Ne Me Quitte Pas!
School Closures and the Rise of the Far-right in France

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Abstract

School closures and consolidations have been advocated in several OECD countries. This paper analyses the impact of school closures on far-right voting patterns in France between 1995 and 2022. Using a matched difference-in-differences design, we demonstrate that the closure of the only school in a municipality leads to an increase of 0.597 percentage points in votes for the right-wing Rassemblement National (RN) party. This initial effect grows in the following three elections, ultimately reaching 1.490 percentage points. We provide indicative evidence that the increase in the RN vote is more pronounced in areas with a higher proportion of children in the population. In municipalities with multiple schools at the time of closure, this effect is absent, suggesting that citizens are particularly concerned with access to public education.

Keywords: Elections, far-right, populism, public services, schools

JEL classification: D72, D91, H41

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1 Introduction

Voting behavior and political attitudes in Western democracies increasingly reveal strong spatial patterns rooted in geographic inequalities between urban and rural areas, favoring support for far-right populist parties. In the United States, large cities are Democratic strongholds, while rural counties form a cornerstone for populist politicians such as Donald Trump. Similar political divergences between urban and rural areas were identified in the UK's 2016 Brexit vote. In the 2017 and 2022 French Presidential elections, a far-right candidate, Marine Le Pen of the Rassemblement National (RN), reached the second round, obtaining 33.9% and 41.5% of the vote, respectively. While Emmanuel Macron scored highest in major cities, Le Pen performed better in rural areas, particularly in the north and southeast. What leads rural, low-density regions to embrace anti-elite rhetoric and opposition to the establishment?

Voters attribute considerable importance to the provision and quality of public services (Ajzenman and Durante (2023), Huet-Vaughn (2019), Rogger and Somani (2023)). This is unsurprising, as public service consumption accounts for around 20% of global poverty reduction since 1980 (Gethin (2023)). In particular, school access positively impacts education and wages (Duflo (2001)). Media outlets and commentators have proposed a potential causal relationship between the closure of public services in rural areas and radical voting patterns—in the United States (Edelman (2018), Hogseth (2020)), France (Edelman (2018), Hogseth (2020)), and Spain, among other countries. Surprisingly, despite the importance of public services, almost no research examines the relationship between public service availability and far-right electoral gains. This paper provides the first evidence of a causal relationship between school closures and increased support for the far-right.

We examine the effects of public service provision on election outcomes and, for the first time, analyze the role of school closures in far-right voting. Given France's central role in the European Union, understanding French politics is essential in

its own right. More importantly, school closures are not unique to France: despite its unpopularity, the policy of school consolidation is advocated in several OECD countries (Abalde (2014)). Although this policy is cost-effective due to economies of scale (Andrews, Duncombe, and Yinger (2002), Duncombe and Yinger (2007)), the effects on primary school students' outcomes remain inconclusive.[1] In China, for instance, school closures appear to boost grades for older students but reduce them for younger students (Liu et al. (2010)). In the Netherlands, De Haan, Leuven, and Oosterbeek (2016) found a small positive effect, while in Denmark, Beuchert et al. (2018) identified a short-term negative effect, largely due to the psychological cost of adjusting to a new environment. In the United States, over 120,000 schools were closed through consolidation between 1930 and 1970, increasing the average school size from 87 to 440 students. Berry and West (2010) found that students educated in smaller schools saw higher returns to education and completed more schooling years.

The controversy surrounding school closures extends beyond their effects on children. In rural areas, schools often serve as community hubs, sites for social gatherings, and significant local employers. Previous research has shown that a strong sense of place-based identity in rural communities and the loss of social spaces can make far-right appeals more attractive (Fitzgerald and Lawrence (2011), Bolet (2021)). The loss of public services may lead citizens to feel abandoned and resentful toward the government.[2] In addition, a school closure reduces the accessibility of that service and generates additional use costs, e.g., transportation or congestion costs.

[1] Engberg et al. (2012) and Brummet (2014) find positive effects on students' outcomes when low-performing high schools are targeted. This paper focuses on kindergarten and primary schools.

[2] As a response to the Yellow Vests movement, between January and April 2019, the French government organized a "Great National Debate", where citizens all over the country were invited to discuss and give their opinions on several topics, including state organization of public services. One of the conclusions was that citizens demanded closer public services. In the words of former Prime Minister Edouard Philippe, "[closer public services] is a requirement of fraternité, proximity, daily contact. Isolation, abandonment, indifference, lack of consideration come up in many words. The answer to this deep uneasiness probably consists in restoring the balance between the metropolis and the municipalities".

France provides an ideal setting to test the significance of school closures on the rise of far-right voting. First, the *Rassemblement National* (RN) has consistently received more than 10% of the vote in all presidential elections since 1988. Second, over 10,000 schools have closed since 1995, despite a relatively stable birth rate. These conditions enable a panel data analysis to investigate the role of public service closures in electoral outcomes. We leverage information on school closures in France between 1995 and 2017 to identify the effect of reduced access to public services on far-right voting in presidential elections. School closures provide a valuable context to examine feelings of abandonment and alienation from central authority, as school closure decisions are centralized nationally, with little discretion afforded to municipalities. We examine the evolution of far-right voting in France, particularly the RN, by comparing municipalities with and without school closures before and after the event. Our methodology employs a matched difference-in-differences strategy with a staggered adoption design. We find no evidence of pre-existing trends and directly compare the evolution of far-right voting in treated versus comparison municipalities around school closure years.

In municipalities with only one school, primarily rural, we find that RN voting increased by 0.597 percentage points in the election following a school closure, with this effect growing in subsequent elections, reaching a maximum of 1.490 percentage points on average. This increase is more pronounced in municipalities with higher proportions of children, young residents, and greater population density, suggesting that the relative rise in RN voting occurred among those most affected by the policy. We also observe that RN voting rises more significantly in areas with a high initial level of far-right support, suggesting that school closures act as a catalyst, motivating additional voters to support the RN. Our results are not due to demographic shifts, as school closures are unlikely to lead to out-migration to other municipalities.

In municipalities with multiple schools, the effect on RN voting is absent, indicating that the rise in protest voting is likely due to a distinct reduction in public

service access rather than a mere decrease.

The paper is structured as follows: Section 2 provides an overview of the related literature, Section 3 describes the institutional context, Section 4 presents the data, Section 5 outlines the methodology, Section 6 reports the results, and Section 7 concludes.

2 Literature Review

The paper is relevant to several strands of literature. First, it relates to research on the political economy of populism, which studies the origins of populist parties and policies. For reviews, see Gidron and Bonikowski (2013), Mudde and Kaltwasser (2017) and Guriev and Papaioannou (2022).

Several empirical studies examine populism's correlates or origins in specific contexts. For example, Becker, Fetzer, and Novy (2017) examined Brexit voting behavior and identified low levels of education and income, historical reliance on manufacturing, and unemployment as key factors. Similarly, Fetzer (2019) argues that austerity welfare reforms implemented in 2010 influenced support for Brexit. In cross-sectional studies, Funke, Schularick, and Trebesch (2016), Dustmann, Eichengreen, et al. (2017), Guiso et al. (2024), and Algan et al. (2017) argue that economic downturn and insecurity are major determinants of populism. In contrast, Inglehart and Norris (2016) emphasize the role of psychological factors and a cultural backlash among previously dominant social groups. Relatedly, Becker, Fetzer, et al. (2016), Hangartner et al. (2019), Dustmann, Vasiljeva, and Piil Damm (2019), Edo et al. (2019), and Tabellini (2020) focus on hostility toward migrants as an explanation for populism.

Scholars have also noted that rural and economically declining areas are often strongholds for radical-right parties (Rodríguez-Pose (2018)). One line of research highlights how economic shocks, especially those related to globalization, have disproportionately affected certain regions within countries. Studies by Colan-

tone and Stanig (2018), Autor et al. (2020), Che et al. (2016), and Dippel, Gold, and Heblich (2015) show that globalization, particularly import competition with China, correlates strongly with Brexit, pro-Trump voting, support for right-wing parties across EU regions, and support for far-right parties in Germany. We contribute an additional perspective on the rural-urban divide in far-right voting: public service deprivation. The studies closest to ours are Cremaschi et al. (2022) and Dickson et al. (2024), which also connect public service deprivation to the rise of the far-right. Cremaschi et al. (2022) focus on Italy, specifically the closure of local police stations, garbage collection, and public registries, while our study focuses on schools—among the most essential public services—and covers a more extended period of analysis. Dickson et al. (2024), by contrast, focus on the closure of local healthcare facilities.

Second, the paper is related to the literature on electoral accountability and retrospective voting (see Ashworth (2012) and Healy and Malhotra (2013), for reviews). Evaluating incumbents' performance at the ballot box is crucial to democratic accountability. Examples from this rich literature include Casaburi and Troiano (2016) on electoral responses to anti-tax evasion programs, Ferraz and Finan (2008) on corruption, Clinton and Sances (2018) on Medicaid, Cook et al. (2020) on charter school privatization, and Ajzenman and Durante (2023) on infrastructure quality in schools. Within this literature, a significant body of research examines the impact of fiscal adjustments on political outcomes (e.g., A. Alesina et al. (1998), A. F. Alesina, Carloni, and Lecce (2011), Arias and Stasavage (2019) and Fetzer (2019)).

Third, the paper also relates to the literature on the electoral and political returns of resource allocations (see Golden and Min (2013), for a survey). The effectiveness of providing distributive goods in attracting votes for incumbents is well established in political economy literature. This body of work focuses on examining whether voters reward political incumbents for investments in public goods and services (e.g., Milesi-Ferretti, Perotti, and Rostagno (2002), Stratmann and Baur (2002), Cadot, Röller, and Stephan (2006) and Cinnirella and Schueler

(2018)). Our paper differs fundamentally from this literature by proposing to study the reverse—what happens when governments remove services from voters.

3 Institutional Context

3.1 Closing schools

The municipality holds primary responsibility for public schools. It owns the buildings and is accountable for their construction, renovation, expansion, significant repairs, equipment, and operation (Article L.212-4 of the Education Code). The traditional model of school management involves direct municipal administration: funding is provided through the municipal budget, which supplies the necessary resources.

According to French law, "the opening of a class or school is the result of shared powers exercised by the State and the municipalities."[3] However, the closure of a class or school is determined by the academic inspector (a senior official from the Ministry of Education), and the Council of State has confirmed that a class or school may be closed without the municipality's consent.

Schools can close for three primary reasons:

1. Demographic Changes: A decline in student enrollment is the most common reason for closure. This decline may result from a decreasing local population, driven by lower birth rates or internal migration.

2. Consolidation and Optimal Size: Many schools have fewer than three classes, which is especially common in rural municipalities due to smaller populations but also occurs in medium and large cities at the preschool level, where local positioning can help reduce family commuting. Consolidation may oc-

[3]Circulaire no 2003-104 of 3-7-2003. Within the French civil service, a circulaire originates from a ministry to interpret a legal text or regulation, with a view to consistently applying such a regulation. This circulaire replaced the circulaire 21 February 1986, which was interpreted as outdated and did not cover the closure of schools.

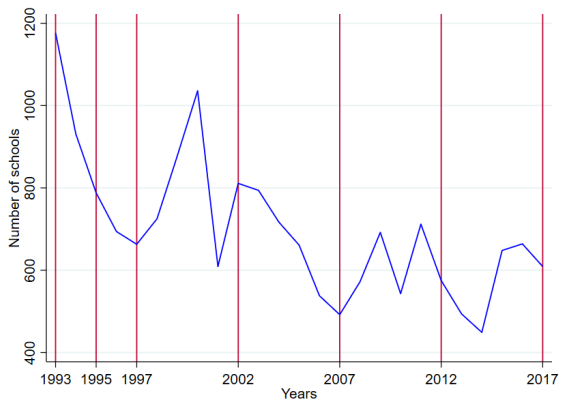
cur within a single municipality or between several. In the first case, merging elementary, preschool, or primary schools generally involves closing at least one, and municipal consent is required. In the second, municipal consent is unnecessary if one of the schools has fewer than fifteen students and the municipalities are within 3 km of each other; otherwise, it is required.

These two factors represent the primary reasons for school closures. Economic considerations also play a role, as operating a small school entails significant fixed costs, such as catering services and facilities like computer labs and libraries. Tricaud (2021) finds that municipalities required to join intermunicipal cooperatives (ICs) did not experience changes in the number of schools, as school locations are nationally determined and not influenced by IC membership.

3. Building Condition: Some older school buildings are unable to meet current quality standards.

In 1995, there were 62,888 schools in France, while by 2017, this number had fallen to 51,993. On average, 689 schools closed each year, with only 204 new schools opening. Figure 1 illustrates the annual number of school closures, and Figure 2 shows the geographic distribution of closures by legislative period.

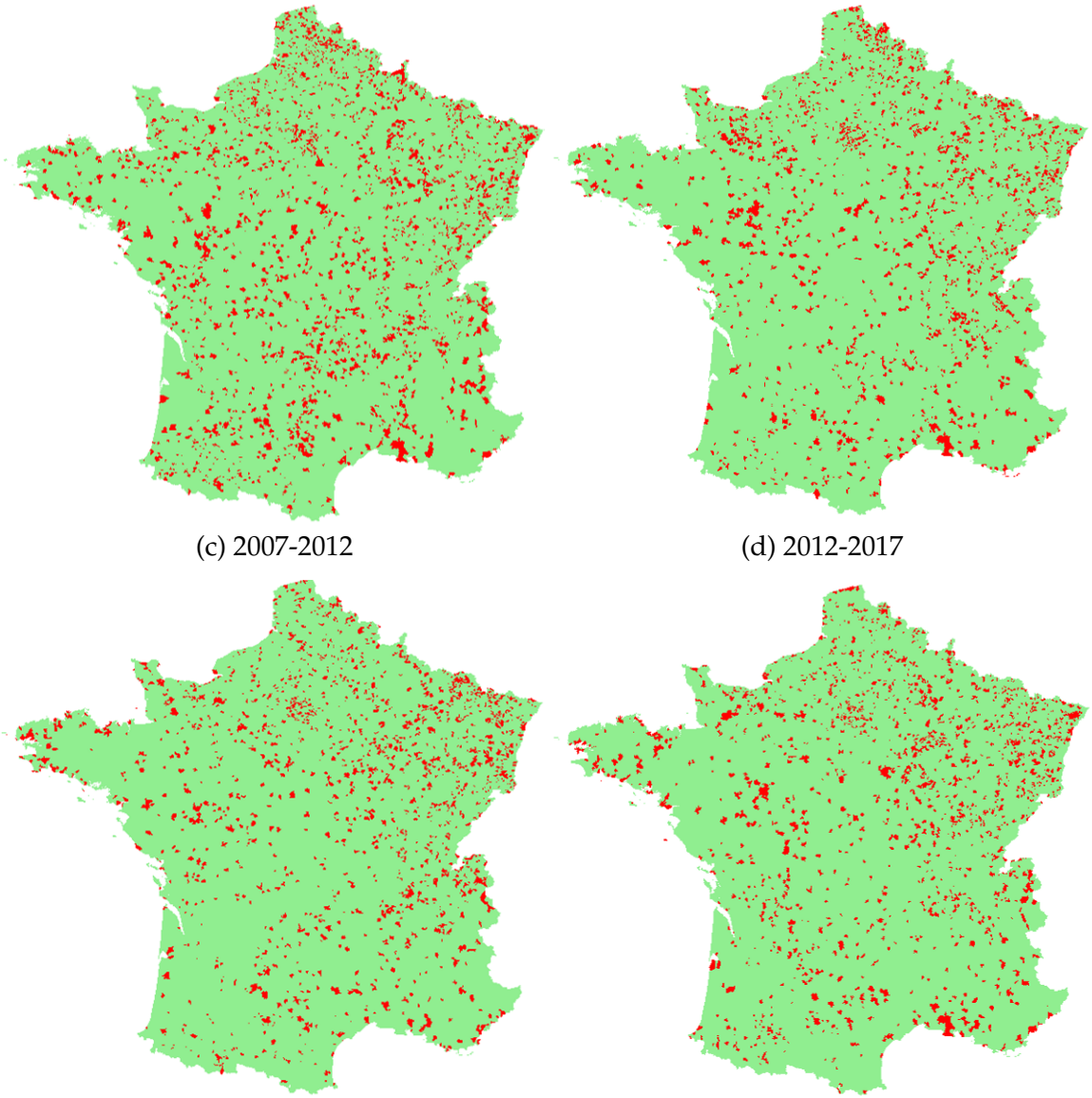
Figure 1: Number of school closures in France between 1993 and 2017



Source: French Ministry of Education. *Notes:* Vertical lines represent presidential and legislative election years.

Figure 2: Localisation of school closures

(a) 1995-2002 (b) 2002-2007



(c) 2007-2012 (d) 2012-2017

Source: French Ministry of Education. *Notes:* Map of the localization of school closures. Municipalities in black represent municipalities without school closures, and municipalities in white represent school closures.

3.2 Elections in France

We analyze presidential elections, which operate under a two-round plurality voting system. Focusing on presidential elections allows for consistency, as the same candidates run across all municipalities.

In the first round, if no candidate receives more than 50% of the votes, a second round is held two weeks later between the two candidates with the highest vote

shares.

The French Fifth Republic is a semi-presidential system. The President holds significant power, particularly in matters of national security and foreign policy, and appoints the Prime Minister.

3.3 The Far-Right in France

The most prominent far-right party in France is the *Rassemblement National* (RN), initially known as the Front National, founded in 1972 with ideological roots in the neofascist group Ordre Nouveau. Jean-Marie Le Pen led the party until 2011, when his daughter Marine Le Pen succeeded him. The RN positions itself as a defender of rural communities against urban elites, as illustrated by Marine Le Pen's 2012 speech: *"Together we will break away from the disdain of a small Parisian elite who believe themselves to be superior. And we will reintegrate rural France into France. If public services are deserting our rural areas to this extent, it is because the UMP and the PS have allowed it."*[4]

Figure 3 represents the growth of the RN between 1995 and 2022. The stronger the gray, the higher the share of votes.

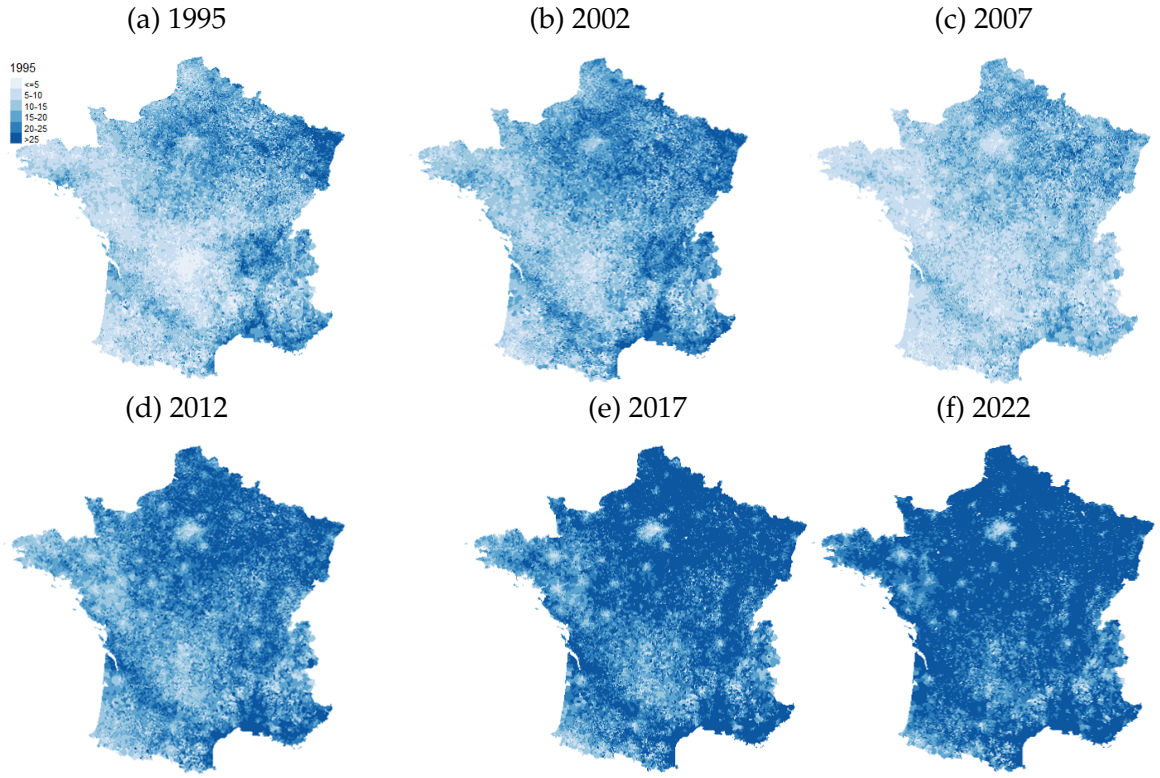
4 Data

Data on votes Data on electoral outcomes is available for 1995, 2002, 2007, 2012, 2017, and 2022 presidential elections, as well as 1993, 1997, 2002, 2007, 2012, and 2017 legislative elections. Each dataset records the number of registered voters, abstentions, cast votes, valid and invalid votes, and the votes for each candidate in each municipality.

The electoral data for French elections is sourced from the Ministry of the Interior and is publicly available at data.gouv.fr. We calculate a candidate's or party's

[4] 2012, February 2012. Marine Le Pen, héraut de la ruralité. *Europe1*. https://www.europe1.fr/politique/Marine-Le-Pen-heraut-de-la-ruralite-356998

Figure 3: Rassemblement National vote share at presidential elections first round in France



Source: Ministry of Interior. *Notes:* Map of the RN vote share at the first round of presidential elections in 1995, 2002, 2007, 2012, 2017, and 2022. The stronger the gray, the higher the RN vote share.

vote share as the number of votes cast for the candidate divided by the total number of valid votes.

The Appendix Table A.1 lists the main candidates, their parties, and their corresponding ideologies. Ideology refers to the party's ideological family as categorized in the Chapel Hill Expert Survey (Jolly et al. (2022)). The six political families are: far-left, left, green, liberal, right, and far-right.

In this paper, we focus on the *Rassemblement National* for two reasons. First, it is the leading French far-right party. Second, it tends to advocate for a more national economic and conservative discourse, particularly in rural areas, in contrast to other candidates such as Philippe de Villiers, Bruno Mégret, or Éric Zemmour. The latter, supported by the former two candidates, ran a campaign centered on white nationalism in the 2022 presidential elections, achieving greater success in

urban areas.

Demographic controls We collect municipal-level demographic data from the French National Institute for Statistics and Economic Studies (INSEE), available for the census years 1990, 1999, 2006, 2011, and 2016. We compute the share of the population by age group, economic sector, and education level. We also use the unemployment rate, (log) population, population density, and the share of vacant housing. For each measure, we interpolate the data between census years.

Data on schools, including year of opening and closing and geographic coordinates is from data.education.gouv.fr.

4.1 Sample restriction

Our analysis focuses on preschools, elementary schools, and schools that encompass both levels. Most school closures occur at these levels. A school may close due to poor building conditions, in which case the closure might be associated with the opening of a new school. Voters might perceive this as an investment rather than a reduction in the availability of public services, which is the focus of this study. We exclude municipalities where a school opened between 1995 and 2022.

The Yellow Vests movement erupted in November 2018, and President Emmanuel Macron promised that school closures would not occur without the mayor's consent. The COVID-19 pandemic began in January 2020. We exclude municipalities that had school closures during Emmanuel Macron's first presidential term, as these closures were potentially more endogenous. Additionally, we exclude municipalities treated between 1988 and 1995, as we cannot observe pre-treatment voting behavior for these cases. Our analysis is restricted to metropolitan France, excluding overseas territories and Corsica.

4.2 Descriptive statistics

This paper studies the effects of closing the only school in a municipality versus closing one of the schools in a municipality. Table 1 presents the static differences between municipalities that closed their only school and the control group — municipalities with no school closures. Both treated and control municipalities tend to be small and rural, with a high proportion of the population working in the agriculture sector. With respect to other characteristics, they are not substantially different. Over 63% of school closures occur in municipalities with only one school.

For municipalities with more than one school, we restrict the analysis to those with between two and four schools, dropping only 48 municipalities. This restriction improves the comparability between the municipalities in the analysis. Municipalities with school closures are generally smaller in population and more rural.

Table 1: Descriptive statistics by closing and non-closing municipalities in 1995

	One school	0 schools		2 to 4 schools		
	Closed	Not closed	Difference	Closed	Not closed	Difference
RN vote share	14.11	12.82	-1.29***	13.49	14.44	0.95**
unemployment share	0.08	0.09	0.00*	0.09	0.09	0.01***
agriculture sector share	0.43	0.55	0.12***	0.19	0.11	-0.08***
industry sector share	0.11	0.08	-0.04***	0.19	0.20	0.01
civil construction sector share	0.10	0.09	-0.01**	0.10	0.10	0.00
tertiary sector share	0.36	0.29	-0.08***	0.53	0.59	0.06***
less than high school share	0.84	0.82	-0.02***	0.82	0.81	-0.02***
high school share	0.09	0.09	0.01***	0.09	0.10	0.00**
higher education share	0.08	0.09	0.01***	0.09	0.10	0.01***
babies (<5 years old)	0.06	0.05	-0.00*	0.06	0.06	0.00***
children (5-9 years old)	0.06	0.06	-0.01***	0.06	0.07	0.00
young (10-24 years old)	0.18	0.16	-0.02***	0.18	0.19	0.00*
adults (25-64 years old)	0.50	0.51	0.01***	0.50	0.51	0.00
elderly (>64 years old)	0.19	0.21	0.02***	0.19	0.18	-0.01**
population	238.21	137.19	-101.02***	1268.71	1800.78	532.06***
density	30.32	18.69	-11.63***	101.58	137.76	36.19**
rural	0.98	1.00	0.01***	0.82	0.67	-0.15***
vacant housing	0.08	0.09	0.00**	0.07	0.07	-0.00
Observations	1605	5296	6901	810	630	1440

Source: INSEE - French censuses (1990, 1999). A linear interpolation is performed to convert data annually. The table compares municipalities that experienced a school closure between 1995 and 2017 (closed) and those that did not (not closed) in municipalities without schools and municipalities with more than one school (2 to 4). Values correspond to the mean.

5 Methodology

We rely on a difference-in-differences strategy to assess the impact of school closures on *Rassemblement National* voting. We estimate the following specification in the main sample of analysis over 1995-2022:

$$Y_{mt} = \alpha + \beta Closed_{mt} + \delta_t + \theta_m + \epsilon_{mt} \tag{1}$$

where m stands for the municipality and t for the election-year. $Closed$ is an indicator variable equal to 1 for municipalities where 1 school closed and 0 for municipalities that did not experience any school closure. The parameter β captures the causal effect of $closed_{mt}$ on the dependent variable Y_{mt}, which stands for the share of votes on the RN as a share of total votes (excluding blank and null). In our model, the parameters δ_t and θ_m represent election-year and municipality fixed effects, respectively. Election-year fixed effects control for time-specific, municipality-invariant confounders, while municipality fixed effects account for time-invariant, municipality-specific factors. Standard errors are clustered at the municipality level.

There are two identifying assumptions underlying our strategy. First, closure and non-closure municipalities shared similar voting trends before the treated municipality lost a school. Second, in the absence of treatment, municipalities with one school closure would have continued to follow the same trend as those in the municipalities without closure.

A primary concern is whether treated and control units are systematically different. For instance, if municipalities losing a school are in economic decline, far-right voting patterns may respond to economic hardship rather than school closure. To address this, we employ matching on observables, ensuring that treated and control municipalities share similar demographic and economic characteristics pre-treatment. Specifically, we construct a comparable control group using

entropy balancing to reweight observations and achieve balance across observed characteristics from 1995 (following Hainmueller (2012)).[5] Municipalities are balanced across demographics (log of population, density, age distribution by cohort, education levels, and housing vacancy rates), local labor market indicators (unemployment rate, employment shares in agriculture, industry, construction, and tertiary sectors), and rural status. Table B1 presents descriptive statistics for the reweighted sample. Pre-trend analysis results are shown in Figure 4a.

The control group consists of municipalities without any schools between 1995 and 2022, as these may share greater similarities with our treatment group than municipalities with schools throughout the study period. Nevertheless, for robustness, we also test our results using municipalities with a single school as the control group. As shown in the Appendix, this alternative control does not materially alter our conclusions, though standard errors increase and effect sizes slightly diminish.

Recent econometric literature has highlighted concerns with two-way fixed-effects (TWFE) linear regression models for estimating binary treatment effects (see Goodman-Bacon (2021), De Chaisemartin and d'Haultfoeuille (2020), Sun and Abraham (2021), Callaway and Sant'Anna (2021)). In TWFE models with multiple time periods and varying treatment timings, three comparisons are typically made: treated units versus never-treated units (correct), treated units versus not-yet-treated units (correct), and treated units versus already-treated units (incorrect). When effects vary across units, exhibit dynamics, or shift across time, these complexities can distort β estimation, complicating causal interpretation.

Our analyses employ the De Chaisemartin and d'Haultfoeuille (2020) estimator, which estimates treatment effects in groups as they enter treatment, without assuming homogeneous treatment effects.[6] In the Appendix, we also report robustness checks using alternative estimators (TWFE, Callaway and Sant'Anna (2021)

[5] We use the Stata package *ebalance* (Hainmueller and Xu (2013)).
[6] We use the Stata package *did_multiplegt*.

and Sun and Abraham (2021) estimators), which yield consistent results.

6 Results

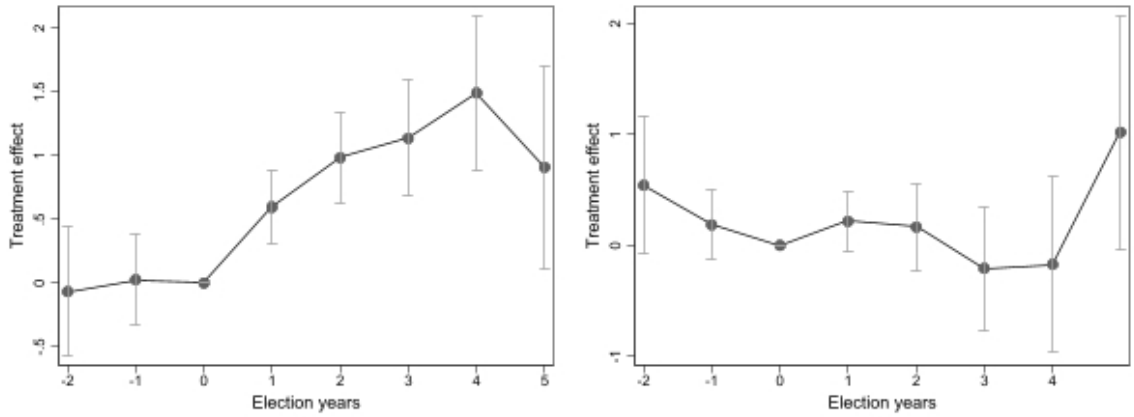
6.1 Presidential Elections

Figure 4a shows the matched difference-in-differences results concerning the vote for the *Rassemblement National*. Panel (a) displays the results for municipalities with only one school that experienced a school closure, thus losing access to this public service. In event-time 1, meaning the first election after the school closure, the vote for the RN increases on average by 0.597 percentage points. The estimated rise in RN's vote share continues to increase over the next three elections, reaching a total effect of 1.490 percentage points, before decreasing to 0.908 in the fifth election after the change. This is a significant and long-lasting effect of school closures on the RN's vote share. All the leads are statistically significant at the 0.1% level, except for lead 4, which is statistically significant at the 5% level. Standard errors are larger for lead-4 after treatment, given that this only comprises the 2022 election. To test for parallel trends, a joint placebo test on the lags rejects the hypothesis that they are jointly statistically significant. Lags are also not individually statistically significant.

As for municipalities with more than one school, presented in panel (b), we restrict the analysis to municipalities with two to four schools to improve matching quality. Results indicate no significant effect on voting, suggesting that the closure of the only school in a municipality is politically relevant, while closures that can be accommodated by other schools in the same municipality have no significant impact.

Figure 4: Treatment dynamics - Effect of a school closure on Rassemblement National voting in Presidential elections

(a) Effect of losing only school (b) Effect of losing one of the schools



Notes. In the figure, each point and the 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Panel (a) reports event study estimation results for treated municipalities with one school and control municipalities without school, (b) for municipalities with two to four schools. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

6.1.1 Robustness checks

We test the robustness of our results across several specifications. Appendix Figure C.1 presents the results using municipalities with one school and no closures as the control group. Standard errors are larger with this control group, and the estimated effect is slightly smaller. In Appendix Figure C.2, we present estimates without matching and with control variables. As expected, not matching leads to slightly overestimated results, while there is also evidence of parallel trends. In Appendix Figure C.3, we present estimates using the traditional two-way fixed effects. We implement the Callaway and Sant'Anna (2021) estimator, suitable for (i) cases where the parallel trends assumption holds only after conditioning on covariates, (ii) cases using different comparison groups (the never-treated and not-yet-treated), and (iii) when units anticipate treatment and adjust their behavior before the treatment is implemented. Figure C.4 presents the results, which do not significantly differ from benchmark estimates. In addition, we present results

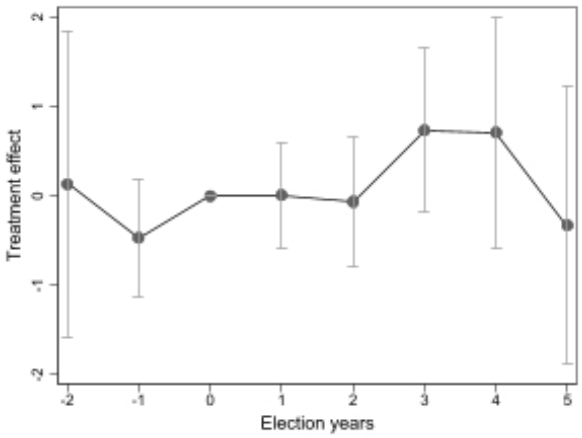
using the Sun and Abraham (2021) estimator, as shown in Figure C.5, which is robust to heterogeneous treatment effects and only uses one control group (never treated). Again, results do not significantly change. Roth (2022) points out that the inference methods of difference-in-differences are likely under-powered to detect violations of parallel trends. We test the sensitivity of our estimates to deviations from the parallel trends assumption using the method of Rambachan and Roth (2023), which relaxes the parallel trends assumption by imposing inequality constraints that permit deviations from pre-existing linear trends in the post-treatment period. In Appendix Figure C.6, we show that our estimates are statistically different from zero when including a treatment group-specific linear trend ($M = 0$) and even when permitting deviations from a linear trend by as much as one percentage point.

Given that we only find statistically significant effects for municipalities with one school, we focus the remainder of the paper on these municipalities. However, since almost two-thirds (63%) of school closures occurred in municipalities with only one school, this is not a limitation.

6.2 Opening a school

A natural question that arises is: What happens if, conversely, a municipality experiences a school opening? We test for this occurrence, focusing on municipalities with one or no school. It should be noted that the number of school openings is significantly smaller than school closures, at only 322, after excluding municipalities that had both a school closure during the period of interest. Thus, the standard errors for the effect of a school opening on voting are larger than those for school closures. In Figure 5, we present our results using the De Chaisemartin and d'Haultfoeuille (2020) estimator. None of the leads or lags are statistically significant, supporting the hypothesis that opening a school does not have a symmetric impact on far-right vote share as school closures do.

Figure 5: Treatment dynamics - Effect of opening a school on Rassemblement National voting in Presidential elections



Notes. In the figure, each point and the 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Treated and control groups have, at the beginning of the period, 1 to 0 schools. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level.

6.3 Heterogeneous effects

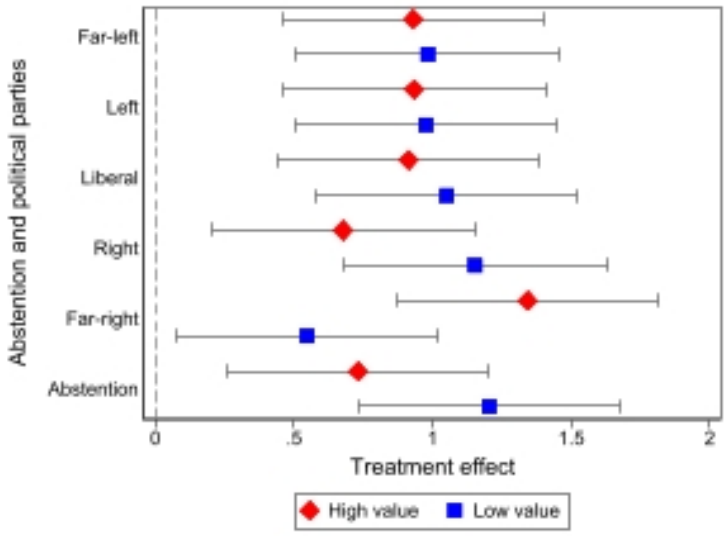
6.3.1 Political parties

We now explore the possibility of heterogeneous effects of school closures on vote share across different political parties. In Figure 6, we investigate whether the increase in RN voting after the closure of the only school is more pronounced in municipalities that voted more—or less—for far-left, left, liberal, right, or far-right candidates.[7] To assess this, we split the sample of treated municipalities at the median vote share of the different parties' ideologies in 1995. We also consider the abstention rate. We find suggestive evidence that the increase in RN voting after the school closure is, on average, higher where voting for the far-right was higher at the beginning of the period.

Table 2 reproduces the main analysis for other political parties and abstention in the election after a school closure. The magnitudes are significantly smaller for all other parties, suggesting that the vote for the RN is the most responsive to school

[7]We do not include green parties given that in 2017 they did not present a candidate.

Figure 6: Treatment heterogeneity by political ideology vote share in 1995 - Average effect of closing a school on Rassemblement National voting



Notes. The incertitude of each point is asserted with 95% confidence intervals. Estimated β from equation (1) in the full sample specification. The dependent variable is the expressed votes on the RN at the presidential election's first round. Standard errors are clustered at the municipal level.

closures. More importantly, except for liberal parties, all other parties tend to lose votes, rather than gain them, after a school closure. The far-left and left parties lose the most vote share. These parties are pro-redistribution, so one might expect them to benefit from school closures. However, Cremaschi et al. (2022) suggest that the explanation for these results is that left-wing parties advocate for redistribution funded by higher taxes or increased public borrowing, which voters are reluctant to support.

6.3.2 Driving distance

Our results in Figure 4a suggest that citizens value access to public services. If this is the case, we should expect the effects to be weaker in municipalities with nearby schools. We test whether the effect on far-right voting is weaker when the distance to other schools is less pronounced. We calculate the driving distance of the closed school to the nearest school by first identifying the three closest schools to each

Table 2: Average effect of closing a school on turnout and other political parties voting at presidential elections

	Abstention	Far-left	Left	Liberal	Right	Incumbent
Closed	0.303**	-0.541***	-0.372**	0.160	-0.354	-0.397
	(0.132)	(0.152)	(0.172)	(0.194)	(0.233)	(0.290)
Observations	41392	41392	41392	41392	41392	41392

Treated municipalities only had one school in 1995, and control municipalities never had a school. Matched difference-in-differences with staggered adoption. Matching is performed using entropy balancing. Estimations were obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020). Standard errors are clustered at the municipality level in parenthesis. $\dagger p < 0.1$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

treated school using Euclidean distance. Then, we calculate the driving distance using Radar and retain the shortest distance.[8][9]

Figure 7a shows our results for municipalities that lost the only existing school but were less than 2 km from the nearest school. We find no significant effect in these municipalities. Our results seem to be driven by municipalities where the distance is greater than 2 km, as shown in 7b. In these cases, the effect on far-right voting is 0.708 percentage points in the election after the closure; the maximum effect is observed four elections later (1.658 percentage points). These results reinforce the idea that voters value access to public services and vote for the *Rassemblement National* to protest the loss of an important service.

6.3.3 Municipalities' characteristics

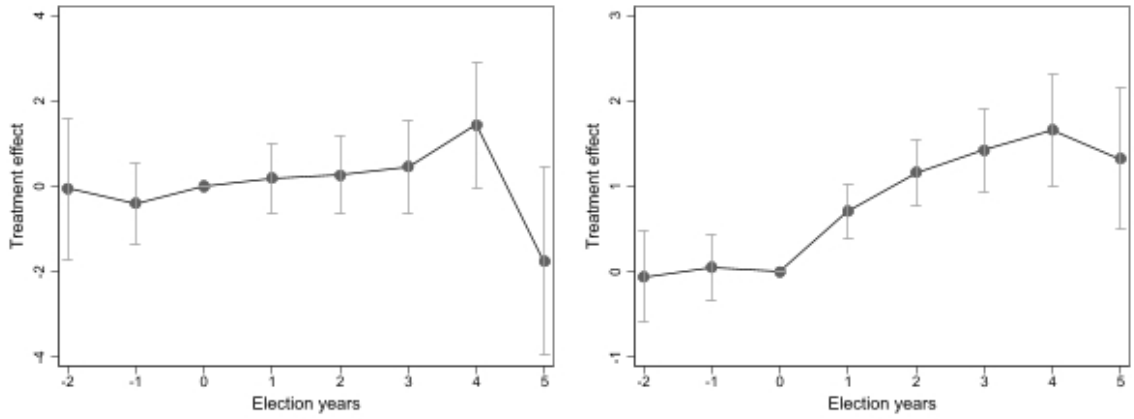
This section examines the heterogeneity of the effects on vote share based on specific municipality characteristics. Again, we divide the samples at the median value of observable characteristics in 1995. For example, the median percentage of citizens working in agriculture in municipalities with school closures between 1995 and 2017 was 43%. We define "High" as the sample of municipalities with a

[8] www.radar.com

[9] We could have calculated the driving distance of each closed school and each school in our sample and selected the nearest one. However, this procedure would consume more time, be more costly, and not considerably more effective.

Figure 7: Treatment dynamics - Effect of a school closure on Rassemblement National voting in Presidential elections depending on the distance to the closest school

(a) Closest school < 2 km (b) Closest school > 2 km

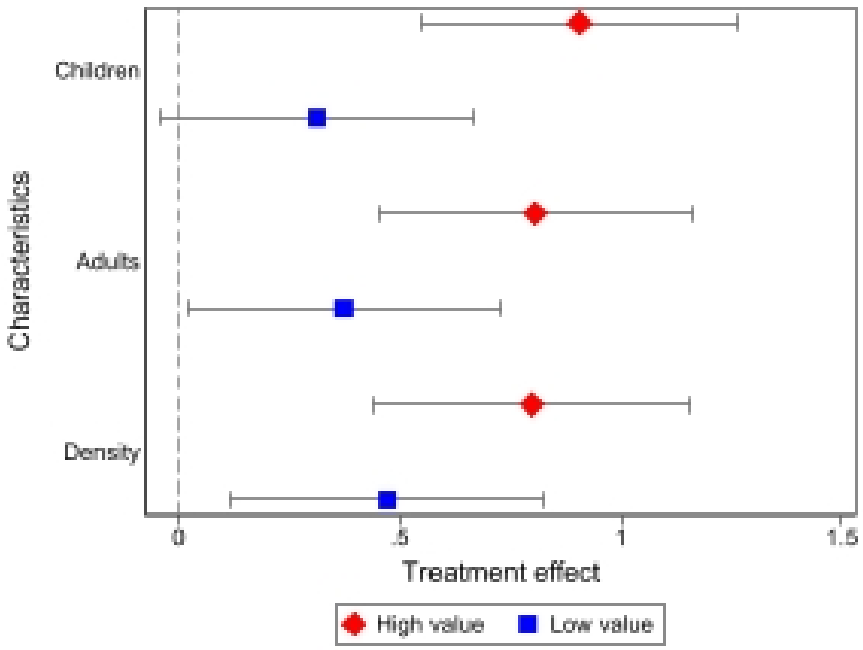


Notes. In the figure, each point and the 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Panel (a) reports event study estimation results for treated municipalities with one school whose nearest school is in a distance less than 2 km, (b) for treated municipalities with one school whose nearest school is in a distance higher than 2km. For both panels, the control group are municipalities without school the whole period. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

share of the population working in agriculture above or equal to 43%, and "Low" as those below 43

Figure 8 presents an analysis of heterogeneous effects based on the proportion of children (ages 5 to 10), adults (ages 20 to 60), and population density. This allows us to test our results at the intensive margin, as places with a higher share of children or potential parents may be more affected. Our results show that votes for the RN increase the most in municipalities with more children and higher population density — key sociodemographic characteristics.

Figure 8: Treatment heterogeneity by municipality characteristics in 1995 - Effect of closing a school on Rassemblement National voting in the first presidential election after treatment



Notes. The incertitude of each point is asserted with 95% confidence intervals. Estimated β from equation (1) in the full sample specification. The dependent variable is the expressed votes on the RN at the presidential election's first round. Standard errors are clustered at the municipal level.

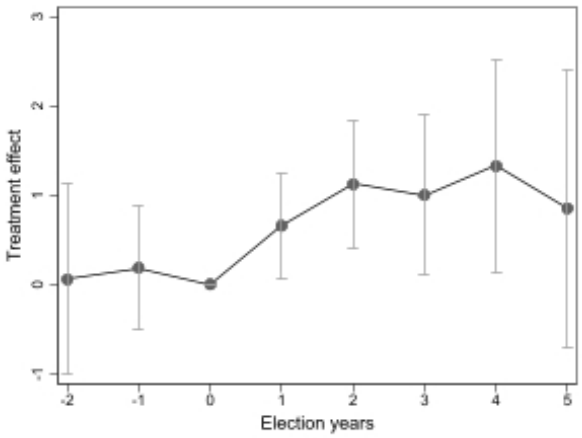
6.4 Robustness checks

6.4.1 Exclude neighboring municipalities

We now address the effect of potential spillovers by reassessing our results after excluding neighboring municipalities in the control group affected by a school closure. If there is an effect of school closure on neighboring municipalities – beyond those directly affected, our results above may be underestimated. We retain 624 treated municipalities and 3225 as controls.

We estimate an average treatment effect of 0.976 percentage points for the whole period. The effects remain similar in magnitude to those in Figure 4a (0.980 percentage points, on average), indicating that spillover effects are unlikely to have biased the results significantly.

Figure 9: Treatment dynamics - Effect of school closure on Rassemblement National voting (excluding neighboring municipalities)



Notes. In the figure, each point and the 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Treated municipalities only had one school in 1995, and control municipalities do not have any schools. Adjacent municipalities are excluded. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

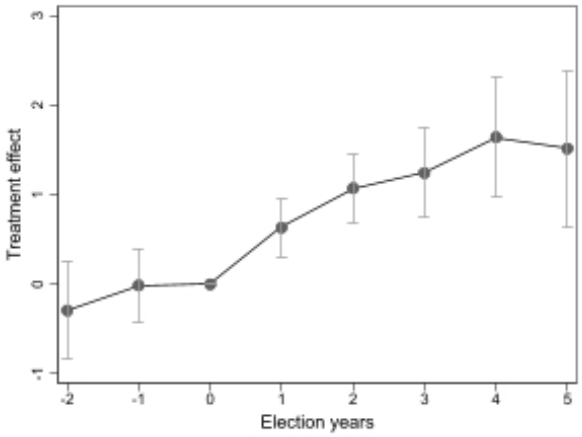
6.4.2 Far-right

Electors might also express possible discontent at school closures by voting for other far-right candidates, including, but not limited to the *Rassemblement National* party. Figure 10 presents results for the vote share for the ensemble of far-right candidates. The treatment effects are slightly higher than in Figure 4a, while most of the quantitative effects stem from votes on the RN. We confirm the evidence favoring parallel trends, where none of the lags are statistically significant.

6.5 Do politicians strategically choose what schools to close?

Extensive literature shows that governments tend to invest in public services in areas where they expect electoral returns or where mayors are politically aligned with the government (e.g., Adiguzel, Cansunar, and Corekcioglu (2023), Solé-Ollé and Sorribas-Navarro (2008), Cadot, Röller, and Stephan (2006)). We empirically test whether being politically aligned with the government decreases the chances

Figure 10: Treatment dynamics - Effect of a school closure on far-right voting



Notes. In the figure, each point and the 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Treated municipalities only had one school in 1995, and control municipalities do not have any schools. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

of having a school closed. Thus, we focus on narrowly won or lost municipal elections by a candidate aligned with the central government - i.e., the left-wing candidate under a left-wing presidency and the same for the right. This considers quasi-random variation in whether the government is incentivized not to close a school in a specific city to ensure a politically aligned local mayor has more chances of reelection in the next election.

With this purpose, we employ a regression discontinuity design using the following specification:

$$y_{mt} = \gamma + \tau_0 T_{mt} + \tau_1 f(margin_{mt}) + \tau_2 T_{mt} \times f(margin_{mt}) + \xi_{mt} \tag{2}$$

where y_{mt} is the number of schools closed at the municipality m level at time t. Our coefficient of interest, τ_0, corresponds to the difference between the intercepts of the two regressions, estimating the causal impact of being aligned with the government. Our baseline is non-parametric, following Imbens and Lemieux (2008) and Calonico, Cattaneo, and Titiunik (2014), and we estimate it using the Stata

package rdrobust (Calonico, Cattaneo, Farrell, et al. (2017)).

We only test this hypothesis for municipalities above 3500 inhabitants (1000 in 2014) since only above this threshold elections are held under a proportional system. Below this threshold, elections are held under a multi-member plurality system, and data about their political affiliation is unavailable, and independent candidates are very common. Furthermore, in France, there are also elections at the department level - an administrative district, that allows for the election of the members of the department council. We also test if having a member aligned with the government impacts the number of schools closed.

Table 3 presents our results, presenting no evidence that the central government behaves strategically regarding school closures.

Table 3: Regression discontinuity designs testing selection into treatment

	(1) Departmental	(2) Municipal
Aligned	0.003	-0.015
	(0.002)	(0.079)
Observations	162149	8652
Eff. number of obs	90969	5439
Polyn. order	1	1
Bandwidth	12.327	17.295

Column (1) shows the results for a regression discontinuity design, testing the null hypothesis: electing a department councilor aligned with the government impacts the probability of closing a school. Column (2) shows results for a regression discontinuity design, testing the null hypothesis: electing a mayor aligned with the government impacts the probability of closing a school.

6.6 Examining alternative explanations

6.6.1 Compositional changes

A possible alternative mechanism explaining an increase in voting for RN is changes in the demographic compositions, namely those caused by the out-migration of non-RN voters, as the closure of a school might lead a subset of citizens to move from treated municipalities to other municipalities, where the public schools are still available. Suppose those citizens tend to be those not voting for the RN - because of different income, education, or other. In that case, the vote share for the RN in the municipality losing the school will naturally increase.

We investigate this by employing the same matched difference-in-differences described in Section 5. The regression includes a municipality-level specific trend to capture differences in time trends at the municipality level and guarantee parallel trends. We find that closing a school does not immediately affect the number of registered voters, as per Figure 11a, in the first three elections – up to 15 years after the school closure, as the effect is not statistically significant and close to 0. In sum, compositional changes cannot explain our results for periods 0, 1, and 2. The number of registered voters starts to decrease from that moment on, decreasing by 8.10% four elections after (approximately 27 years later). [10] [11]

6.7 Spillover effects

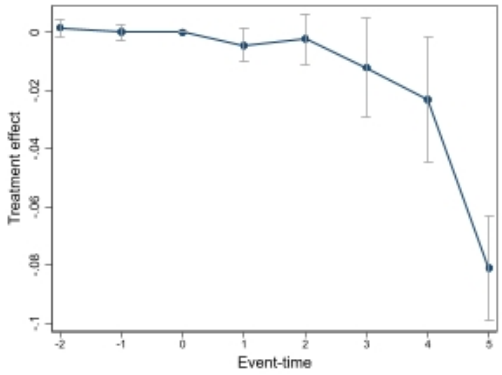
School closures could also affect neighboring municipalities, especially those without a school. In this section, we present results about the effect of closing a school in neighboring municipalities. We drop from our sample all the treated municipalities (with a school closure) and use the same matching procedure described

[10] Given that population census data is only available until 2019, we do not present results for the last election.

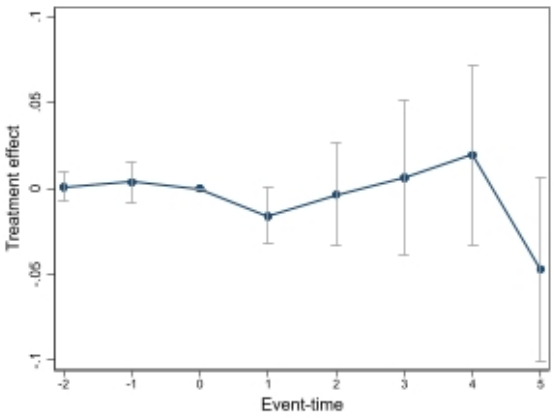
[11] We decide to explore further the patterns of out-migration by exploring population growth for individuals between 20-39 years old, 40-59 years, and over 59 years old. According to an Ipsos-France poll, during the first round of the 2022 Presidential elections, the *Rassemblement National* was stronger among those under 60 years old. Our leads and lags are not statistically significant, and we cannot conclude that closing a school leads a municipality to lose population for any cohorts.

Figure 11: Effect of closing a school on registered voters

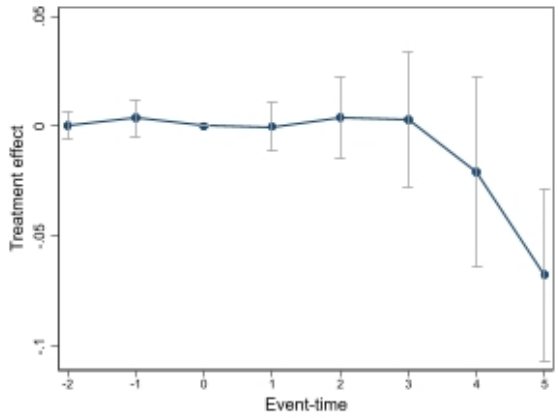
(a) Registered voters



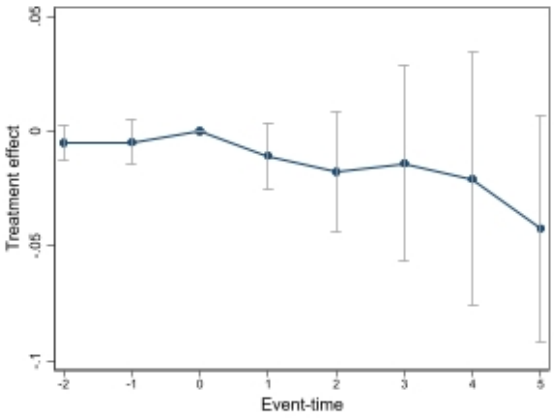
(b) 20 to 39 years old population



(c) 40 to 59 years old population



(d) $>$ 59 years old population



Notes. The dependent variables are the log number of registered voters in (a), the (log) population between 20 and 39 years old in (b), the (log) population between 40 to 59 years old in (c), the (log) population above 60 years old. In the figure, each point and the 95 percent confidence interval in red, represent the treat-control difference from estimating Equation (1). The regression further includes a municipality-level specific trend. Control group are municipalities that never have a school. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

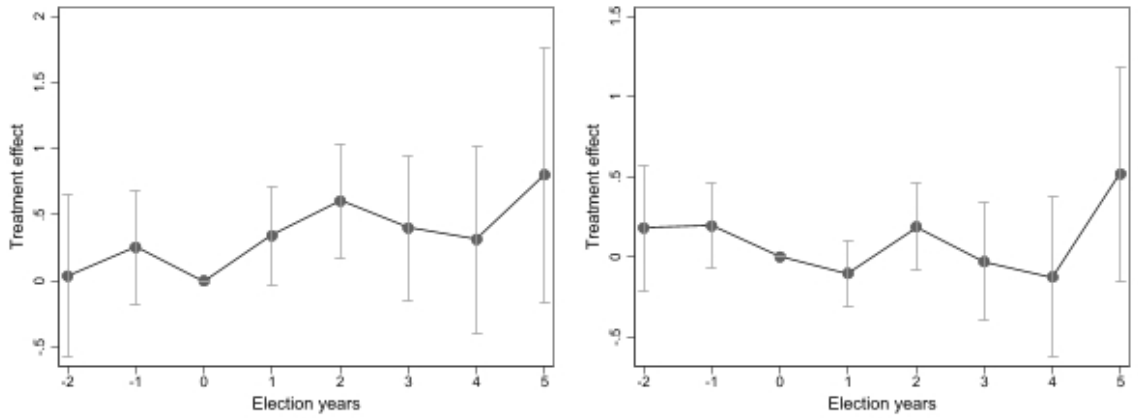
in Section 5. In Figure 12, we use as a treatment group municipalities without a school but with a school closure in a neighboring municipality; the control group is the municipalities without a school and without a school closure in a neighboring municipality.

In Figure 12b, the treatment group is municipalities with one school and with a

school closure in a neighboring municipality (but not in their own), and the control group is municipalities with one school without a school closure in their municipality or neighbor. In the first case, the effects are smaller than in the directly treated municipalities, while in the second case, when there is a closure in a neighboring municipality but the municipality has its own school, there is no effect since the municipality is not affected.

Figure 12: Treatment dynamics - Effect of a school closure on Rassemblement National voting in neighboring municipalities

(a) Municipalities without school (b) Municipalities with one school



Notes. In the figure, each point and the 95 percent confidence interval, represent the treat-control difference from estimating Equation (1). Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

7 Conclusion

We study the electoral impact on the vote for the far-right in France at the municipal level. Our estimates employ a matched difference-in-differences design. In municipalities with one school, located mostly in rural areas, losing access to this public service increases votes for *Rassemblement National*, the most successful far-right party in France, by 0.597 percentage points in the following election. The effect continued to grow in the next three elections, and approximately 15 years later, municipalities that lost their school voted 1.490 percentage points more on

the RN than municipalities without a school closure. In municipalities with more than one school, a school closure does not seem to impact far-right voting, suggesting the political impact of school closures is a question of absolute access rather than density of access.

Our findings have important policy implications and inform the global debate on the geography of far-right voting. In particular, policymakers should consider policies that consider the revitalization of rural areas through continued access to public services. Investing in these regions is also a matter of political survival for mainstream political actors, furthering the quality of democracies.

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A Political orientations

We allocate presidential candidates into six political orientations (far-left, left, green, liberal, right, and far-right), considering their parties and following the Chapel Hill Expert Survey (Jolly et al. (2022)). The following tables show the mapping between candidates, political labels, and orientations.

1995 Presidential Elections		
Name of the candidate	**Party**	**Political orientation**
Lionel Jospin	Socialist	Left
Jacques Chirac	Rassemblement pour la République	Right
Édouard Balladur	Union pour la Démocratie Française	Liberal
Jean-Marie Le Pen	Front National	Far-right
Robert Hue	Parti Communiste Français	Far-left
Arlette Laguiller	Lutte Ouvrière	Far-left
Philippe de Villiers	Mouvement pour la France	Right
Dominique Voynet	Les Verts	Green
Jacques Cheminade	Fédération pour une Nouvelle Solidarité	Left

2002 Presidential Elections		
Name of the candidate	**Party**	**Political orientation**
Jacques Chirac	Rassemblement pour la République	Right
Jean-Marie Le Pen	Front National	Far-right
Lionel Jospin	Socialiste	Left
François Bayrou	Union pour la Démocratie Française	Liberal
Arlette Laguiller	Lutte Ouvrière	Far-left
Jean-Pierre Chevènement	Mouvement des Citoyens	Left
Noël Mamère	Les Verts	Green
Olivier Besancenot	Ligue Communiste Révolutionnaire	Far-left
Jean Saint-Josse	Chasse, Pêche, Nature et Traditions	Right
Alain Madelin	Démocratie Libérale	Right
Robert Hue	Parti Communiste Français	Far-left
Bruno Mégret	Mouvement National Républicain	Far-right
Christiane Taubira	Parti Radical de Gauche	Far-left
Corinne Le Page	Cap21	Green
Christine Boutin	Forum des Républicains Sociaux	Right
Daniel Gluckstein	Parti des Travailleurs	Far-left

2007 Presidential Elections		
Name of the candidate	**Party**	**Political orientation**
Nicolas Sarkozy	Union pour un Mouvement Populaire	Right
Ségolène Royal	Parti Socialiste	Left
François Bayrou	Union pour la Démocratie Française	Liberal
Jean-Marie Le Pen	Front National	Far-right
Olivier Besancenot	Ligue Communiste Révolutionnaire	Far-left
Philippe de Villiers	Mouvement pour la France	Far-right
Marie-George Buffet	Parti Communiste Français	Far-left
Dominique Voynet	Les Verts	Green
Arlette Laguiller	Lutte Ouvrière	Far-left
José Bové	Divers de gauche (no party affiliation)	Left
Frédéric Nihous	Parti Chasse, pêche, nature et traditions	Right
Gérard Schivardi	Parti des Travailleurs	Far-left

2012 Presidential Elections		
Name of the candidate	**Party**	**Political orientation**
François Hollande	Parti Socialiste	Left
Nicolas Sarkozy	Union pour un Mouvement Populaire	Right
Marine Le Pen	Front National	Far-right
Jean-Luc Mélenchon	Parti de Gauche	Far-left
François Bayrou	MoDem	Liberal
Eva Joly	Europe Écologie les Verts	Green
Nicolas Dupont-Aignan	Debout la République	Far-right
Philippe Poutou	Nouveau Parti Anticapitaliste	Far-left
Nathalie Arthaud	Lutte Ouvrière	Far-left
Jacques Cheminade	Solidarité et Progrès	Far-left

2017 Presidential Elections		
Name of the candidate	**Party**	**Political orientation**
Emmanuel Macron	En Marche	Liberal
Marine Le Pen	Front National	Far-right
François Fillon	Les Républicains	Right
Jean-Luc Mélenchon	La France Insoumise	Far-left
Benoît Hamon	Parti Socialiste	Left
Nicolas Dupont-Aignan	Debout la France	Far-right
Jean Lassalle	Résistons	Right
Philippe Poutou	Nouveau Parti Anticapitaliste	Far-left
François Asselineau	Union Populaire Républicaine	Far-right
Nathalie Arthaud	Lutte Ouvrière	Far-left
Jacques Cheminade	Solidarité et Progrès	Far-left

2022 Presidential Elections		
Name of the candidate	**Party**	**Political orientation**
Emmanuel Macron	En Marche	Liberal
Marine Le Pen	Rassemblement National	Far-right
Jean-Luc Mélenchon	La France Insoumise	Far-left
Éric Zemmour	Réconquête	Far-right
Valérie Pécresse	Les Républicains	Right
Yannick Jadot	Europe Écologie les Verts	Green
Jean Lassalle	Résistons	Right
Fabien Roussel	Parti Communiste Français	Far-left
Nicolas Dupont-Aignan	Debout la France	Far-right
Anne Hidalgo	Parti Socialiste	Left
Philippe Poutou	Nouveau Parti Anticapitaliste	Far-left
Nathalie Arthaud	Lutte Ouvrière	Far-left

B Methodology

Difference-in-differences require that, in the absence of treatment, the average outcomes for the treated and control groups would have followed parallel paths over time. As referred by Abadie (2005), this assumption may be implausible if pre-treatment characteristics associated with the dynamics of the outcome variable are unbalanced between the two groups. We match control and treated municipalities regarding their characteristics in 1995, as referred in Section 5. We follow Hainmueller (2012) and use entropy balancing to reweight observations to achieve balance.

Table B1: Descriptive statistics by closing and non-closing municipalities

	Closed	Not closed	Closed balanced	Not closed balanced
RN vote share	14.11	12.82	14.11	13.36
unemployment share	0.08	0.09	0.08	0.08
agriculture sector share	0.43	0.55	0.43	0.43
industry sector share	0.11	0.08	0.11	0.11
civil construction share	0.10	0.09	0.10	0.10
tertiary sector share	0.36	0.29	0.36	0.36
less than high school share	0.84	0.82	0.84	0.84
high school share	0.09	0.09	0.09	0.09
higher education share	0.08	0.09	0.08	0.08
babies (<5 years old)	0.06	0.05	0.06	0.06
children (5-9 years old)	0.06	0.06	0.06	0.06
young (10-24 years old)	0.18	0.16	0.18	0.18
adults (25-64 years old)	0.50	0.51	0.50	0.50
elderly (>64 years old)	0.19	0.21	0.19	0.19
population	238.21	137.19	238.21	310.96
density	30.32	18.69	30.32	30.31
rural	0.98	1.00	0.98	0.98
vacant housing	0.08	0.09	0.08	0.08
Observations	1605	5296	1605	5296

Source: INSEE - French censuses (1990, 1999). A linear interpolation is performed to convert data annually. The table compares municipalities that experienced the closure of their only school between 1995 and 2017 (closed) and those that did not have a school (not closed). Values correspond to the mean and in the last two columns are reweighted using entropy balancing.

B0

C Results

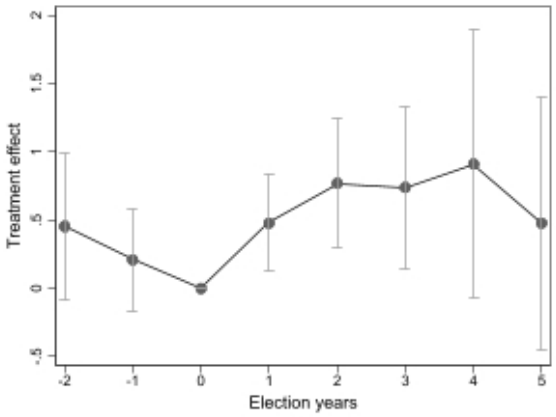
C.1 Presidential elections

Table C1: Descriptive statistics by closing and non-closing municipalities (Treatment and control group: municipalities with one school)

	(1)	(2)	(3)	(4)
	Closed	Not closed	Closed	Not closed
	mean	mean	mean	mean
RN vote share	14.11	13.52	14.11	13.00
unemployment share	0.08	0.09	0.08	0.08
agriculture sector share	0.43	0.32	0.43	0.43
industry sector share	0.11	0.14	0.11	0.11
civil construction sector share	0.10	0.11	0.10	0.10
tertiary sector share	0.36	0.43	0.36	0.36
less than high school share	0.84	0.82	0.84	0.84
high school share	0.09	0.09	0.09	0.09
higher education share	0.08	0.09	0.08	0.08
babies (<5 years old)	0.06	0.06	0.06	0.06
children (5-9 years old)	0.06	0.07	0.06	0.06
young (10-24 years old)	0.18	0.18	0.18	0.18
adults (25-64 years old)	0.50	0.51	0.50	0.50
elderly (>64 years old)	0.19	0.18	0.19	0.19
population	238.21	509.71	238.21	254.16
density	30.32	48.18	30.32	30.34
rural	0.98	0.95	0.98	0.98
vacant housing	0.08	0.08	0.08	0.08
Observations	1605	5724	1605	5724

Source: INSEE - French censuses (1990, 1999). A linear interpolation is performed to convert data annually. The table compares municipalities that experienced the closure of their only school between 1995 and 2017 (closed) and those that did not and do not have a school or have one (not closed). Values correspond to the mean, and the last two columns are reweighted using entropy balancing.

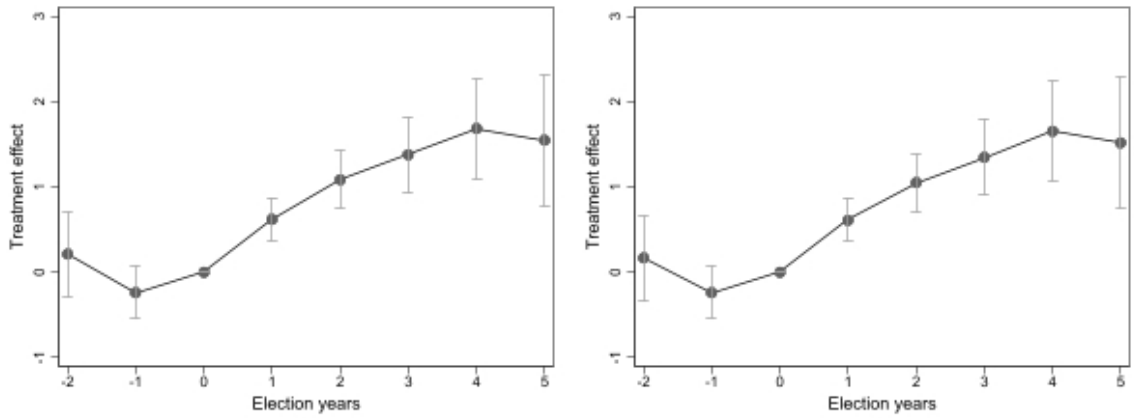
Figure C.1: Treatment dynamics - Effect of a school closure on Presidential elections (Treatment and control group: municipalities with one school)



Notes. In the figure, each point and 95 percent confidence interval, represent the treat-control difference from estimating Equation (1). The control group is municipalities with one school. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

Figure C.2: Treatment dynamics - Effect of a school closure on Rassemblement National voting in Presidential elections

(a) Without matching (b) With control variables

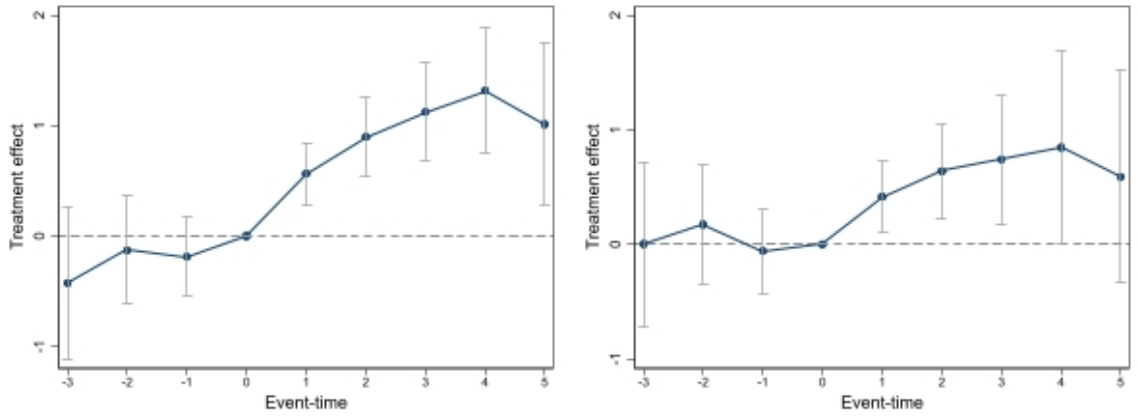


Notes. In the figure, each point and 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Panel (a) reports event study estimation results for municipalities with one school without matching, and panel (b) without matching but adding control variables. The control group is municipalities without a school and not yet treated. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

Figure C.3: Treatment dynamics - Effect of a school closure on Rassemblement National voting in Presidential elections (Traditional two-way fixed effects method)

(a) Control group: municipalities without a school

(b) Control group: municipalities with 1 school

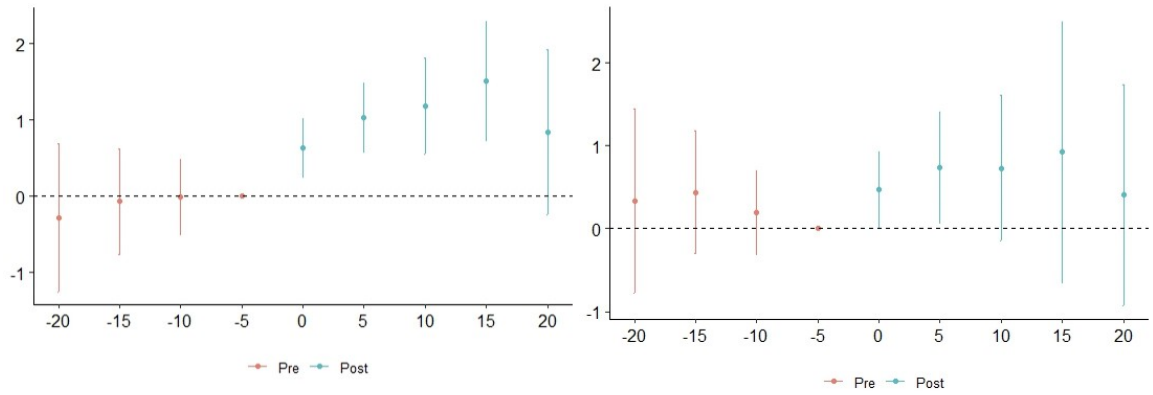


Notes. In the figure, each point and the associated 95 percent confidence interval represent the treat-control difference from estimating Equation (1) using the traditional two-way fixed effects. Panel (a) reports event study estimation results for treated municipalities with one school and control municipalities without a school, (b) the control group is municipalities with one school that never closed. Matching is performed using entropy balancing. The control group is municipalities without a school and not yet treated. Standard errors are clustered at the municipality level.

Figure C.4: Treatment dynamics - Effect of a school closure on Rassemblement National voting in Presidential elections (Callaway and Sant'Anna (2021) estimator)

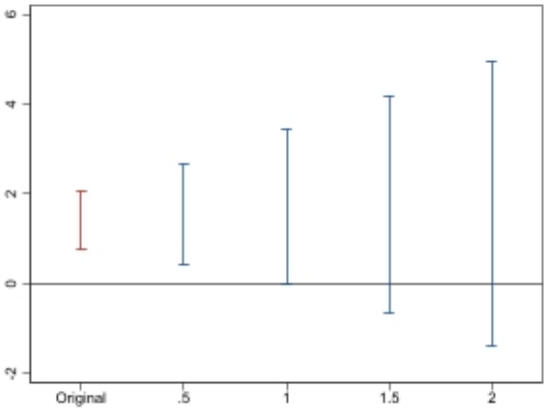
(a) Control group: municipalities without school

(b) Control group: municipalities with 1 school



Notes. In the figure, each point and the associated 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Panel (a) reports event study estimation results for treated municipalities with one school and control municipalities without a school, (b) the control group is municipalities with one school that never closed. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of Callaway and Sant'Anna (2021).

Figure C.6: Robustness of parallel trends assumption (testing for the De Chaisemartin and d'Haultfoeuille (2020) estimator)

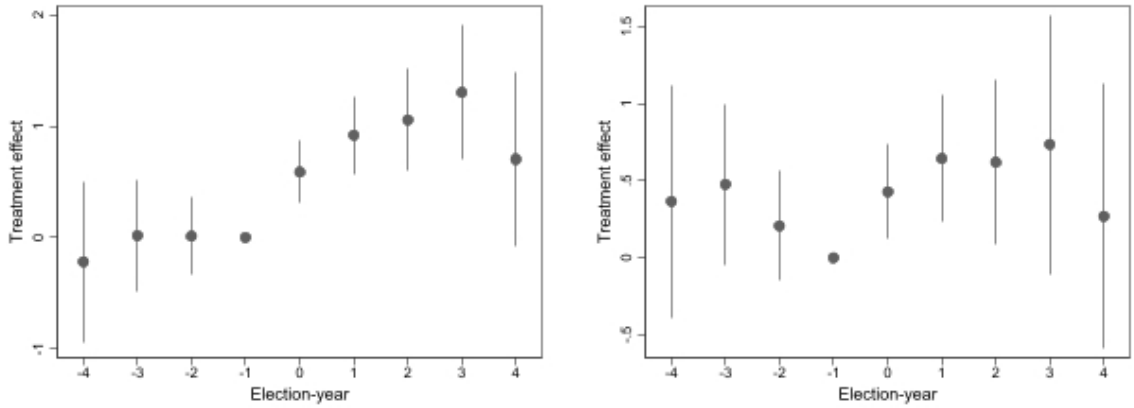


Notes. The figure reports a sensitivity analysis using Rambachan and Roth (2023) honestdid Stata package. The red confidence interval is our main estimate (Figure 4). The blue confidence intervals allow for non-linearity in the difference in trends between the treated and control units. The x-axis shows the amount of non-linearity (0 requires that the difference in trends are linear). M bounds the magnitude of possible non-linearity in the counter-factual difference in trends. The outcome is votes on the *Rassemblement National*.

Figure C.5: Treatment dynamics - Effect of a school closure on Rassemblement National voting in Presidential elections (Sun and Abraham (2021) estimator)

(a) Control group: municipalities without school

(b) Control group: municipalities with 1 school



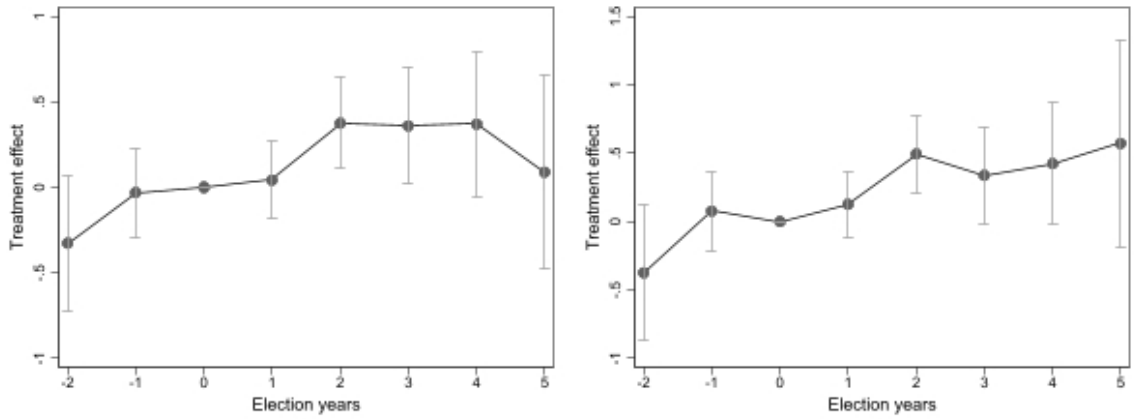
Notes. In the figure, each point and the associated 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Panel (a) reports event study estimation results for treated municipalities with one school and control municipalities without a school, (b) the control group is municipalities with one school that never closed. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of Sun and Abraham (2021).

C.2 Heterogeneous effects

Figure C.7: Treatment dynamics - Effect of the only school in the municipality closing on abstention rate in Presidential elections

(a) Control group: municipalities without school

(b) Control group: municipalities with 1 school

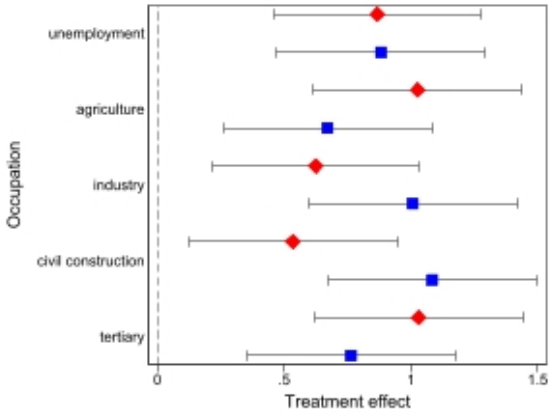


Notes. In the figure, each point and the 95 percent confidence interval represent the treat-control difference from estimating Equation (1). Panel (a) and (b) report event-study estimation results for treated municipalities with one school that eventually closed. Matching is performed using entropy balancing. Standard errors are clustered at the municipality level. Graph obtained using the estimator of De Chaisemartin and d'Haultfoeuille (2020).

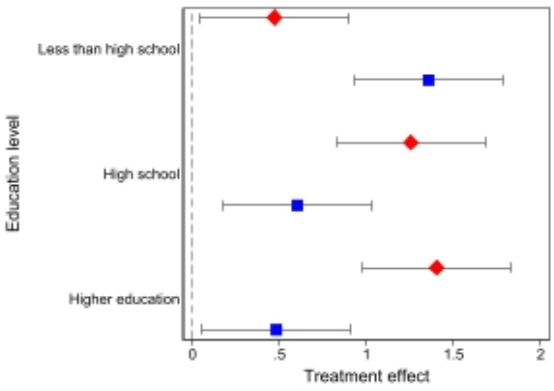
C.2.1 Municipalities' characteristics

Figure C.8: Treatment heterogeneity by municipality characteristics in 1995 - Average effect of closing a school on Rassemblement National voting in the Presidential elections

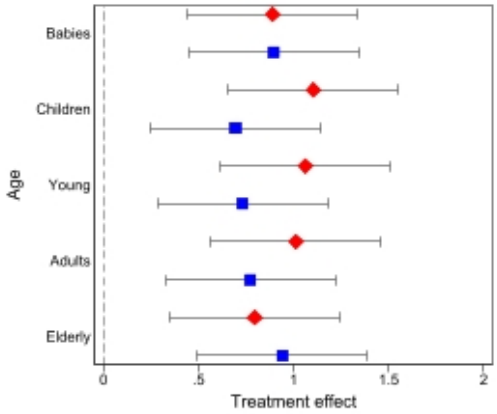
(a) Occupation sector



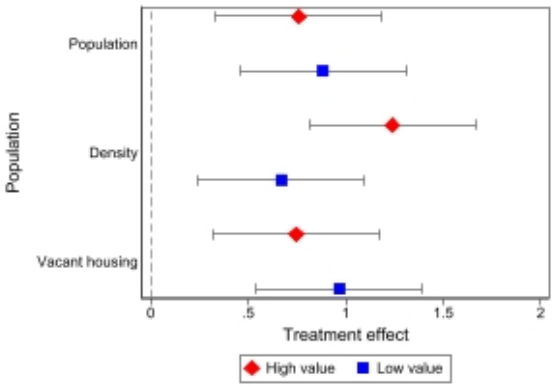
(b) Education



(c) Age



(d) Characteristics



Notes. The incertitude of each point is asserted with 95% confidence intervals. Estimated β from equation (1) in the full sample specification.