, as Meier et al. (2019) report, but we show that controlling for the weather on the day of the vote does not affect our results (Table B6).

¹⁰ We however observe a statistically significant correlation between rain deviation and Jean Marie Le Pen's vote share in the first round. This may be a concern as it may suggest a pre-*rend* in that outcome that may affect the estimated coefficient of the number of participants in the regressions related to Jean Marie Le Pen. That concern can, however, be qualified. First, although we observe a significant correlation between rain deviation and Jean-Marie Le Pen's first-round score, we observe no such correlation for the instrument, which is what matters for the exclusion restriction. Second, in Online Appendix B2, we test the correlation of rain deviation with 22 possible variables and therefore test as many independent hypotheses. Accordingly, the probability of one or more false rejection of the null hypothesis becomes as high as 67.4 percent (90.2 percent) at the five percent (ten percent) level. To take that possibility into account, we follow Anderson (2008) and report False Discovery Rate (FDR)-adjusted p-values in Table B2. When doing so, all p-values are well above 0.1, suggesting that the rejection of the null hypothesis of no correlation between rain deviation and the first-round vote share of Jean-Marie Le Pen may be false.

¹¹ Specifically, we consider the presidential elections of 1995, 1988, and 1981. For elections before 1995, data are available only for municipalities with more than 9,000 inhabitants.

¹² We document this by showing that rain and the instrument are in nearly all cases uncorrelated with the socio-demographic characteristics of individuals who reported attending a demonstration. We consider the following characteristics: respondents' political orientation (left, right, or neither), gender (dummy equal to one if female), level of education (dummy equal to one if at least secondary education), unemployment status (dummy equal to one if not working), income (dummy equal to one if above the sample median income), interest in politics (dummy equal to one if some or a lot of interest), religiosity (dummy equal to one if the respondent attends religious services at least once a week), and whether they are members of political associations (dummy equal to one if member of at least one association).

¹³ Since the deviations in rainfall in other years are drawn from the same spatially correlated distribution, the results depicted in Figure B1 also suggest that spatial correlation is likely not an issue in our case. We thank an anonymous referee for pointing out this interpretation. In any cases, we explore spatial correlation in more details in Section 5.2.

Realistically, however, we cannot rule out with certainty all violations of the exclusion restriction. In Section 5.2, we therefore provide a more general discussion of the plausibility of the exclusion restriction and show that our estimates remain similar even when the exclusion restriction is violated. Taken together, these results bolster our confidence in the validity of our rain-based instrument.

4.3 Estimation of the Two-Part Model

Table 1 shows the results of the two-part model. In Column (1), we report the estimates of the first part, which models the probability of a protest occurring in a municipality by using the dummy variables classifying the municipality type. All dummies exhibit the expected sign. For example, the average marginal effect of the variable coding city centres is equal to 0.16, implying that city centres were 16% more likely to host a protest than a suburban municipality. Overall, the findings are in line with the notion that the residents of small rural municipalities tend to join protests in neighbouring large municipalities. Conversely, the residents of a municipality are more likely to protest in that municipality if they live in an isolated municipality.

Column (2) of Table 1 presents the estimates of the second part, which models the effect of rain on the number of participants in municipalities that experienced a protest. It shows that the deviation in rainfall from the seasonal average bears a negative coefficient and is statistically significant at conventional levels. This result is therefore in line with our assumption that rain reduces attendance by dissuading some potential participants from joining a protest. According to our estimate, a one standard deviation increase in rainfall deviation relative to the seasonal average in a municipality decreased rally attendance by 18% in that municipality.

Table 1. Synthetic Instrument: Two-Part Model

Outcome	(1) Proba. of a protest occurring	(2) Number of participants
<i>Municipality type</i>		
Suburb	(reference category)	
Rural	-0.00585*** (0.00166)	-0.112 (0.336)
Isolated municipality	0.0415*** (0.00824)	0.379 (0.420)
City centre	0.162*** (0.0170)	1.429*** (0.465)
<i>Rain variable</i>		
Rain deviation		-0.0178** (0.00882)
Observations	36,153	302

Note: The unit of analysis is a municipality. The table reports the results of the two-part model estimated in Section 4.2 to generate our rain-based synthetic instrument. Column (1) reports the average marginal effects of a binomial regression with a complementary log-log link function that models the probability of a protest occurring in a municipality as a function of the dummy variables classifying the municipality type (the first part of our two-part model). The model specification follows Equation (3). Column (2) reports the estimates of a linear regression that models the effect of rain on the number of participants in municipalities that experienced a protest (the second part). The model specification follows Equation (4). *Rain deviation* measures the deviation in rainfall relative to the seasonal average in the municipality on the rally day (May 1, 2002). Standard errors clustered at the department level are reported in parentheses. ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

5 Baseline Results

5.1 The Effect of Protests on Electoral Outcomes

We can now turn to the key results that pertain to the effect of protests on electoral outcomes. The first stage is reported in Table C1 in Online Appendix C1 and shows that our rain-based synthetic instrument — the log number of participants predicted by the two-part model — strongly correlates with the effective number of participants.

The results of the second stage are reported in Table 2. Each column is devoted to a different electoral outcome: Specifically, the vote share of Jean-Marie Le Pen, the vote share of Jacques Chirac, and the share of abstentions and blank and invalid ballots. In all specifications, the F statistic for the excluded instrument is well above the rule-of-thumb of 10, meaning that the synthetic instrument is a strong instrument for rally attendance.

In all specifications, too, the coefficient of the relevant first-round voting outcome is positive and statistically significant at the one-percent level. Accordingly, voting outcomes unsurprisingly displayed persistence between the two rounds of the election.

The parameter of interest is, however, the coefficient of the number of participants during the protests. Column (1) of Table 2 reports the effect of those protests on Jean-Marie Le Pen’s vote share. The coefficient of the number of participants bears a negative sign that is

significant at the five-percent level. Accordingly, larger protests reduced the far-right candidate's vote share. More precisely, a 0.1 percentage point increase in the share of the population protesting in a municipality decreased by 2.2 percentage points the vote share of Jean-Marie Le Pen in that municipality.¹⁴ To better understand the quantitative meaning of this effect, we simulate the vote share of Jean-Marie Le Pen in the absence of protests. The simulation shows that, in the municipalities that experienced protests, Jean-Marie Le Pen would have garnered 1.5 more points in the second round in the absence of protests. The magnitude of the effect is therefore substantial without being implausibly large.

In Column (2), the dependent variable is the vote share for Jacques Chirac. Here, the number of participants exhibits a positive coefficient that is statistically significant at the five-percent level in all specifications. Accordingly, a larger number of participants in the May 1 protests increased the share and the number of voters who cast a ballot for the right of centre candidate. The magnitude of the effect is again substantial without being implausibly large: A 0.1 percentage point increase in the share of the population protesting in a municipality resulted in a 4.5 percentage points increase in Jacques Chirac's vote share. This means that in the absence of protests, Jacques Chirac would have lost 2.3 points in the second round.

Finally, Column (3) suggests that protests also affected the share of abstentions and blank and invalid ballots. The number of participants exhibits a negative coefficient statistically significant at the five-percent level, implying that a 0.1 percentage point increase in the share of the population protesting reduced the share of abstentions and blank and invalid ballots by 2.3 percentage points. In the absence of protests, the share of abstentions and blank and invalid ballots would have therefore been 0.8 point higher.

As vote shares are scaled down by the number of registered voters in the first round of the election, which is by definition constant, changes in vote shares can also be interpreted in absolute terms. For instance, the negative marginal effect of the number of participants on the vote share of Jean-Marie Le Pen also means that larger protests reduced the absolute number of voters who cast a ballot for that candidate.

¹⁴ Note that we follow Madestam et al. (2013) and discuss the effect of a 0.1 percentage increase in the share of the municipality's population protesting rather than a one-percentage increase, as the latter would be an unrealistic scenario. In our sample, the number of participants in a protest on average amounts to 0.102 percent of the population. Accordingly, increasing the number of participants by one percentage point of the population represents a nearly tenfold increase in the number of participants.

Table 2. Baseline Results – The Impact of Protests on Voting Outcomes

	(1)	(2)	(3)
Second-round outcome	J.-M. Le Pen	J. Chirac	Abstentions and blank/invalid ballots
Number of participants (% of pop.)	-22.39** (8.906)	44.58** (17.43)	-23.00** (9.718)
First-round outcome	0.798*** (0.0106)	0.451*** (0.0218)	0.547*** (0.0140)
F statistics	29.35	29.39	29.32
Observations	36,153	36,153	36,153

Notes. 2SLS estimates. The unit of analysis is a municipality. The model specification follows Equation (1). The dependent variable of each specification is reported at the top of each column. The number of participants in a protest is instrumented by the rain-based synthetic instrument estimated in Section 4.2. The first stage is reported in Table C1 in Online Appendix C1. In each specification, we control for the municipality type and department fixed effects. Standard errors clustered at the department level are reported in parentheses. ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

The magnitude of the effect is comparable to the magnitude of the effect of Tea Party rallies on the Republican vote share estimated by Madestam et al. (2013). They find that a 0.1 percentage point increase in the share of the population attending those rallies resulted in a 1.9 percentage point increase in the share of Republican votes, which is close to what we find for Jean-Marie Le Pen’s vote share and for the share of abstentions and blank and invalid ballots. Our estimate for the effect of demonstrations on Jacques Chirac’s vote share is admittedly larger. However, the demonstrations we consider took place four days before the day of the vote whereas there was a year and a half between the Tea Party rallies and the midterm elections. Moreover, although the Tea Party movement was unified by its opposition to taxes and to the Democrat-dominated federal government, it was not explicitly partisan. By contrast, the demonstrations that we study were focused on the second round of the election and clearly opposed a candidate while endorsing another. Those differences may explain why the effect that we observe is larger.

The results of Table 2 sketch a consistent picture: A larger number of participants in the May 1 protests did affect the outcome of the second round of the election in the way that participants hoped. Specifically, it reduced the share and the number of votes for the candidate they demonstrated against, Jean-Marie Le Pen, and increased the number of votes for his opponent, Jacques Chirac. In addition, it decreased the number of abstentions and blank and invalid ballots.

5.2 Robustness Checks

We now consider and discuss a series of robustness tests to investigate the strength of our baseline findings.

Specification

Theory gives little guidance as to the functional form of the relationship between rain, municipal characteristics, and rally attendance. To make sure that the baseline estimates are not driven by a misspecification of the two-part model, we estimate several alternative specifications that allow for more flexibility. First, we replace all continuous variables by decile dummies to allow for non-linearities (see Table C2 in Online Appendix C2). Second, we estimate the second part of the two-part model using a quantile regression for the 0.25, 0.5, and 0.75 quantiles (Table C3). Finally, we run an additional regression where we only included demographic covariates: specifically, population size, average age, and the proportion of individuals aged 60 years or older (Table C4). Regardless of the specification, the conclusions remain unchanged.

To further show that our results are not driven by the two-part model, we generate our rain-based instrument by using a Poisson regression instead of the two-part model. The Poisson regression is useful when the dependent variable is positively skewed and contains a large proportion of zeros, thus providing a way of estimating the effect of rainfall on the number of participants in a protest. Table C5 reports the results of the Poisson regression used to predict the rain-based instrument. It confirms that rain deviation had a qualitatively negative effect on the number of protests. Table C6 reports the IV results, which are in line with the baseline.

As the true functional form of the relationship between rally attendance and voting outcomes is unknown, we present results where we use the logarithmic transformation of the number of participants (Table C7). Regardless of the voting outcome considered, the results are in line with the baseline. They also lend themselves to a straightforward quantitative interpretation. Specifically, as the dependent variables are vote shares and the variable of interest is expressed in logarithm, the coefficients measure semi-elasticities. Accordingly, Table C7 implies that a one-percent increase in the absolute number of participants would have decreased Jean-Marie Le Pen's vote share and the share of abstentions and blank and invalid ballots by 0.298 and 0.306 percentage point, respectively, while it would have increased Jacques Chirac's vote share by 0.593 percentage point. Those estimates are quantitatively in line with the baseline estimates and our simulations.

In our baseline estimates, we predict the number of participants in a protest by using the deviation in rainfall relative to the seasonal average on the day of the rally in the municipality. To assess the sensitivity of our results to the way rainfall is defined, we consider four alternative rain variables. First, we use a standardized measure of rain deviation (Table C8).¹⁵ Second, we

¹⁵ Specifically, we scale down the deviation of rainfall from its historical mean in municipality m by the historical standard deviation of rainfall in that municipality. If municipalities with larger historical rain deviations differ

define a protest as being rainy if it rained more than 1 millimetre on the day of the rally (Table C9).¹⁶ Third, we define a protest as rainy if rain on the day of the protests was above the historical average measured between 1983 and 2001 (Table C10). Finally, we use a continuous measurement of rainfall alongside flexible measurements of average rainfall by quintile dummies (Table C11). In all cases, the estimates of the effect of protests remain similar.

Our baseline findings also rely on the use of the average number of reported participants as the dependent variable, as different newspapers sometimes reported different estimates of the number of participants in the same protest. We therefore present results using the maximum (Panel A of Table C12) and the minimum (Panel B) of the reported number of participants. We also assess the sensitivity of the results to dropping from the sample the five municipalities with the highest differential between the maximum and minimum number of reported participants (Table C13). The estimates are significant at conventional levels.

Finally, we re-estimate our IV by restricting the sample in four ways. First, we trim the sample at the 95th percentile of the participant variable to show that our findings are not driven by outliers (Table C14). Second, as the size of French municipalities is right skewed, with a large number of very small municipalities, we exclude the municipalities that have a population lower than the 95th percentile to make sure that the skewed sample does not bias the results (Table C15). Third, we exclude Paris as it has a special role in French politics and geography (Table C16). Fourth, we drop from the sample the municipalities matched with a weather station located more than 5 and 10 kilometres away (Table C17). In all cases, the results are insensitive to such changes.

Spatial Correlation

By clustering standard errors at the department level, we have so far assumed that there was no correlation across departments. Yet, if protests and electoral outcomes in adjacent municipalities are correlated, this assumption may be violated, and the standard errors may be underestimated (Colella et al., 2019). To address this concern, we check the robustness of our findings by computing spatially corrected standard errors (Conley, 1999). This approach assumes that the error of each observation is correlated with the errors of other observations located within a given radius and uncorrelated with the errors of observations located beyond it. We test a

from municipalities with lower historical rain deviations in terms of non-weather-related characteristics that also correlate with the outcomes, then the instrument could violate the exclusion restriction. Assessing the robustness of the results to a standardized measure of rain deviation helps alleviate this concern. We thank an anonymous referee for this suggestion.

¹⁶ This is the official definition of a rainy day in Metropolitan France according to Météo France. Our specification further control for the probability that it rained more than 1 millimetre in the municipality on the protest day.

series of radii: 50, 100, 250, 500, and 750 km (see Table C18). Regardless of the size of the radius, the magnitude of the spatially corrected standard errors remains similar to that of the clustered standard errors, which suggests that spatial correlation does not bias our baseline results.

The Exclusion Restriction

The key identification assumption of our approach is that our rain-based instrument does not correlate with drivers of electoral behaviour other than protests. The exogeneity tests presented in Section 4.2 offer a first set of evidence in that sense. To provide further evidence regarding the robustness of our results, we investigate in Online Appendix D how our estimates change if we relax the exclusion restriction by allowing the instrument to have a direct impact on electoral outcomes (Conley et al., 2012). For all outcomes, the interpretations remain unchanged. These findings further support our confidence in the robustness of our baseline IV estimates.

6 How Information Spread

Most voters did not directly witness or participate in protests. Instead, they learned about them in the media or by directly or indirectly interacting with participants or witnesses of the protests. In this section, we study how the informational content of protests spread to other municipalities, as well as the role played by the media in conveying that content, thereby raising public awareness around the issues at stake, in line with the logic of Lohmann (1994), Battaglini (2017), and Wasow (2020). We begin by conditioning the effect of protests on voters' media exposure. We then gauge spatial spillovers.

6.1 Media Exposure

If the media played a role in conveying information about the protests, we should expect protests to have a stronger effect in localities with higher levels of media exposure. We measure media exposure in two ways: First by using local newspaper consumption¹⁷ and then by relying on radio audience.¹⁸ Both measures are available at the level of departments. We condition the

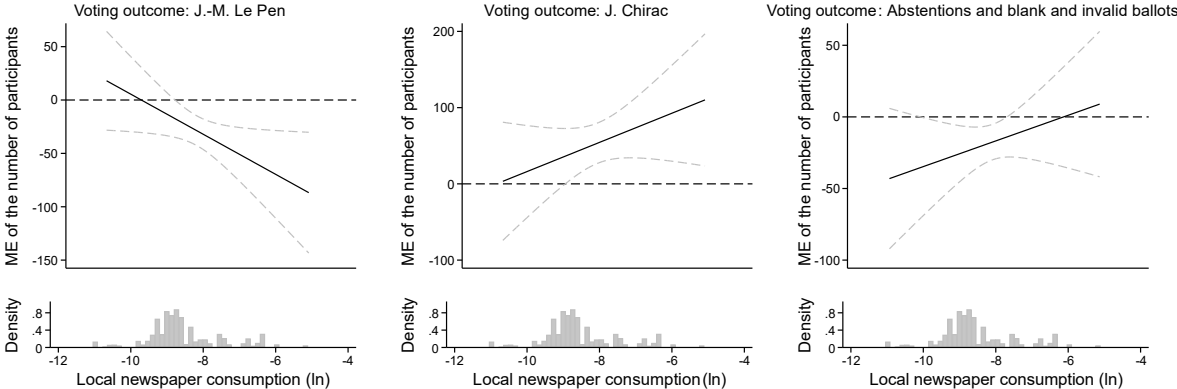
¹⁷ We obtained data on local newspaper sales from the “Office de justification de la diffusion,” which is a non-profit organization that certifies the distribution of newspapers and periodicals in France. Data were collected by François et al. (2023). We define local newspaper consumption as the ratio between newspaper sales in a department and the department's population. Local newspapers in France are typically distributed through one department or region, the exception being “Le Parisien,” which has a local version for the Ile-de-France region around Paris as well as a national edition. We proxy newspapers' distribution in 2002 using the data for 2006. Panel A of Table E1 in Online Appendix E1 provides descriptive statistics on local newspaper consumption.

¹⁸ Data on radio audience were collected by Pons and Tricaud (2018) and come from Médiamétrie. Radio news audience is defined as the proportion of individuals in a department aged 13 and above who listened at least once to a radio news channel between 5am and 12am during the week. Pons and Tricaud (2018) focus on the following radio news channels: Europe 1, France Bleu, France Inter, RMC, RTL, and Sud Radio. We proxy radio audience in 2002 with figures from 2003. Panel B of Table E1 provides descriptive statistics on radio audience.

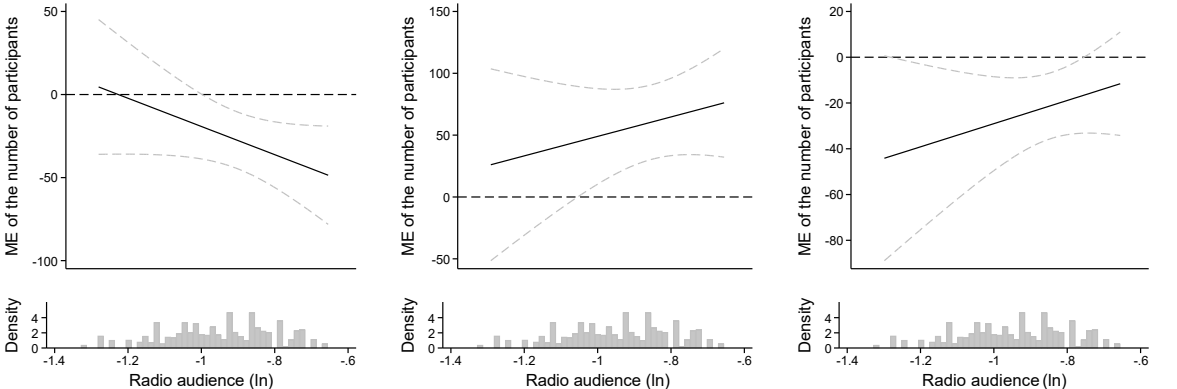
effect of protests on our two measures of media exposure by adding an interaction term between the number of participants in a protest in a municipality and the levels of local newspaper consumption or radio audience in that municipality, in both the first and the second stage.

Figure 3. Marginal Effect of the Number of Participants (ln) on Voting Outcomes as a Function of the Level of Media Exposure

Panel A. Newspaper consumption



Panel B. Radio audience



Note: 2SLS estimates. The unit of analysis is a municipality. The number of participants in a protest is instrumented by the rain-based synthetic instrument estimated in Section 4.2. The dotted lines indicate 90% confidence intervals based on standard errors clustered at the department level. In each specification, we control for the relevant first-round outcome, the municipality type, and department fixed effects.

Since raw coefficients in interaction models are uninterpretable, Figure 3 plots the marginal effect of the number of participants as a function of local newspaper consumption (Panel A) and radio audience (Panel B).¹⁹ For the vote shares of both Jean-Marie Le Pen and Jacques Chirac, the absolute size of the effect increases with the level of local newspaper consumption

¹⁹ The outcome of those regressions is reported in Table E2 and Table E3 in Online Appendix E1. As noted by Hainmueller et al. (2019), multiplicative interaction models may be biased if the linear interaction effect assumption does not hold. To show that our results are robust to such a concern, in Online Appendix E2 we estimate a flexible 2SLS interaction model based on the binning estimator proposed by Hainmueller et al. (2019). The outcomes are summarized in Figure E1 and show a similar trend to our main results.

and radio audience, meaning that the effect of protests was stronger in municipalities with higher levels of media exposure. Conversely, the effect of protests was statistically insignificant in municipalities with very low media exposure.

By contrast, Figure 3 suggests that interacting the level of media exposure with protests does not improve the fit of the estimation when the dependent variable is abstentions and the number of blank and invalid ballots. The result is even more striking when we allow for more flexibility in the interaction specification, as shown in Figure E1 in Online Appendix E2.

6.2 The Geography of the Effect

We have so far implicitly assumed that the effects of protests on electoral outcomes were confined to the municipalities in which they took place, which is in line with the findings of Madestam et al. (2013) on the effects of the Tea Party rallies. Yet media coverage informed voters of the existence of demonstrations in other municipalities. Moreover, protests may also have generated social spillovers in persuasion similar to those that Caprettini et al. (2021) observe for Nazi marches in Hamburg in 1932.

To determine whether the effect of protests on electoral outcomes spilled over to other municipalities, we implement the intuitive method used in a different context by Mamo et al. (2019), which consists in aggregating observations at a higher geographical level, in our case *arrondissements*, and re-estimating the baseline specification twice.²⁰ First, we aggregate participants and votes in *arrondissements* using all the municipalities of each *arrondissement*. The regression is therefore similar to the baseline but performed at a more aggregated level. Second, we aggregate participants using all municipalities but aggregate votes using only the municipalities that did not experience any protest. This regression therefore only captures spillovers. A positive coefficient would mean that within each *arrondissement*, the number of participants of a municipality had a positive impact on the voting outcomes of the other municipalities.

²⁰ *Arrondissements* or *arrondissements départementaux* are a supra-municipal administrative division. They should not be confounded with the subdivisions of the cities of Paris, Lyon, and Marseille, called *arrondissements municipaux* but commonly referred to as *arrondissements*, which is misleading. There are 324 departmental *arrondissements* in mainland France. Their average population is 179,713 (s.d. = 208,909) and their average land-mass is 1,665 km² (s.d. = 882). As more than one third of *arrondissements* did not host a protest, we followed the same steps as in the baseline estimates and generated an instrument using a two-part model based on rain deviation aggregated at the *arrondissement* level. We observe that *arrondissements* with a higher proportion of city-centre and isolated municipalities with respect to suburbs and rural municipalities had a higher probability of hosting a protest, as shown in Column (1) of Table F1 in Online Appendix F1. In addition, similar to the baseline, we observe that rainfall had a detrimental effect on the number of participants at the *arrondissement* level (Column [2] of Table F1). The results of the first-stage estimates are reported in Table F2. Because the municipalities of Paris, Strasbourg, and Metz each constitute an *arrondissement* on their own, we drop them from the sample. Their inclusion does not, however, affect the results.

Panel A of Table 3 presents the outcome of regressions where voting outcomes are aggregated over all municipalities. The estimates, although larger, remain qualitatively similar to the baseline despite the higher level of aggregation.

In Panel B, we report the outcome of regressions where voting outcomes are only aggregated over municipalities that hosted no protest. Those estimations therefore report pure spillover effects. The key finding is that the coefficient of the number of participants is statistically significant at conventional levels in all specifications. Accordingly, the effects of protests on voting outcomes were not only limited to the municipalities in which they took place but also extended to other municipalities within the same *arrondissement*. Those spillovers were, as expected, negative for Jean-Marie Le Pen and abstentions and blank ballots, but positive for Jacques Chirac.

Table 3. The Impact of Protests on Voting Outcomes – Spatial Spillovers

	(1)	(2)	(3)
Second-round outcome	J.-M. Le Pen	J. Chirac	Abstentions and blank/invalid ballots
Panel A. Arrondissements with all municipalities			
Number of participants (% of pop.)	-48.22*** (10.01)	75.82** (31.83)	-25.53*** (8.181)
First-round outcome	0.972*** (0.0705)	0.650*** (0.178)	0.715*** (0.0320)
F statistic	29.47	22.25	31.12
Panel B. Arrondissements excluding municipalities with protests – Spatial Spillovers			
Number of participants (% of pop.)	-26.49*** (5.789)	47.04*** (17.48)	-13.77*** (4.545)
First-round outcome	1.012*** (0.0605)	0.614*** (0.157)	0.659*** (0.0437)
F statistic	21.94	18.21	21.73
Observations	321	321	321

Notes. 2SLS estimates. The unit of analysis is an *arrondissement*. The dependent variable of each specification is reported at the top of each column. The first stage is reported in Table F2 in Online Appendix F1. In each specification, we control for department fixed effects. Standard errors clustered at the department level are reported in parentheses. ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

In Online Appendix F2, we complement the findings of this sub-section by estimating a variant of Equation (1) that controls for the spatial lag of the number of participants. By doing so, we allow the voting outcomes of each municipality to be affected by the number of participants in protests in all other municipalities. The results are in line with those we report in this section.

The upshot of this sub-section is that the effects of protests spread out of the municipalities that hosted them. This suggests that the mechanisms at work in the protests that we study differed from those of the Tea Party rallies studied by Madestam et al. (2013), whose effect was only local. The next section uses survey data to test those mechanisms.

7 Individual Behaviours

To provide further evidence about the mechanisms that enabled protests to sway voters, we now use individual survey data from the second wave of *Panel électorale française 2002*, a survey carried out by three French research centres in the days following the second round of the election.²¹ The survey features questions about political preferences, policy views, and votes in the two rounds. More than 4,000 respondents were interviewed. Their municipality of residence can be identified, which allows us to match them with protests and apply the same estimation strategy as in our baseline regressions to individual answers in the survey. Table G1 in Online Appendix G presents descriptive statistics for the voting variable.

In the first sub-section, we report additional evidence supporting the theories of Lohmann (1994) and Battaglini (2017) by reporting evidence that protests affected respondents' perception of the policies advocated by Jean-Marie Le Pen. In the second sub-section, we show that the reaction to protests of voters was a function of their identification as left- or right-wing, implying that expressive motives were at work. We finally report evidence that the protests affected the social desirability of reporting having voted for the far-right candidate.

7.1 Changes in the Perception of Policies

The theoretical contributions of Lohmann (1994) and Battaglini (2017) suggest that the number of participants in a protest can signal private information about a cause. In the context of the 2002 presidential election, these protests may have informed voters of the negative consequences of the policies sponsored by Jean-Marie Le Pen. We test for that possibility by investigating whether protests affected the views of voters about the policies championed by Jean-Marie Le Pen. If this is the case, we should expect survey respondents to be less positive about those policies where protests attracted more participants.

One may, however, contend that opinions about the policies championed by Jean-Marie Le Pen may also have been subject to a social desirability bias, insofar as respondents may have

²¹ The survey is a joint effort of the Centre de recherches politiques de Sciences Po (CEVIPOF), Centre d'information des données socio-politiques (CIDSP), and Centre d'études sur l'opinion publique (CECOP). It was conducted by phone. The sample is stratified by region and urban area category and based on quotas defined over gender cross-tabulated by age and occupation of head of household. The survey is available to researchers for free for research projects approved by the consortium.

been reluctant to reveal their true opinion instead of having been convinced to change it by the protests. Disentangling that effect from the mechanism discussed by Lohmann (1994) and Battaglini (2017) is therefore difficult. However, while some policies — like those related to immigration — were clearly associated only with Jean-Marie Le Pen and therefore more likely to be affected by a desirability bias, others — such as an exit from the EU or a critique of the political class — were sponsored by other candidates not targeted by demonstrations, unrelated to Jean-Marie Le Pen and more socially acceptable than him. These were arguably less subject to a social desirability bias.

To test the effect of demonstrations on the perceptions of policies sponsored by Jean-Marie Le Pen, we regress on the number of participants in a protest the opinion of individual respondents about those policies expressed on a one-to-four scale using our baseline identification strategy. Specifically, we estimate with 2SLS a variant of Equation (1) using individuals' answers as dependent variables²² and where the number of participants in a protest is instrumented by the synthetic instrument defined in Section 4.2. We controlled for the respondent's individual characteristics²³, their political orientation, and the type of municipality they live in.

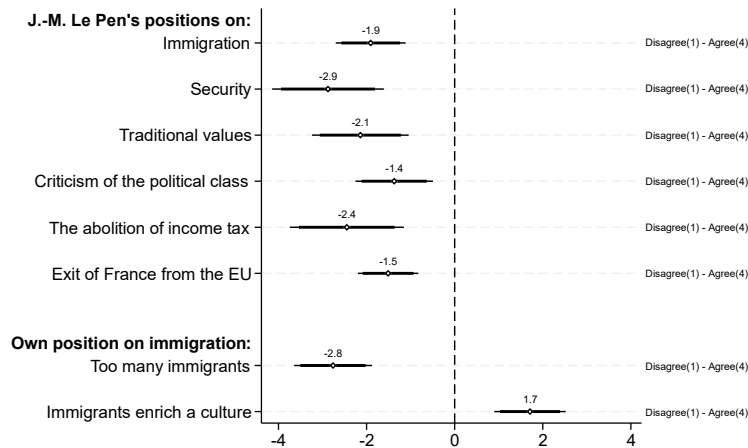
Figure 4 reports the estimated marginal effect of the number of participants on the agreement of respondents with the policies sponsored by Jean-Marie Le Pen: immigration, security, traditional values, criticism of the political class, the abolition of the income tax, and an exit of France from the EU. The marginal effect is always negative and statistically significant at standard levels.

We also looked at two more specific measures of the position of respondents on immigration, which was the theme on which Jean-Marie Le Pen was the most salient. Specifically, respondents were asked their level of agreement with the following two statements: “there are too many immigrants” and “immigrants enrich a culture”. Here, Jean-Marie Le Pen was not explicitly mentioned. We observe that respondents in municipalities that experienced larger protests were less likely to agree with the statement that there are too many immigrants and more likely to agree with the statement that immigrants enrich a culture.

²² The exact wording of the questions is reported in Online Appendix G. In contrast to Equation (1), we do not include department fixed effects, as the survey data do not exhibit enough variation in rally attendance within departments to consistently estimate the impact of rally attendance on voting outcomes. Specifically, the survey covers 61 of the 302 municipalities that hosted a protest and 78 of the 94 departments of mainland France, but the median department includes only one municipality that hosted a protest.

²³ Individual controls include gender (dummy equal to one if female), level of education (dummy equal to one if at least secondary education), unemployment status (dummy equal to one if not working), income (dummy equal to one if above the sample median income), interest in politics (dummy equal to one if some or a lot of interest), religiosity (dummy equal to one if the respondent attends religious services at least once a week), and whether the respondent is a member of political associations (dummy equal to one if member of at least one association).

Figure 4. Marginal Effect of the Number of Participants (\ln) on the Support of Policies Championed by Jean-Marie Le Pen



Notes. 2SLS estimates. The unit of analysis is a survey respondent. The number of participants in a protest is instrumented by the rain-based synthetic instrument estimated in Section 4.2. In each specification, we control for respondents' political orientation (left, right, or neither), gender (dummy equal to one if female), level of education (dummy equal to one if at least secondary education), unemployment status (dummy equal to one if not working), income (dummy equal to one if earning more than the sample median income), interest in politics (dummy equal to one if some or a lot of interest), religiosity (dummy equal to one if the respondent attends religious services at least once a week), whether they are members of political associations (dummy equal to one if member of at least one association), and the type, latitude, and longitude of the municipality where they live. The thick black lines indicate 90% confidence intervals, while the thin black lines indicate 95% confidence intervals. Confidence intervals are based on standard errors clustered at the department level. The F statistics range from 71 to 74 depending on the specification. The exact wording of the questions is reported in Online Appendix G.

This series of findings is consistent with the models of Lohmann (1994) and Battaglini (2017) that argue that protests can raise public awareness around the issues at stake. Larger protests against Jean-Marie Le Pen might have reduced voters' support for his policies by signalling the negative issues associated with those policies, thereby decreasing the incentive to vote for the far-right candidate.

Again, we cannot rule out that protests triggered a social desirability bias on specific policies even if an exit from the EU or a critique of the political class were sponsored by other candidates unrelated to and less stigmatized than Jean-Marie Le Pen. In any case, we return to social desirability in Section 7.3.

7.2 Rational Versus Expressive Motives

Unlike electoral data, the survey allows us to condition the effect of protests on the political preferences of respondents. Doing so is a way to test the extent to which voters only valued the outcome of the election like in standard models of voting (Downs, 1957, Myerson and Weber, 1993, Coate and Conlin, 2004, Feddersen and Sandroni, 2006, Bouton, 2013, Bouton and Ogden, 2021) or instead received expressive utility from their votes, as observed by Pons and Tricaud (2018).

The starting point of the test is that Jacques Chirac and Jean-Marie Le Pen could be unambiguously placed on the left to right axis. Both were right-wing but Jacques Chirac was unambiguously closer to the centre than Jean-Marie Le Pen. According to a spatial representation of the election, some right-wing voters located between Jacques Chirac and Jean-Marie Le Pen may have hesitated between the two candidates. That possibility is likely in the 2002 context as, while still the leader of the main right-wing party UMP, Jacques Chirac had addressed the issue of immigration in a way that was likely directed to voters who could be tempted to vote for Jean-Marie Le Pen. The speech he had made in Orléans on June 19, 1991, in which he referred to the “noise and smell” of foreigners had particularly left a mark. Jean-Marie Le Pen had responded to it two days later by stating that “French voters would prefer the original to the copy” (Libération, 2019). The protests may therefore have swayed some right-wing voters from Jean-Marie Le Pen to Jacques Chirac.

By contrast, all left-wing voters were unambiguously closer to Jacques Chirac than to Jean-Marie Le Pen. If they were purely strategic or instrumentally rational, they should have all spontaneously voted for Jacques Chirac. A corollary is that their voting behavior should have been independent of the success of protests because protests would not change the identity of the candidate closest to their preferences. If we assume that voters who identified with the centre were located to the left of Jacques Chirac, they should have behaved in the same way as left-wing voters.

Yet, in the 2002 election, some left-wing voters likely faced a moral dilemma. Although voting for Jacques Chirac was the only way to reduce the vote share of Jean-Marie Le Pen and prevent the latter from winning the election, doing so was unpalatable to left-wing voters because, as Jacques Chirac was right-wing, voting for him meant that they had to cross the centre, which has been found to be difficult and result in in-group biases (Jessee, 2009, Bølstad and Dinas, 2016). Moreover, Jacques Chirac had also been involved in various corruption scandals, particularly while he was the mayor of Paris. A popular slogan in the May 1 protests was “vote for the crook, not the fascist”, and the media reported anecdotes of voters casting their ballot wearing plastic gloves or pinching their noses with a clothes peg (Libération, 2002). Some left-wing voters could therefore be torn between instrumentally voting for Jacques Chirac and either abstaining or expressively casting a blank ballot. Some of these voters may therefore have been convinced by protests to finally vote for Jacques Chirac.

Separately estimating the effect of protests on left-wing, centre, and right-wing voters is therefore a way to determine the prevalence of strategic and expressive motives. If all voters behaved rationally, protests should have reduced the probability to vote for Jean-Marie Le Pen

and increased the probability to vote for Jacques Chirac among right-wing voters but have had no effect on left-wing and centre voters. By contrast, expressive or identity motives may have resulted in protests convincing some left-wing voters to vote for Jacques Chirac instead of casting a blank ballot. In that case, we should observe that protests increased the probability that left-wing voters vote for Jacques Chirac and decreased the probability that they vote blank.

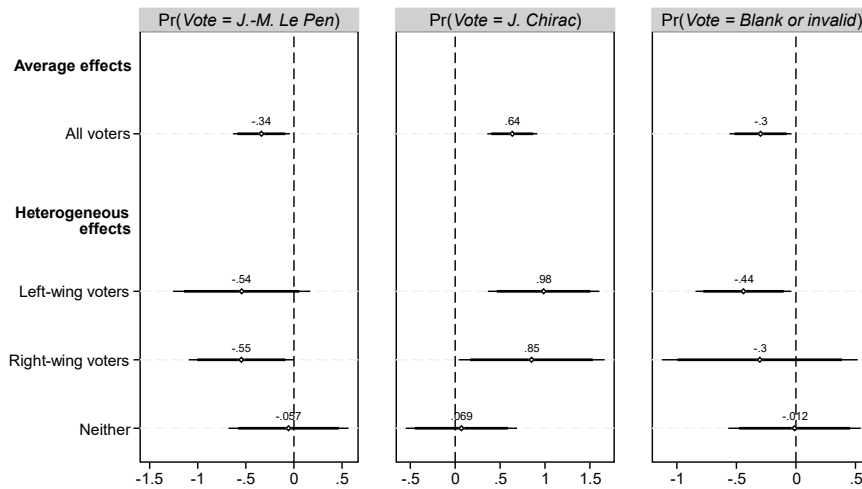
We therefore estimate a multinomial probit model for left-wing, centre, and right-wing voters where the number of participants in the respondent's municipality is instrumented by our rain-based synthetic instrument and the dependent variable can take three values: voting for Jean-Marie Le Pen, voting for Jacques Chirac, and casting a blank or invalid ballot.²⁴ Conditioning the data on voters' political orientation may however bias the results if the protests affected respondents' likelihood to honestly disclose their political orientation, for example by making them more reluctant to identify as right-wing. We rule out such a concern in two ways. First, we show in Table G2 in Online Appendix G that respondents were not less likely to identify as right-wing or centre than as left-wing in municipalities with larger protests. This suggests that protests had no effect on respondents' political leanings, either actual or stated. Second, we take advantage of the fact that some respondents (i.e., the panellists) were asked to state their political orientation in a previous wave of the survey that took place before the protests. In particular, we show in Figure G1 that focusing on this subset of respondents leads to broadly similar conclusions, despite a sample size reduced by more than a half.

Figure 5 reports the average marginal effect of the number of participants on the probability of respondents to declare having voted for Jean-Marie Le Pen, Jacques Chirac, or cast a blank ballot. It starts by reporting the results of an estimation pooling all respondents together, regardless of their political preferences. The results of that regression are in line with those of baseline estimations using true voting outcomes at the municipality level, lending credence to the new results obtained with the survey.

If we now focus on effects by group of voters, the figure shows that protests increased the propensity of right-wing respondents to vote for Jacques Chirac and decreased their propensity to vote for Jean-Marie Le Pen. This finding is consistent with an instrumental Behavior and the spatial model of voting. In addition, protests did not affect the probability of left-wing voters to vote for Jean-Marie Le Pen and did not affect undeclared voters, which is also consistent with the instrumental model.

²⁴ Specifically, as the second stage is nonlinear, the first and second stages are jointly estimated in a conditional mixed-process framework (Roodman, 2011).

Figure 5. Average Marginal Effect of the Number of Participants (ln) on the Probability of Voting for Jean-Marie Le Pen, Voting for Jacques Chirac, or Casting a Blank or Invalid Ballot in the Second Round



Notes. The unit of analysis is a survey respondent. The linear first stage and the second stage multinomial probit model are jointly estimated in a conditional mixed-process framework (Roodman, 2011). The number of participants in a protest is instrumented by the rain-based synthetic instrument estimated in Section 4.2. In each specification, we control for respondents' gender (dummy equal to one if female), level of education (dummy equal to one if at least secondary education), unemployment status (dummy equal to one if not working), income (dummy equal to one if earning more than the sample median income), interest in politics (dummy equal to one if some or a lot of interest), religiosity (dummy equal to one if the respondent attends religious services at least once a week), whether they are members of political associations (dummy equal to one if member of at least one association), and the type, latitude, and longitude of the municipality where they live. The specification of the average effect further controls for respondents' political orientation (left, right, or neither). The thick black lines indicate 90% confidence intervals, while the thin black lines indicate 95% confidence intervals. The confidence intervals are based on standard errors clustered at the department level. The F statistics of the linear first stage range from 54 to 83 depending on the specification. The exact wording of the questions is reported in Online Appendix G.

However, the protests increased the propensity of left-wing voters to vote for Jacques Chirac and decreased their propensity to cast a blank or invalid ballot. That behaviour is inconsistent with an instrumental behaviour, as it implies that some left-wing voters were willing to vote blank rather than for the candidate closer to their preferences.²⁵ This may be interpreted as implying that their expressive utility of not voting for a candidate who was not their choice exceeded the instrumental cost of taking the chance of contributing to the victory of their least-favourite candidate (Pons and Tricaud, 2018).²⁶

²⁵ One should note that we are looking at blank votes and not abstentions here. The cost of voting for Jacques Chirac was therefore the same as the cost of casting a blank ballot. Although protests may have increased the perceived difference between Jean-Marie Le Pen and Jacques Chirac in the eyes of left-wing voters compensating the cost of voting for some of them, it is not the mechanism at work here because the voting cost was already sunk at the time of voting. The only remaining cost was therefore the expressive cost of voting for a candidate that was not one's first choice.

²⁶ A complementary explanation of the finding that left-leaning voters benefitted from expressive utility by not abstaining or voting for Jacques Chirac is that successful protests helped trade unions to organize their members and "get out the vote" in the last days before the election. Although that is a possibility, the role of trade unions in the 2002 election should not be overestimated for at least two reasons. First, even if the demonstrations took place on May Day, the call to demonstrate against Jean-Marie Le Pen came from a much broader spectrum of organizations than the "usual" trade unions. It included youth organizations, political parties, artists, etc. (see Les Echos,

In all fairness, the findings for left-wing voters may lend themselves to an alternative explanation consistent with an instrumental motive of voting, because Jacques Chirac had a high probability of winning the election. Specifically, almost all the parties that had a candidate in the first round of the election had called their supporters to vote for Jacques Chirac. There were three exceptions. On the far right, Bruno Mégret, a former high-ranking member of Front National, called to vote for Jean-Marie Le Pen. On the far-left, Arlette Laguiller and Daniel Gluckstein refused to take side. As Jacques Chirac and the candidates who supported him in the second round had garnered around nearly 75 percent of the votes in the first round, and Jean-Marie Le Pen and Bruno Mégret slightly more than 19 percent, Jacques Chirac could be perceived as a sure winner of the second round. An instrumental left-wing voter could therefore have rationally hesitated to cast a blank or invalid ballot to avoid giving Jacques Chirac too much legitimacy or to express their support for a better candidate in the future, in line with communicative voting (Piketty, 2000).²⁷ We therefore cannot rule out that the observed effect of demonstrations was at least partly driven by instrumental motives.

Two arguments may, however, qualify that concern. The first is that the outcome of the first round had already been presented as certain and nonetheless resulted in the surprise election of Jean-Marie Le Pen, which could make some voters cautious about taking the second round as a foregone conclusion. The second, more important, argument is that between the two rounds many prominent figures in the public debate, particularly on the left, emphasized that the outcome of the second round was to be gauged by Jacques Chirac's victory margin. On May 29, the then-leader of the Socialist Party, François Hollande, declared on a popular radio channel that voting for Jacques Chirac was a way to minimize the score of Jean-Marie Le Pen (Le Monde, 2 May 2002). In its April 30 edition, left-wing daily newspaper Libération published an open letter signed by artists, academics, and lawyers calling to "do everything we can to ensure that Jean-Marie Le Pen is defeated, and *defeated by a wide margin* [emphasis ours].

29 April 2002, Libération, 30 April 2002). This spirit of "national unity" against Jean-Marie Le Pen was also reflected in the statement by the leader of the largest employers' organization, MEDEF, who vigorously condemned the far-right candidate's economic program (Seillière, 2002). The mechanism was therefore not specific to trade unions. Second, the demonstrations took place only four days before the election and two days before campaigning officially ended. Official organizations therefore only had two days to officially leverage the momentum of demonstrations. Admittedly, informal discussions could carry on unofficially until the vote and likely contributed to the processing of the signal sent by demonstrations. Documenting how the demonstrations encouraged people to informally go out and talk to others during the final days that preceded the second round is intrinsically difficult, as informal interactions were not recorded, but is a great avenue for future research. We thank an anonymous referee for that suggestion.

²⁷ A column published on April 24 by Arlette Laguiller in the newspaper of her party illustrates that line of thought: "not a single worker's vote should go to Le Pen. [...] If Chirac did not beat Le Pen, it would be surprising because he would almost certainly be elected with a huge majority. [...] That is why workers must not vote for Le Pen but, on the other hand, the fewer workers' votes Chirac can claim, the better it will be for the world of labour."

Every vote cast against his opponent on 5 May 2002 will be a blow to democracy”. On the same day, centre daily newspaper *Le Monde* (30 April, 2002) published a series of interviews of public personalities ranging from former minister of home affairs Robert Badinter to popular singer and actor Patrick Bruel emphasizing that the stake of the second round was to minimize Jean-Marie Le Pen’s vote share.²⁸ As a result, some left-wing voters at least perceived that they were facing a trade-off between not voting for a candidate they did not like and sending a signal against the far right.

Although they may partly result from instrumental motives, the findings of this section confirm that left- and right-wing voters faced different trade-offs and suggest that expressive motives came into play. The next sub-section tests how those motives interacted with the social desirability of voting for the far-right candidate.

7.3 Social Desirability

Bursztyn et al. (2020) and Giani and Méon (2021) argue and report evidence that election results provide information on the preferences of the population and can therefore change the ongoing status quo and reinforce or delegitimize social norms stigmatizing sexist or racist behaviours. The same reasoning can be adjusted to protests. If a large number of people participate in protests opposing a far-right candidate and condemning his positions as racist, some voters who contemplated voting for that candidate may decide against it, while others who contemplated abstaining will cast a ballot against him to avoid social stigma. In a nutshell, protests can reduce the social desirability of voting for the far-right candidate, prompting some voters who would have considered voting for him to cast a vote for a different candidate. What makes that mechanism likely in the 2002 French protests is that the selection of a far-right candidate for the second round was unprecedented and came as a complete surprise. It could thus change the status quo that voting for that type of candidate was unacceptable in line with Bursztyn et al.’s (2020) model. By demonstrating against the far-right candidate, protesters reinforced the pre-existing norm by showing that, despite the surprising result, many people were appalled and still considered it inadequate to vote for such a candidate.

A challenge to this argument is that ballots are secret. Someone could therefore vote for the far-right candidate without incurring a social stigma. However, as DellaVigna et al. (2016) point out, it is common for acquaintances and family to ask whether we voted. One may add

²⁸ Patrick Bruel stated that “In the second round, the minimum for France to regain its pride is 85% for Chirac”. Robert Badinter further emphasized that “There is really only one question to be answered in the run-up to the May 5 vote: what does Mr. Le Pen represent in France? [...] It is in the light of this major issue that we need to analyse the extent of abstention or the temptation to vote blank. What public opinion remembers about a presidential election is not just the name of the winner, but the percentage of the vote that each of the finalists received.”

that it is also common to ask for whom people voted. In line with that presumption, using survey data, Gerber et al. (2013) observe that 80 percent of the American population believed that someone will know for whom they voted, either because they will reveal it themselves or because they do not believe in ballot secrecy. 87 percent report that they are asked for whom they voted at least sometimes. Moreover, many people would feel uncomfortable lying about their vote. Refusing to disclose their vote may also effectively reveal it. In Gerber et al.'s (2013) survey, 84.4 percent of respondents declared that they truthfully reveal their vote to a close friend almost all the time and 9.8 more percent reported they do so most of the time. As a result, social desirability may influence both the decision to vote and the choice of the candidate if people care about what others think and are uncomfortable lying (Gerber et al., 2013).

Although survey data does not allow us to distinguish between a true and a misreported vote, we can nonetheless report direct evidence of an effect of protests on the social desirability bias affecting the far-right candidate. To do so, we leverage the timing of the election and the survey. Recall that the protests took place after the first round and that the survey was carried out after the second round. At the time of both the protests and the survey, the *actual* first-round vote had already been cast and could therefore not be affected by protests. If we observe a causal effect of protests on the vote that respondents *report* in the survey, we can unambiguously attribute it to a reduction by protests of the social desirability of reporting a given vote.

Table 4 reports the marginal effect of the number of participants on the reported first-round vote. While the effect on reporting a vote for Jacques Chirac or having cast a blank ballot is statistically insignificant, the effect on reporting a vote for Jean-Marie Le Pen in the first round is negative and statistically significant. As first-round votes were pre-determined, this is evidence that protests decreased the social desirability of reporting a vote for Jean-Marie Le Pen. In a nutshell, more respondents lied about their vote in the first round in municipalities that hosted larger protests. Although we cannot report evidence that the effect extended to actual votes in the second round, this finding is suggestive that social desirability was at play.

To assess the extent to which social desirability drove the second-round voting Behavior, we can compare the magnitude of the marginal effect of demonstrations on the votes reported in the first and second rounds of the election. The idea is that, on the one hand, the marginal effect on the reported *first-round* votes can be assumed to be solely the result of the effect of demonstrations on the social desirability bias. On the other hand, however, the marginal effect of demonstrations on the reported *second-round* votes may be a mix of social desirability bias and other mechanisms. The difference between the two marginal effects can therefore provide a way of measuring the contribution of the social desirability bias to the effect

of demonstrations on second-round outcomes.²⁹ In particular, finding that the two marginal effects are similar would suggest that social desirability was the main channel of transmission between demonstrations and second-round outcomes.

Although the marginal effect of demonstrations on the probability of reporting having voted for Jean-Marie Le Pen in the second round is at first pass larger than the effect of demonstrations on the first round (-0.34 as reported in Figure 5 vs. -0.6 according to Table 4), the difference between the two coefficients is statistically indistinguishable from zero at standard levels of significance.³⁰ This finding therefore suggests that social desirability was a major mechanism through which demonstrations affected the second-round outcomes.

Table 4. Average Marginal Effect of the Number of Participants on the Probability of Declaring a Vote for Jean-Marie Le Pen, Jacques Chirac, or a Blank or Invalid Ballot in the First Round

	(1) J.-M. Le Pen	(2) J. Chirac	(3) Blank or invalid ballot
First-round declared vote			
Number of participants (% of pop.)	-0.601** (0.300)	-0.161 (0.150)	-0.179 (0.159)
F statistics of the linear first stage	70.37	70.37	70.37
Observations	3,105	3,105	3,105

Notes. The unit of analysis is a survey respondent. The linear first stage and the second stage multinomial probit model are jointly estimated in a conditional mixed-process framework (Roodman, 2011). The dependent variable of each specification is reported at the top of each column. The number of participants in a protest is instrumented by the rain-based synthetic instrument estimated in Section 4.2. In each specification, we control for respondents' political orientation (left, right, or neither), gender (dummy equal to one if female), level of education (dummy equal to one if at least secondary education), unemployment status (dummy equal to one if not working), income (dummy equal to one if earning more than the sample median income), interest in politics (dummy equal to one if some or a lot of interest), religiosity (dummy equal to one if the respondent attends religious services at least once a week), whether they are members of political associations (dummy equal to one if member of at least one association), and the type, latitude, and longitude of the municipality where they live. Standard errors clustered at the department level are reported in parentheses. The exact wording of the questions is reported in Online Appendix G. ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

So far, we have assumed that all survey respondents responded in the same way to the protest-induced increase in the social undesirability of reporting a vote for Jean-Marie Le Pen in the first round. Yet, Bursztyn et al. (2020) speculate that the social desirability bias varies across different social environments. By the same token, the sensitivity to various social norms has been found to depend on socio-demographic characteristics such as gender, education, income, and employment (e.g., Tate et al., 2022, Hansen and Tyner, 2019). To investigate how different individuals may react differently to demonstrations, we interact with a series of socio-

²⁹ We thank an anonymous referee for suggesting this test.

³⁰ Specifically, the non-parametric bootstrap 90% confidence intervals for the difference between the two coefficients is [-0.278, 0.540].

demographic variables the effect of protests on the propensity to declare having voted for Jean-Marie Le Pen in the first round. Specifically, we consider respondents' gender, education, income, and employment status.³¹

The results of those regressions are reported in Panel A of Figure 6. They reveal that the effect of demonstrations for female and male respondents was indistinguishable. This finding is in line with the diminishing gender gap in turnout in Western countries (Dassonneville and Kostelka, 2021). Likewise, we find no difference according to employment status.

By contrast, we observe that the overall effect of protests was essentially driven by respondents with a higher income, defined as an above-average income, and a higher level of education, defined as at least secondary education, two characteristics that have repeatedly been observed to correlate with a higher propensity to turnout (Smets and van Ham, 2013). Moreover, the higher propensity of better educated citizens to turnout has been related to the fact that they may have internalized stronger voting norms during their studies, possibly because institutions of higher education emphasize that voting is a duty and because students are more exposed to norms of voting (Hansen and Tyner, 2019). Those internalized norms and sense of civic duty may have been activated more strongly by demonstrations, hence our findings.

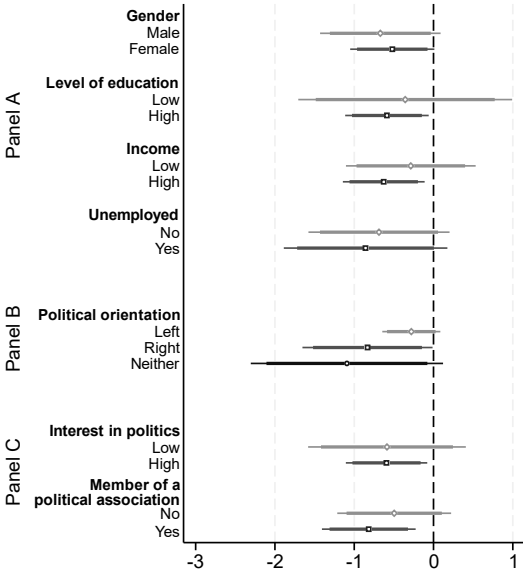
In addition to socio-demographics, Désilets et al. (2020) report evidence that more right-oriented individuals are more sensitive to social norm violations. As demonstrations were meant to reinforce the norm of not voting for a far-right candidate, one should therefore expect their effect to have been conditional on the political orientation of respondents. We therefore condition the effect of demonstrations on respondents' political orientation. The results, which are reported in Panel B of Figure 6, show that the effect of demonstrations on the probability of reporting a vote for Jean-Marie Le Pen was essentially driven by right-wing respondents. One may interpret that finding by saying that right-wing respondents were more likely to have voted for Jean-Marie Le Pen in the first round and were therefore also more likely to conceal their vote once demonstrations had recalled that voting for the far right was socially undesirable.

Finally, we condition the effect of demonstrations on respondents' stated interest in politics and on whether they were members of political associations. The idea is that respondents that were more interested or more involved in politics were also more likely to be exposed to information on the demonstrations. Their reaction was however not a priori clear, because some

³¹ As demonstrations had no effect on the propensity to declare having voted for Jacques Chirac or having cast a blank ballot in the first round, we report those regressions in the online appendix (see Figure G2 and Figure G3 in Online Appendix G). All of them confirm that the effect is insignificant, lending additional credence to the fact that the social stigma specifically affected Jean-Marie Le Pen.

of them may at the time have had more entrenched views on the election. The results reported in the Panel C of Figure 6 shows that the first effect dominated. Specifically, the effect of protests was essentially driven by respondents with a high interest in politics and those who belonged to a political association.

Figure 6. Average Marginal Effect of the Number of Participants on the Probability of Declaring a Vote for Jean-Marie Le Pen in the First Round as a Function of Respondents' Characteristics



Notes. The unit of analysis is a survey respondent. The linear first stage and the second stage multinomial probit model are jointly estimated in a conditional mixed-process framework (Roodman, 2011). The number of participants in a protest is instrumented by the rain-based synthetic instrument estimated in Section 4.2. In each specification, we control for respondents' political orientation (left, right, or neither), gender (dummy equal to one if female), level of education (dummy equal to one if at least secondary education), unemployment status (dummy equal to one if not working), income (dummy equal to one if earning more than the sample median income), interest in politics (dummy equal to one if some or a lot of interest), religiosity (dummy equal to one if the respondent attends religious services at least once a week), whether they are members of political associations (dummy equal to one if member of at least one association), and the type, latitude, and longitude of the municipality where they live. Standard errors clustered at the department level are reported in parentheses. ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

The findings of this section are consistent with a model where protests signalled that voting for the far-right candidate was not socially desirable. In this vein, the protests affected differently left- and right-wing voters because they were perceiving different trade-offs. Protests pushed right-wing voters who could have considered voting for Jean-Marie Le Pen to vote for Jacques Chirac instead. For left-wing voters, the protests signalled to voters that it was more acceptable to vote for the moderate right-wing candidate than to abstain. As a result, larger protests reduced the number of votes cast for Jean-Marie Le Pen among right-wing voters and reduced abstentions and blank ballots among left-wing voters. Consequently, the number of votes for Jacques Chirac increased among both left- and right-wing voters.

8 Conclusion

Protests against far-right parties have become common, but whether these protests achieve their stated goals and how they do is seldom discussed. Using data on a historical mobilization against a far-right candidate who had passed the first round of the 2002 French presidential election and a new variant of an instrumental strategy exploiting weather shocks, we find that the protests that we study did achieve their goal. Specifically, we show that the May 1, 2002, peaceful protests reduced the vote share and the absolute number of voters for far-right candidate Jean-Marie Le Pen and reduced the share of abstentions and blank or invalid ballots. By the same token, they increased the vote share and the absolute number of votes for moderate candidate Jacques Chirac. In a nutshell, those protests were effective. That finding holds up to a series of robustness checks.

Moreover, we report evidence that the local press contributed to spreading the effect of protests and that it adjusted the tone of its coverage of the far-right candidate to the magnitude of those protests. We can also document spillovers from municipalities that hosted a protest to municipalities that did not. Not only do those spillovers exist but they are of the same sign as the direct effects of the protests. In other words, protests in a municipality reduced both the number of votes for the far-right candidate and the number of abstentions and blank or invalid ballots, and increased the number of votes for the moderate candidate in neighbouring municipalities.

Most of all, using individual survey data, we explore how individual voters reacted to the protests and suggest a series of transmission channels, which is a key contribution of the paper. In line with the view that protests signal the importance of policy issues, we observe that protests decreased public support for the policies championed by the far-right candidate, resulting in a more negative media coverage of Jean-Marie Le Pen and his party.

Moreover, we show that the effect of protests on voters depended on their political preferences. Left-wing voters were less likely to cast a blank or invalid ballot and right-wing voters less likely to vote for the far-right candidate. However, they prompted both left- and right-wing voters to vote more for the moderate candidate. We find no statistically significant effect on voters identifying with the centre. These findings suggest that some right-wing voters swung between the extreme and moderate right-wing candidates, whereas some left-wing voters swung between casting a blank or invalid ballot and voting for the candidate they viewed as the lesser of two evils. Whereas the behaviour of right-wing voters and those who identify with the centre

can be consistent with an instrumental view of voting, the behaviour of left-wing voters suggests that expressive motives were at work.

Finally, we provide suggestive evidence that those effects were the result of a change in the social desirability of voting for the far-right candidate, as we document that voters who had voted for him in the first round were more likely to misreport their vote in municipalities that had hosted larger protests, despite the first round having taken place a week and a half before the protests. In other words, protests increased their propensity to lie about their vote. To our knowledge, this is the first evidence of an effect of protests on the social desirability of a voting behaviour.

We do not claim that the present paper provides an exhaustive list of mechanisms through which the May 1, 2002, protests affected voting outcomes on May 5. In particular, we do not rule out that they could help build political movements like in Madestam et al. (2013), although the proximity between the two days probably limited that possibility. That mechanism may, however, have affected later elections and possibly later protests. Investigating the long-term effects of the May 1, 2002, protests is therefore food for future research.

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