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The Mosque Nearby: Visible Minorities and Far-Right Support in France

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The Mosque Nearby

Visible Minorities and Far-Right Support in France*

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Abstract

How is support for right-wing populist parties affected by exposure to Muslim visibility? Using an original database on French mosques, this article analyzes the relationship between the presence of mosques and support for the Front National at the polling station level in the late 2000s. It finds that the propensity to vote for the Front National increases in polling stations up to intermediate distances from mosques and then decreases, suggesting a spatial mechanism known as the halo effect. The analysis also shows that larger mosques and those with minarets are associated with an accentuated halo effect, suggesting the importance of the salience of minority groups rather than their relative size in influencing political behavior.

Keywords Radical right, mosque, immigration, France, halo effect

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I. Introduction

The rise of populist radical right (PRR) parties has dramatically altered Europe's political landscape since the turn of the century, making the far-right family of parties its fastest-growing force (Golder, 2016). The Front National in France epitomizes the different stages of this electoral consolidation: from political marginalization in the early 1970s, the Front National had its major breakthrough when it reached the second round of a presidential election for the first time in 2002. It has now consolidated its role as a major force in the French electoral arena, winning 41 percent of the vote in the second round of the 2022 presidential election and 31 percent in the 2024 European elections.[1]

A number of contextual factors have been proposed to explain this increase, such as deprivation and unemployment (Arzheimer, 2009; Dustmann, Frattini and Preston, 2013; Dustmann, Schönberg and Stuhler, 2016), exposure to crime (Dinas and van Spanje, 2011; Jardin et al., 2021), or concerns about the provision of public services and welfare (Kavanagh, Menon and Heinze, 2021; Cavaillé and Ferwerda, 2023). Among these factors, the presence of immigrants looms large, with PRR parties framing immigration as a threat to Western culture. Anti-immigrant attitudes crystallized further with the refugee crisis that hit Europe in 2014, placing cultural concerns and Muslim immigration at the center of PRR political platforms (Golder, 2016).

The complex relationship between immigration and support for far-right parties has been rationalized through three competing conceptual frameworks: competition theory, group threat theory, and intergroup contact theory (Alesina and Tabellini, 2024). Competition theory postulates that anti-immigrant sentiment is based on material conflict between native and immigrant groups over scarce resources such as jobs, housing, or welfare benefits (Olzak, 1992). Accordingly, higher immigration fosters support for anti-immigrant parties, especially among lower-class natives, because the unemployment effects of immigration may be detrimental to their well-being.[2] Alternatively, group threat theory suggests that immigrants pose a threat to national identity and culture. In this perspective, motives are ideational, non-economic determinants predominate, and particular cultural characteristics of the minority outgroup play a critical role in majority reactions. Group threat theory has found support in both cross-national and sub-national contexts.[3] Nevertheless, more

[1]The Front National changed its name to Rassemblement National ("National Rally") in 2018.

[2]See Lewis-Beck and Mitchell (1993), Dancygier and Donnelly (2013), Polavieja (2016), Becker, Fetzer and Novy (2017), Halla, Wagner and Zweimüller (2017), Pardos-Prado and Xena (2019), and Bolet (2020).

[3]For evidence in cross-national contexts, see, e.g., Knigge (1998), Lubbers, Gijsberts and Scheepers (2002), and Golder (2003). For evidence in sub-national contexts, see Coffé, Heyndels and Vermeir (2007) for Belgium, Harmon (2018) for Denmark, Otto and Steinhardt (2014), Bredtmann (2022), and Endrich (2023) for Germany, Dinas et al. (2019) and Hangartner et al. (2019) for Greece, Gessler, Tóth and Wachs (2022)

localized analyses indicate that (quality) contact between minority and majority members can mitigate prejudice against minority group members, thereby reducing support for anti-minority policies.[4] In France, while large immigrant populations are associated with greater electoral success for the Front National at the département level (Edo et al., 2019), this association is reversed at the more disaggregated municipal level (Della Posta, 2013; Vasilopoulos, McAcay and Brouard, 2022; Vertier, Viskanic and Gamalerio, 2023). Accordingly, intergroup contact theory posits that long-term exposure to out-groups shapes more positive views and altruistic behaviors toward these groups (Allport, 1954; Quillian, 1995; Pettigrew and Tropp, 2006).

The image of a halo has been proposed to rationalize these mixed findings.[5] According to halo theory, "individuals living adjacent to ethnically diverse areas experience sporadic contact with immigrants through daily commuting and retail activities, but lack quality contact and therefore will be more likely to perceive those groups as a threat, resulting in higher support for the PRR" (Evans and Ivaldi, 2021, p. 825). Halo theory has been used to better understand the electoral success of the Front National since the mid-1980s, at both the local and national levels (Perrineau, 1985; Rey and Roy, 1986; Bon and Cheylan, 1988; Etchebarne, 1996*a*; Schwengler, 2003; Della Posta, 2013). More recently, Evans and Ivaldi (2021) have examined the spatial mechanisms at work in the halo effect, finding that individuals in locations with dense immigrant communities are less predisposed to vote for a Front National candidate than those in locations within traveling distance of such dense immigrant areas.

At the heart of halo theory is the nature of interactions between minority and majority group members. Under what conditions do social interactions lead to backlash reactions on the part of majority members? Conversely, what socioeconomic contexts facilitate intergroup appeasement and prejudice reduction? This article takes a fresh look at these questions by empirically examining the relationship between exposure to Muslim visibility and voting

for Hungary, Barone et al. (2016) and Bratti et al. (2020) for Italy, Mendez and Cutillas (2014) for Spain, Berning (2016) and Brunner and Kuhn (2018) for Switzerland, Mayda, Peri and Steingress (2022) for the United States, and Georgiadou, Rori and Roumanias (2018) for a meso-analysis across 28 countries in Europe.

[4]See Steinmayr (2021) for Austria, Dustmann, Vasiljeva and Damm (2019) for Denmark, Lonsky (2021) for Finland, Kellermann and Simon (2022) and Fremerey, Hörnig and Schaffner (2024) for Germany, Gamalerio et al. (2023) for Italy, and Bursztyn et al. (2024) for the United States. In contrast, Hennig (2021), Schaub, Gereke and Baldassarri (2021), Pettrachin et al. (2023) find null effects. More generally, see Cools, Finseraas and Rogeberg (2021) for a meta-analysis of the literature on the effects of local immigration and electoral support for PRR parties. On the role of the spatial unit of analysis in the relationship between the presence of immigrant populations and perceived group threat, see Biggs and Knauss (2012), Weber (2015), and Kaufmann and Goodwin (2018).

[5]See David, Pilet and Hamme (2018) for Belgium, Rydgren and Ruth (2013) for Sweden, Martig and Bernauer (2018) for Switzerland, Bowyer (2008) for the United Kingdom, and Miller and Grubesic (2021) for the United States.

behavior at the polling station level in France during the 2007 presidential, 2009 European, and 2010 regional elections. Building on an original dataset of French mosques and combining election results with infra-municipal socio-economic data, we make three contributions.

First, our analysis focuses on the Muslim affiliation of immigrant populations rather than their ethnicity or nationality of origin. Indeed, Islam increasingly crystallizes fears and anxieties in European societies, with individuals perceived as Muslims facing particularly strong hostility and discrimination compared to other minority groups in France (Bleich, 2009; Adida, Laitin and Valfort, 2017). Moreover, Islamophobia has gradually become the primary populist paradigm of European far-right movements (Brubaker, 2017), with 9/11 serving as a turning point in this renewed agenda (Kallis, 2018). Responding to the need for a better understanding of the religious dimension of the anti-migrant backlash (Aranguren and Madrisotti, 2019; Choi, Poertner and Sambanis, 2019), we examine the relationship between electoral support for the Front National and the presence of mosques, a visible marker of Islam at the neighborhood level.

Second, we explore the electoral implications of the differential visibility of the minority group rather than its relative size. In doing so, our work complements a recent trend in immigration research that pays attention to the salience of immigrant populations rather than their size (Newman and Velez, 2014), focusing on visual cues of Muslim presence (Bornioli et al., 2023) rather than other forms of salience such as media attention (Hopkins, 2010; Couttenier et al., 2024). Close to our approach, Colussi, Isphording and Pestel (2021) analyze the electoral effects of the increased salience of Muslim communities during Ramadan in Germany. Closer still, Gravelle, Medeiros and Nai (2021) measure how spatial proximity to mosques (especially those with minarets) shapes individuals' support for the radical right in the Netherlands.[6] Our research follows this approach by focusing on visible, distinctive institutions – mosques or prayer houses – that gather worshipers for daily Islamic prayers and during Friday congregations, and that constitute key features of the built environment. Rather than the mere presence of immigrants, we show that the salience of cultural difference has significant implications for ethnocentric attitudes. Our work is thus close to Overos and Sauer (2023), which analyzes the linear relationship between Islamic and Catholic religious buildings – based on volunteered geographic information – and commune-level voting patterns in the 2017 French presidential election.

Third, we shift the analysis to the neighborhood level. Since contextual explanations of far-right support focus on social interactions, it is important to focus on the micro level

[6]In contrast to Gravelle, Medeiros and Nai (2021), we examine aggregate polling station-level data on electoral outcomes rather than individuals' declarations of party preferences, and provide a precise estimate of the distance at which the presence of mosques affects voter polarization.

where (lack of) intergroup contacts operate. In doing so, we consider polling stations, which are smaller levels of aggregation than both municipalities and IRISs, the infra-municipal statistical unit in France—in comparison, Colussi, Isphording and Pestel (2021) focus on German municipalities, Overos and Sauer (2023), on French municipalities, while Gravelle, Medeiros and Nai (2021) use Dutch four-digit postal codes to localize their respondents.[7] Moreover, our granular approach enables us to address the literature on the implications of neighborhood-level ethnic composition on individual voting for far-right parties (Savelkoul, Laméris and Tolsma, 2017; de Blok and van der Meer, 2018; Fremerey, Hörnig and Schaffner, 2024).

Using variation in distance to the (same) nearest mosque across polling stations and controlling for the presence of local immigrants, we find that the propensity to vote for the Front National increases in polling stations up to intermediate distances from mosques (16 kilometers) and then decreases, enacting the distinctive curvilinear relationship implied by the halo hypothesis. Moreover, we find that mosque visibility matters: buildings with a minaret and a larger surface area are associated with accentuated far-right support in intermediate polling stations up to 10–4 kilometers away from mosques. Thus, our findings help reconcile both intergroup contact theory – significant, high-quality interactions between Muslims and non-Muslims within neighborhoods where mosques are located lead to lower shares of the far-right vote – and competition and group threat theory—rare or fleeting contacts between Muslims and non-Muslims in neighborhoods at intermediate distances from the mosque lead to higher shares of the far-right vote.

The remainder of this article is organized as follows. In Section II, we document the rise of the far-right party in France and the concomitant emergence of Islamic places of worship. We then describe the data in Section III and present the empirical strategy and results in Section IV. Finally, we provide an interpretation and discussion of our findings in Section V.

II. Background

In this section, we review the rise of the Front National in France and examine the concomitant settlement of Muslim populations on the French territory, with Muslim identity increasingly presented by far-right politicians as a distinct and incompatible cultural trait.

[7]IRIS stands for *Îlots regroupés pour l'information statistique* ("Clusters grouped for statistical information") and represent blocks of 2,000 inhabitants. These statistical units are defined by the French National Institute of Statistics (INSEE) in municipalities with more than 5,000 inhabitants.

II.A. The Rise of the Front National

Beginning in the early 1980s, a new wave of far-right activism swept across Europe, with far-right parties participating in coalition governments in Austria, Croatia, Estonia, Finland, Italy, Latvia, the Netherlands, Poland, Serbia, Slovakia, and Switzerland. Other far-right movements played a key role in national politics in France, Belgium, and Hungary (Golder, 2016).

In France, the main PRR party – the Front National – was formed in 1972 from a disparate coalition of ultra-nationalist groups. It gradually emerged as a viable political force in the 1980s, making its first breakthrough in the 1984 European elections. Its electoral platform quickly stabilized around a few guiding principles: welfare-chauvinist policies, opposition to immigration, rejection of European integration, and virulent anti-Semitism (Camus, 1996). Throughout the 1980s and 1990s, the politicization of postcolonial immigration, crime, and insecurity became the main drivers of electoral support for the Front National. Yet no single explanation can account for its steady rise: while core supporters of the Front National generally vote on ideological grounds, a majority use this vote as a means to protest against traditional political elites (Etchebarne, 1996*b*). In fact, Front National voters are far from socially homogeneous, although they share some characteristics (Mayer, 2015): a strong attachment to conservative moral values on the family, same-sex relations, and religion; low educational attainment; low-skilled occupational status, especially blue-collar workers and small shopkeepers; and a male majority. The Front National's electoral breakthrough began in large urban areas and suburbs, especially in industrial regions. Since the early 2000s, however, a shift has occurred, with the party attracting more and more voters from rural areas (Gombin, 2015*b*; Huc, 2019).

Of particular interest to our analysis, the Front National has increasingly mobilized a distinctly anti-Muslim rhetoric, defining the cultural enemy in religious rather than racial terms. This exclusivist vision of national citizenship consists in presenting Islam as fundamentally incompatible with liberal-democratic values, with the notion of "Islamization" becoming a regular feature of the party's xenophobic discourse since the 1990s (Mudde, 2013; Alduy and Wahnich, 2015). This development fits into a broader Western European populist conjuncture characterized by "civilizationalism" and the notion of a civilizational threat from Islam (Brubaker, 2017).

II.B. Mosques, Immigration, and Islam in France

The historical process of mosque construction in France reflects the progressive settlement of Muslim populations in the country. A handful of mosques were built in the first half of the

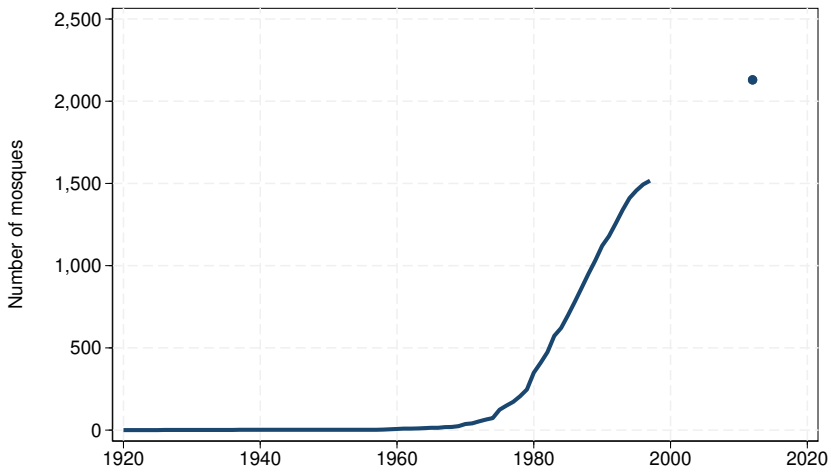


Figure 1. Number of Mosques (1920–1997, 2012)

Notes. This figure displays the cumulative number of mosques by construction date among the mosques that existed in 1997, as well as the number of mosques that existed in 2012. Of the 1,590 mosques that existed in 1997, only 1,517 are shown in the figure because the construction dates of 72 of them are unknown. See Section III.D for details on data sources.

twentieth century to accommodate colonial subjects, most notably the *Grande mosquée de Paris* in 1926 (Boyer, 1992; Sbaï, 2006; Davidson, 2009). With the arrival of immigrants from North Africa after World War II, mosques and Islamic prayer rooms spread throughout the French territory. In the 1970s, the construction of mosques was supported by the government in order to dampen return migration by nurturing workers' identification with Islam (Davidson 2012). At the time, the vast majority of mosques were located in factories and migrant workers hostels (*foyers*), out of sight of the majority population. A shift occurred in the late 1970s and 1980s, reflecting the permanent settlement of Muslim communities through family reunification regulations in the late 1970s (Cesari, 1994) and the 1981 law authorizing the creation of associations by foreigners. From then on, mosques flourished in neighborhoods with a high concentration of immigrant populations (Jouanneau, 2013), especially near subsidized public housing (HLM, or *habitations à loyer modéré*). From 131 mosques and prayer rooms in 1976 – most of which were located out of sight in *foyers*– the number of mosques rose to 941 in 1986 (Legrain, 1986), 1,590 in 1997, and 2,130 in 2012. Figure 1 displays the evolution of the number of mosques from the 1920s to 2012, making apparent the upward trend in the proliferation of mosques since the 1970s.

In addition to their proliferation, mosques and Islamic prayer rooms gradually took on new social functions: not only ritual purposes (daily Islamic prayers and gatherings for religious holidays), but also the provision of Islamic education for children and youth on weekends, sports activities, family mediation, and vocational training (Jouanneau, 2013).

These dynamics undoubtedly increased the visibility of mosques at the neighborhood level and attracted a diverse range of worshipers and beneficiaries to their premises on a regular basis. Finally, the late 1990s and 2000s witnessed the construction of purpose-built mosques – some with domes and minarets – that are more conspicuous than their predecessors, both because of their location and their architecture. As of 2014, France counted 2,502 mosques and Islamic prayer rooms on its territory, gathering some 426,000 (mostly male) Muslim worshipers each Friday—attending Friday prayers in congregation is not a religious obligation for Muslim women.

As elsewhere in Europe (Allievi, 2010), the construction and presence of mosques in a given neighborhood tend to trigger anti-Muslim protests that far-right parties both orchestrate and capitalize on in their electoral campaigns. Cases of vehement local opposition have been documented by several qualitative studies, with mosques being portrayed by far-right activists as concrete threats to security and national identity (Allen, 2013; van Es, 2020; Faury, 2024). Pushing this agenda in the media (Amengay, 2020), the European PRR frames mosques and minarets as symbols of "islamization," making visible the supposed "Muslim enemy within" (Hafez, 2014). In France, political opposition to mosques by Front National supporters has been documented in electoral polls.[8]

III. Data

The analysis in this article takes advantage of two rich datasets: a relatively untapped dataset that combines election results at the polling station level (Section III.A) along with corresponding socio-economic and geographic information (Sections III.B and III.C) and an original dataset we constructed on mosque locations and characteristics (Section III.D). These data enable us to conduct a fine-grained analysis of voter radicalization according to the local salience of Muslim communities by calculating the exact distance between each polling station and its nearby mosque (Section III.E).

III.A. Election Data

Our analysis focuses on the Front National's electoral performance in three relatively recent elections: the first round of the 2007 presidential election, the 2009 European elections, and the first round of the 2010 regional elections. In contrast to Evans and Ivaldi (2021), Vasilopoulos, McAcay and Brouard (2022), and Overos and Sauer (2023), which consider a single election – the 2017 presidential election – we aim to examine a range of different

[8]See the statement in the 1995 *Enquête post-électorale française* that "[i]t would be normal for Muslims in France to have mosques" (*Il serait normal que les musulmans en France aient des mosquées*), with which Front National supporters are much more likely to disagree.

elections because the Front National's performance has historically varied across different types of elections. Indeed, the Front National first gained political legitimacy through municipal elections, as well as second-order elections such as European and regional elections (Ignazi, 1996). Presidential elections, on the other hand, are higher stakes and more difficult for fringe parties to enter. The 2002 presidential election was a milestone in this regard, marking the electoral zenith of the Front National's historic leader, Jean-Marie Le Pen, and the first time a far-right candidate made it to the presidential runoff.[9]

To study the results of these elections, we rely on a unique and relatively untapped data source: the CARTELEC database, which compiles electoral data for the three aforementioned elections at the level of polling stations in 2007 geography (Jadot et al., 2010; Beauguitte and Colange, 2013).[10] In 2007, there were about 36 thousand municipalities in metropolitan France, of which 6 thousand had more than one polling station, resulting in about 65 thousand polling stations. The number of polling stations in a municipality together with their constituencies are determined by the département-level authorities with the aim of drawing polling stations with 800 to 1,000 voters. All voters residing within the boundaries of a polling station are required to vote at that station, so there is a direct correspondence between a polling station and the residents of its constituency.[11]

Although the set of addresses that are part of a polling station is public, the Ministry of the Interior does not have a file that centralizes this information (Jadot et al., 2010, pp. 86–7).[12] As a result, the CARTELEC project had to aggregate this scattered information by going through each polling station in each département. Given the difficulty of the task, the compatibility problems with the data formats received, and the reluctance of the mayors of some relatively large municipalities to share this (albeit public) information, CARTELEC

[9]For the three elections under study, Jean-Marie Le Pen was the leader of the Front National before his daughter Marine Le Pen succeeded him in 2011, pursuing a "de-demonization" strategy aimed at bringing the party into the mainstream and moving away from its radical and anti-establishment rhetoric (Ivaldi, 2016).

[10]The website of the CARTELEC project is available at http://cartelec.univ-rouen.fr/ (accessed in July 2024). For more information, see also https://anr.fr/Projet-ANR-08-BLAN-0077. The availability of electoral data at the level of polling stations thus enables us to carry out an analysis *within* municipalities, while Overos and Sauer's (2023) is conducted *across* municipalities.

[11]A note on terminology: in this article, we use the term "polling station" for local electoral constituencies and refer to "polling booth" for the actual locations where voting takes place—there may be several voting booths in the same polling station, e.g., in a school or the town hall.

[12]In fact, it was not until 2023 that a (non administrative) nationwide shapefile of polling stations was produced and distributed at https://www.data.gouv.fr/en/datasets/proposition-de-contours-des-bureaux-de-vote/. Therefore, even though election data at the level of polling stations are available for other presidential (2002–22), legislative (2002–22), European (1999–2019), and cantonal (2001–11) elections at https://www.data.gouv.fr/fr/pages/donnees-des-elections-et-referendums/, we do not include them in the analysis as we cannot match polling stations to geographic coordinates for these elections (websites accessed in July 2024). On the challenges of constructing polling station-level shapefiles in France, see Gombin (2015*a*), Audemard and Gouard (2016), Josselin et al. (2016).

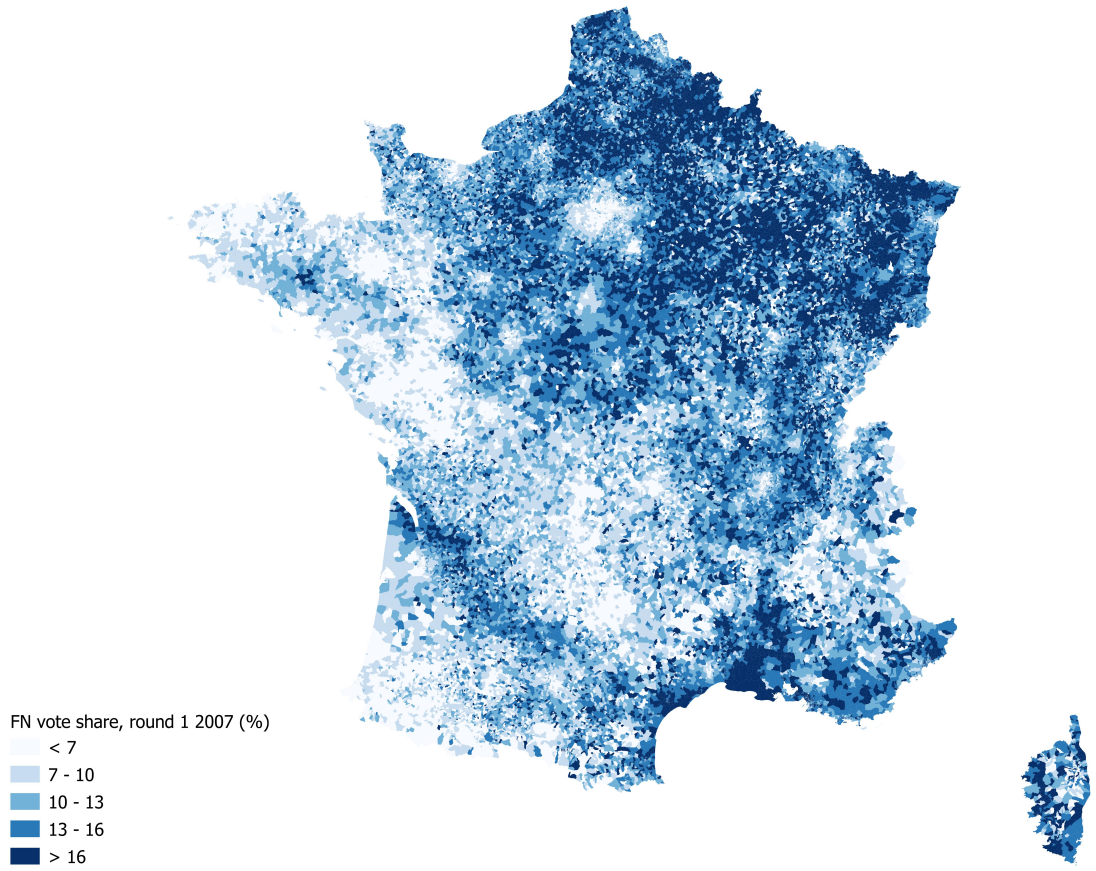


Figure 2. Front National Vote Share, Presidential Election 2007 (%)

Notes. This figure displays the vote share of the Front National in the first round of the 2007 presidential election at the level of the 50,147 polling stations for which this information is available in the CARTELEC database (Jadot et al., 2010; Beauguitte and Colange, 2013). Categories represent rounded quintiles of vote share across polling stations.

was only able to construct the geometries of 50,576 polling stations, including 742 municipalities divided into multiple polling stations.[13] CARTELEC then matched these polling stations with the results of the 2007, 2009, and 2010 elections.[14] Figure 2 displays the spatial distribution of the Front National's vote shares in the first round of the 2007 presidential election at the level of polling stations, based on the CARTELEC database.[15]

[13] We omit the two polygons representing Andorra and Monaco. In addition, CARTELEC shapefiles omitted two municipalities: Geiswiller in the département of Bas-Rhin and Saint-Raphaël in the département of Var.

[14] More precisely, of the 50,576 polling stations for which a geometry is defined, CARTELEC matched 50,147 with the results of the 2007 presidential election, 50,397 with those of the 2009 European elections, and 50,477 with those of the 2010 regional elections.

[15] Appendix Figure A.1 displays a similar map for the 2009 European elections, and Appendix Figure A.2, for the first round of the 2010 regional elections.

III.B. Socio-Economic Data

To capture the socio-economic environment at the level of polling stations, we also rely on the CARTELEC database, which complemented its election data with contextual information from the 2007 and 2008 censuses at the level of IRISs, equivalent to census tracts. To match polling station polygons to IRIS-level data, CARTELEC intersected both geometries and ventilated the data across polling stations, assuming a constant distribution of population across polygon areas (Beauguitte and Colange, 2013, pp. 10–2). As census information is not published for municipalities with less than 100 inhabitants due to confidentiality considerations, the CARTELEC database contains socio-economic information for 46,723 of the 50,576 polling stations for which a geometry is available. This information includes the distribution of the population by age, educational attainment, and housing type.[16] Essential for our purposes, it also provides the number of immigrants by polling station, i.e., the foreign population without the French nationality at birth.[17]

III.C. Geographic Data

We further complement the CARTELEC data with geographic information based on the location of polling stations within their territorial administrative framework. Since our hypothesis concerns how ordinary interactions between majority (non-Muslim) and minority (Muslim) group members shape political behavior, we are interested in capturing the areas where most daily social interactions are likely to occur. To this end, we use four statistical zonings defined by the National Institute of Statistics and Economic Studies (INSEE): life basins (*bassins de vie*), urban units (*unités urbaines*), urban areas (*aires urbaines*), and sensitive urban zones (*zones urbaines sensibles*).

First, we match polling stations to their respective statistical zoning into life basins

[16] More specifically, the CARTELEC database provides the population of each polling station along the following age groups: 0–17, 18–24, 25–39, 40–54, 55–64, 65–79, and 80+; along the following socio-economic groups: farmers, artisans, tradesmen and business owners, managers and professionals, intermediary professions, employees, and workers; along the following educational attainment groups: no diploma, primary education diploma (CEP), lower secondary education diploma (BEPC), technical education diploma (CAP-BEP), upper secondary education diploma (BAC), lower tertiary education diploma (BAC+2), and higher tertiary education diploma (above BAC+2); and along the following housing groups: home owners, renters in regular housing, and renters in subsidised housing (HLM).

[17] Due to personal data protection regulations (Simon et al., 2019) and the French egalitarian and universal model of integration (Simon, 2010), public administrations do not collect information on individuals' religion or ethnicity—as is the case in about a third of countries worldwide (Morning, 2015) and nearly half of countries in Europe (Simon, 2012). The only relatively large-scale survey with this kind of information is the *Trajectories and Origins* (TeO) survey, with a sample of 22 thousand individuals in its first wave (Beauchemin, Hamel and Simon, 2018) and 27 thousand in its second wave (Beauchemin, Ichou and Simon, 2023). However, its regional stratification and the unavailability of the exact location of respondents prevent us from using this survey to capture the share of the Muslim population at the polling station level.

(*bassins de vie*). These zones represent the smallest areas within which residents have access to most public services and facilities, and capture the perimeter around which residents organize their daily lives (Brutel and Levy, 2012). In total, the French territory is divided into 1,641 life basins.[18] Because we consider these zones to be the relevant spaces where individuals experience most daily social interactions, we conduct the baseline analysis based on voters' proximity to mosques within these life basins—although we relax this constraint to test the robustness of our results.

To zoom in on spaces of more intense social interaction and to account for the largely urban location of mosques, we also match polling stations to their respective zoning into urban units (*unités urbaines*). Urban units are composed of spatially contiguous residential units with at least two thousand inhabitants. Although an urban unit includes at least one municipality, it often includes urban extensions covering several neighboring municipalities. A total of 2,233 urban units are defined over the territories of 7,224 municipalities, which host 77 percent of the population of mainland France.[19] Urban units are particularly interesting in our context because they are spaces where individuals experience intense social interactions due to residential proximity.

To further observe local social interactions, we also match polling stations to their respective zoning into urban areas (*aires urbaines*). Larger than urban units, urban areas capture intensive exchanges between places of residence and work. They concentrate at least fifteen hundred jobs and usually contain an urban ring. A total of 771 urban areas encompass 18,180 municipalities and 85 percent of the population of mainland France.[20]

Finally, we also collect information on whether a polling station contains a sensitive urban zone (*zone urbaine sensible*). These areas are defined by public authorities as high priority targets for urban policy. They are characterized by a high percentage of public housing, low home ownership, high unemployment, and a low percentage of high school graduates—all sorts of conditions that disproportionately affect immigrant populations. These 717 sensitive urban zones cover only a small fraction of the territory, concerning 4.4 million inhabitants. They are also generally much smaller than polling stations.[21]

[18] We use the zoning defined in 2012, which we match to the geography of 2007, since these zones were first established in 2012. The definition of life basins and the corresponding data files are available at https://www.insee.fr/fr/information/2115016 (accessed in July 2024).

[19] We use the zoning defined in 2010, which we match to the geography of 2007, as the previous zoning was defined in 1990. The definition of urban units and the corresponding data files are available at https://www.insee.fr/fr/information/2115018 (accessed in July 2024).

[20] We use the zoning defined in 2010, which we match to the geography of 2007, as the previous zoning was defined in 1990. The definition of urban areas and the corresponding data files are available at https://www.insee.fr/fr/information/2115011 (accessed in July 2024).

[21] The definition of sensitive urban zones and the corresponding shapefiles are available at https://www.data.gouv.fr/en/datasets/zones-urbaines-sensibles-zus/ (accessed in July 2024). To match these zones

To assess heterogeneity across areas with more intense social interactions among residents, we run the analysis sequentially on the subset of polling stations that are outside urban areas (which we define as rural), within urban areas but outside urban units (which we define as peri-urban), and within urban units (which we define as urban). We display the distribution of life basins, rural, peri-urban, and urban areas in Appendix Figure A.3.

III.D. Mosques Data

We create an original dataset of mosque locations based on two confidential files produced by the French Ministry of the Interior, which provide a census of all mosques present in the metropolitan territory in 1997 and 2012. These censuses offer significant advantages over other sources of data on mosques, whether from web-scraping or produced by Muslim or far-right anti-Muslim websites, which have been used in the few quantitative studies on the spatial distribution of Muslim presence in Europe (Ivaldi and Dutozia, 2018; Drouhot, 2020; Colussi, Isphording and Pestel, 2021; Gravelle, Medeiros and Nai, 2021; Gravelle, 2021; Overos and Sauer, 2023) but which suffer from significant quality shortcomings (Shelton, Zook and Graham, 2012; Sui, Elwood and Goodchild, 2013; Basiri et al., 2019). First, these are administrative files: they have been compiled by local intelligence officers – civil servants – who collect information on the ground as external observers.[22] Second, they provide substantial information about each mosque. The 1997 file includes the following information for the 1,589 mosques that existed at that time: their names, addresses, years of establishment, and attendance (number of worshipers). The 2012 file includes the following information for the 2,130 mosques that existed at that time: their names, addresses, sizes (in square meters), attendance (number of worshipers), and whether they had a minaret. Importantly, the availability of addresses in these files enables us to geocode the exact location of mosques using the API available through adresse.data.gouv.fr, which is based on the central database of addresses in metropolitan France, the *Base Adresse Nationale*.[23]

While the locations of mosques that existed at the time of the 2007, 2009, or 2010 elections remain unknown, we build on these administrative files in two ways to construct a realistic approximation of the mosques that existed then. A first approach is to match the

with polling stations, we intersect their geometries and consider that a polling station contains a sensitive urban zone if at least 10 percent of its area intersects with such a zone.

[22] Note that local intelligence officers may not be free of political bias when working in immigrant-populated neighborhoods, so that data produced by intelligence agencies on mosques may not always be considered neutral (Bonelli, 2001).

[23] For mosques in the 2012 file, we were able to geocode addresses at the street and house number level in 92 percent of cases (1,950 mosques). For 173 mosques, we do not have a house number, only a street. In these cases, we use the first house number in the street available in the *Base Adresse Nationale*. Finally, seven mosques do not have a street. In these cases, we attribute the municipality centroid.

1,589 mosques in the 1997 file with the 2,130 mosques in the 2012 file, and retain the subset of 1,053 mosques that are present in both files.[24] These matched mosques correspond to those that existed in 2012 and that were already established in 1997. This approach is conservative because it underestimates the number of mosques in 2007, 2009, or 2010 by excluding those established after 1997. A second approach is to keep all 2,130 mosques in the 2012 file, assuming that no mosque was established between 2007 and 2012. Given the upward trend in mosques during this period, this approach provides an upper bound on the number of mosques that existed in 2007, 2009, or 2010. Figure 3 displays the distribution of mosques resulting from both strategies. As expected given the urban settlement of Muslim immigrants and their descendants, mosques are overrepresented in urban areas—we describe below the socio-economic characteristics of the polling stations where mosques are located.

Table 1 reports summary statistics on the characteristics of mosques. Mosques in the 1997 file gathered an average of 92 worshipers and up to three thousand. The first was founded in 1926 (the *Grande mosquée de Paris*) and 36 percent hosted a Quranic school with an average of 58 students. Attendance increased over time, as the mosques in the 2012 file gathered an average of 187 worshipers. They also showed a high variability in their surface area, with a standard deviation of 673 square meters for a mean of 373. Finally, 83 mosques had a visible minaret. Panel B shows that these characteristics are broadly similar across the subset of mosques that are present in both the 1997 and 2012 files, suggesting limited selection bias in the matching process. The baseline analysis focuses on the sample of matched mosques because it provides a more conservative approximation of the distribution of mosques during the relevant elections. The information available for this set of matched mosques is also richer, allowing for a more fine-grained analysis. However, we test the robustness of our results using the set of mosques from the 2012 file.

The availability of mosque characteristics also enables us to construct measures that capture the visibility of each mosque, with the hypothesis that the more visible a mosque is in its neighborhood, the stronger the effect its presence has on voting behavior (Gravelle, Medeiros and Nai, 2021). Relevant characteristics include a mosque's attendance, size, and whether it has a minaret.

III.E. Distance to the Nearest Mosque

Key to our approach, we compute the exact distance from each polling station to its nearest mosque. Unfortunately, while the CARTELEC database contains the geometries of

[24] More specifically, we manually match mosques across files based on their addresses. Using this method, we obtain an exact match for 829 mosques. Because addresses are sometimes imprecise, we add to this set of mosques the 224 that have the same name in both files and are located less than one kilometer apart.

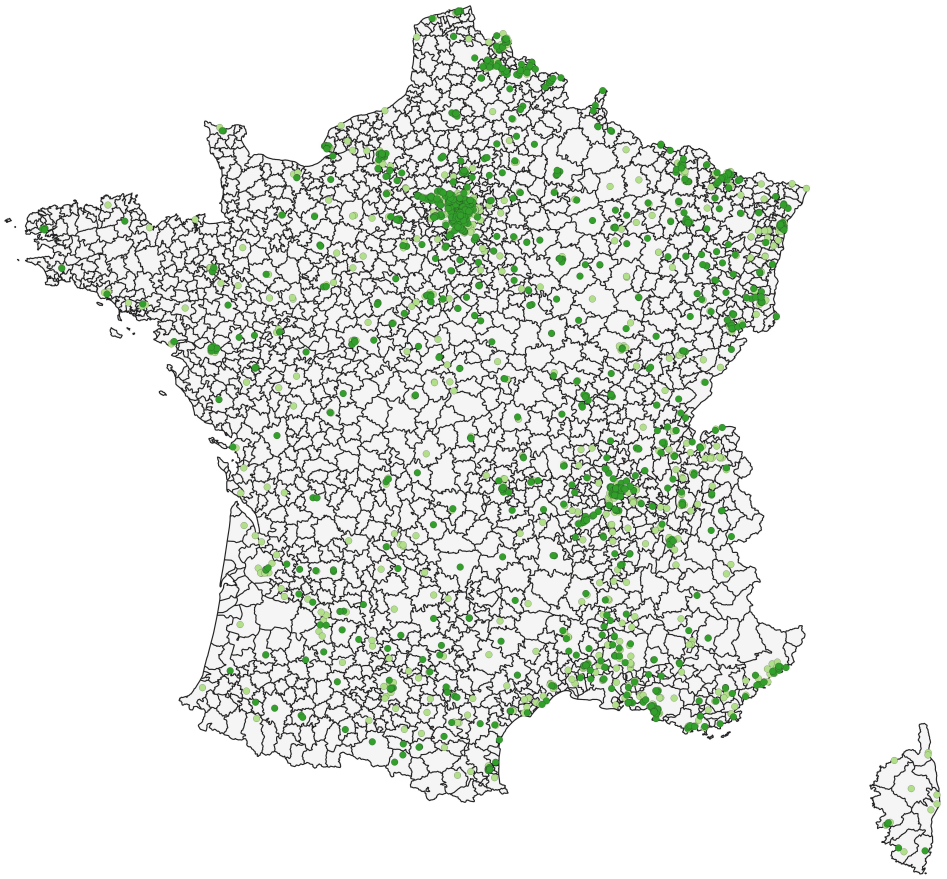


Figure 3. Spatial Distribution of Mosques

Notes. This figure displays in dark green the locations of the 1,053 mosques present in the matched 1997 and 2012 files. Additional mosques present in the 2012 file, which contains 2,130 mosques, are shown in light green. Dark lines represent the delineations of statistical zoning into life basins (*bassins de vie*, see Section III.C. for more details).

polling stations, it does not contain the addresses of the corresponding polling booths. To improve the precision of our distance measures at the local level (and to avoid systematically assigning the locations of polling booths to the centroids of their polling stations), we match each polling station to the corresponding location of its associated polling booth—the procedure is detailed in the Online Appendix. Because we are interested in assessing the role of social interactions in the relationship between Muslim visibility and voting patterns, our baseline analysis restricts the set of candidate mosques to those located in the same life basin as the polling station. For each polling station, we then calculate the distance in meters to the nearest mosque.

Table 1. Summary Statistics of Mosques Characteristics

	A. Raw files					B. Matched files				
	Mean	S.d.	Min.	Max.	N	Mean	S.d.	Min.	Max.	N
1997 mosques file										
Attendance (worshippers)	92	156	1	3,000	1,497	103	183	10	3,000	994
Year established	1986	7	1926	1997	1,517	1986	7	1926	1997	1,014
Has a quranic school	0.36	0.48	0.00	1.00	1,589	0.39	0.49	0.00	1.00	1,053
Students | quranic school	58	69	5	800	542	58	63	5	400	396
2012 mosques file										
Attendance (worshippers)	187	297	3	4,600	2,065	202	297	3	3,000	1,032
Surface area (m^2)	373	673	10	11,100	2,034	366	684	12	11,100	1,023
Has a minaret	0.04	0.19	0.00	1.00	2,130	0.05	0.21	0.00	1.00	1,053

Notes. This table summarizes the characteristics of French mosques in terms of visibility and congregation. Panel A reports summary statistics for the 1,589 mosques listed in the 1997 file and for the 2,130 mosques listed in the 2012 file of the Ministry of the Interior. Panel B reports summary statistics for the 1,053 mosques that are present in both files. The number of observations (N) does not always add up to these totals due to missing values in the original files. *S.d.* denotes standard deviation.

III.F. Summary Statistics

Combining these data and omitting polling stations for which we have no electoral or socio-economic information, our working dataset contains 46,297 polling stations. Given that 337 out of 1,637 life basins contain a mosque from the matched 1997–2012 file, our baseline regression sample contains 24,698 polling stations.[25] Panel A of Table 2 provides summary statistics for characteristics of polling stations in our baseline regression sample in terms of socio-economic information, urban localization, and electoral data. Overall, 4 percent of polling stations (988 polling stations) contain a mosque. The average polling booth is located 5 kilometers from a mosque, but the distance to the nearest mosque varies widely, as displayed in Figure 4. The Front National's average vote share ranges from 8 to 13 percent in different elections, with low abstention rates in the 2007 presidential election (15 percent) and high abstention rates in the 2009 European (58 percent) and 2010 regional (54 percent) elections. The share of the foreign population averages 6 percent and ranges from 0 to 55 percent. In comparison, the unrestricted sample, which also includes polling stations located in a life basin that does not contain a mosque, is more rural: these polling stations are less populated and less likely to be located in an urban area (Panel B of Table 2). We will test the robustness of our results to this sample selection procedure.

How do polling stations with a mosque compare to those without a mosque? Table 3 compares characteristics between these two types of polling stations. This simple comparison reveals dramatic differences: polling stations with a mosque are significantly more urban, and their populations are relatively more likely to be unemployed, less educated, and live in public

[25]Specifically, 198 life basins contain one mosque, 70 contain two mosques, and 69 contain at least three mosques.

Table 2. Summary Statistics of Polling Station Characteristics

	A. Polling stations in life basins where mosque present				B. All polling stations			
	Mean	S.d.	Min.	Max.	Mean	S.d.	Min.	Max.
Population	1,671	2,425	100	89,259	1,310	2,071	100	89,259
Area (km^2)	6,844	11,078	9	206,204	11,116	14,120	9	372,898
Share foreign population (percent)	5.69	6.03	0.00	54.53	4.18	5.13	0.00	54.53
Unemployment rate (percent)	8.69	4.51	0.00	52.67	7.92	4.03	0.00	52.67
Share with no diploma (percent)	18.16	8.43	0.00	70.61	18.75	7.74	0.00	70.61
Share households in HLM (percent)	14.49	19.76	0.00	99.09	9.45	16.15	0.00	99.09
In urban area	0.87	0.33	0	1	0.66	0.47	0	1
In urban unit	0.68	0.47	0	1	0.45	0.50	0	1
Within municipality	0.54	0.50	0	1	0.31	0.46	0	1
Contains sensitive urban zone	0.08	0.27	0	1	0.04	0.20	0	1
Contains a mosque	0.04	0.19	0	1	0.02	0.14	0	1
Number of mosques	0.04	0.23	0	6	0.02	0.17	0	6
Distance to closest mosque (km)	5.34	5.54	0.00	52.48	14.22	13.29	0.00	78.65
Abstention rate (percent)								
Presidential 2007	14.80	4.69	0.00	51.86	13.92	4.42	0.00	51.86
European 2009	58.06	8.45	0.24	89.53	56.40	8.21	0.24	89.53
Regional 2010	53.56	8.27	0.00	88.20	51.44	8.22	0.00	88.20
Front National vote share (percent)								
Presidential 2007	11.10	5.12	0.59	44.83	11.63	5.12	0.00	44.83
European 2009	7.67	4.69	0.00	45.83	7.95	5.06	0.00	47.50
Regional 2010	12.97	7.17	0.00	59.02	12.74	7.10	0.00	59.02
Number of polling stations	24,698				46,297			

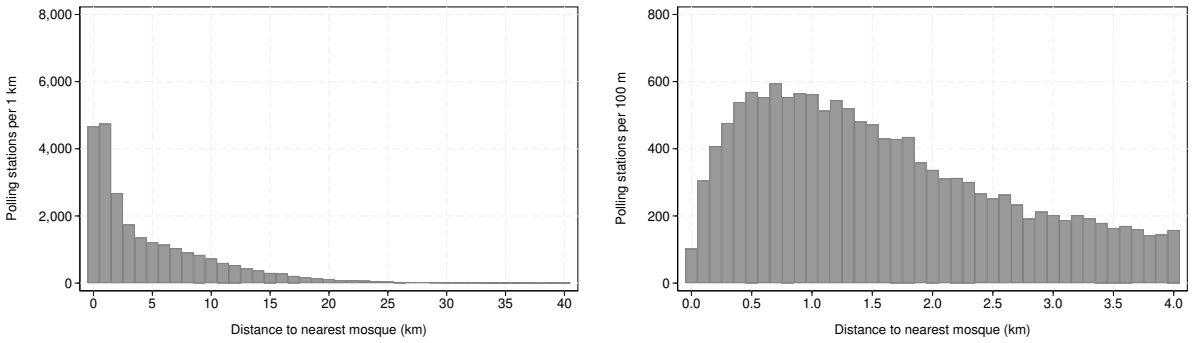
Notes. This table reports summary statistics for polling stations located in a life basin with at least one mosque in Panel A and for all polling stations in Panel B. *S.d.* denotes standard deviation. *HLM* denotes public housing.

housing. They are also more likely to be located in an urban area and to contain a sensitive urban zone. However, although they have comparatively higher abstention rates, they exhibit little difference in the electoral performance of the Front National. The empirical strategy discussed below takes these differences into account in order to obtain credible estimates of the hypothesized halo effect.

IV. Empirical Analysis

IV.A. Empirical Strategy

Our baseline empirical strategy attempts to capture a potential halo effect surrounding mosques on the Front National electoral performance through a quadratic term in distance, as is common in the literature (e.g., Evans and Ivaldi, 2021, p. 833). It follows from the expectation that the vote share of the Front National should initially increase as distance increases, but then decrease as distance increases further. Specifically, we estimate the



(a) Nearest Mosque $<$ 40 km (b) Nearest Mosque $<$ 4 km

Figure 4. Polling Station Density by Distance to Nearest Mosque

Notes. This figure displays the density of polling stations in the baseline regression dataset by bins of distance to their nearest mosque. Panel (a) displays polling stations whose nearest mosque is less than 40 kilometers away in 1-kilometer distance bins, and Panel (b) displays polling stations whose nearest mosque is less than 4 kilometers away in 100-meter distance bins.

following OLS specification:

$$\text{FN}_{ijl} = \alpha + \beta_1 \text{ dist}_i + \beta_2 \text{ dist}_i^2 + \boldsymbol{\delta}_1 \mathbf{X}_i' + \boldsymbol{\delta}_2 \mathbf{X}_j' + \boldsymbol{\eta}_l + \varepsilon_{ijl}, \tag{1}$$

where i indexes a polling station, j, the polling station in which the nearest mosque to station i is located, and l, the life basin in which polling station i is located. The outcome FN_{ijl} is the vote share of the Front National in the 2007 presidential election in percent in polling station i. We focus on this one election because it is the most salient and is characterized by a fixed political supply across the territory, which facilitates the interpretation of the results—we analyze the 2009 European and 2010 regional elections in Section IV.B.3 below.

The coefficients of interest β_1 and β_2 capture the halo effect, or, more precisely, the quadratic relationship between the distance of polling station i to the nearest mosque (located in polling station j in the same life basin l) in kilometers and the Front National vote share. Namely, our hypothesis is that $\widehat{\beta}_1 > 0$ and $\widehat{\beta}_2 < 0$. Importantly, because social interactions may be affected by unobservable characteristics specific to life basins, we include life basin fixed effects $\boldsymbol{\eta}_l$ in order to compare polling stations located in the same life basin. We cluster standard errors at the level of polling stations—we test the robustness of this clustering procedure in Section IV.B.2 below.

Of course, any correlation between the distance to the nearest mosque and the vote share of the Front National could be spurious and instead capture the effect of the foreign population share in polling station i as well as the foreign population share in polling station j where the nearest mosque to i is located, a phenomenon that has been repeatedly

Table 3. Summary Statistics of Polling Station Characteristics

	A. Polling stations with no mosque				B. Polling stations with a mosque				C. Difference		
	Mean	S.d.	Min.	Max.	Mean	S.d.	Min.	Max.	Mean	S.d.	*p*-value
Population	1,524	1,803	100	75,765	5,504	7,670	114	89,259	3,980	78	0.00
Area (km^2)	6,736	10,631	9	206,204	9,662	19,143	30	182,930	2,927	372	0.00
Share foreign population (percent)	5.43	5.79	0.00	54.53	12.28	8.19	1.13	44.21	6.85	0.20	0.00
Unemployment rate (percent)	8.50	4.34	0.00	44.11	13.48	5.88	3.04	52.67	4.97	0.15	0.00
Share with no diploma (percent)	17.78	8.12	0.00	70.61	27.92	10.40	5.00	69.75	10.14	0.28	0.00
Share households in HLM (percent)	13.78	19.28	0.00	99.09	32.86	22.92	0.00	97.04	19.07	0.65	0.00
In urban area	0.87	0.34	0	1	0.96	0.20	0	1	0	0	0.00
In urban unit	0.67	0.47	0	1	0.98	0.13	0	1	0	0	0.00
Within municipality	0.54	0.50	0	1	0.63	0.48	0	1	0	0	0.00
Contains sensitive urban zone	0.07	0.26	0	1	0.27	0.45	0	1	0	0	0.00
Number of mosques	0.00	0.00	0	0	1.12	0.41	1	6	1.12	0.00	0.00
Distance to closest mosque (km)	5.53	5.56	0.05	52.48	0.53	0.60	0.00	6.54	-5.00	0.18	0.00
Abstention rate (percent)											
Presidential 2007	14.65	4.63	0.00	51.86	18.46	4.73	6.47	40.09	3.81	0.16	0.00
European 2009	57.76	8.33	0.24	89.53	65.68	7.96	43.49	89.09	7.92	0.28	0.00
Regional 2010	53.28	8.15	0.00	88.20	60.88	8.01	27.59	86.94	7.60	0.27	0.00
Front National vote share (percent)											
Presidential 2007	11.11	5.14	0.59	44.83	11.02	4.48	1.79	30.27	-0.09	0.17	0.60
European 2009	7.65	4.71	0.00	45.83	8.14	4.28	0.00	32.69	0.48	0.16	0.00
Regional 2010	12.95	7.19	0.00	59.02	13.43	6.73	0.00	39.93	0.47	0.24	0.05
Number of polling stations	23,781				917				24,698		

Notes. This table reports summary statistics for polling stations located in a life basin with at least one mosque. *S.d.* denotes standard deviation. *HLM* denotes public housing.

demonstrated in the literature (e.g., Evans and Ivaldi, 2021). We therefore control for the observable characteristics of both polling stations, which are contained in vectors $\mathbf{X}'_i$ and $\mathbf{X}'_j$, respectively. These vectors include potential confounders of the relationship between the distance to the nearest mosque and the Front National vote share: the share of foreign population, but also the unemployment rate, the share of population with no diploma, the share of population living in public housing, the log population, and the area of the polling station to account for population density.[26] This set of controls captures the typical profile of far-right voters (Arzheimer, 2009; Bowyer, 2008).

However, this strategy may still fail to provide credible estimates of the halo effect if unobservable characteristics of the polling station where the nearest mosque is located, or the characteristics of the mosque itself, vary systematically with distance. In particular, the demographic composition of the polling station where a mosque is located could confound the results. To mitigate this potential issue, our preferred empirical strategy includes a set of nearest mosque fixed effects. Specifically, we estimate the following specification:

$$\text{FN}_{ikl} = \alpha + \beta_1 \, \text{dist}_i + \beta_2 \, \text{dist}_i^2 + \boldsymbol{\delta} \, \mathbf{X}'_i + \boldsymbol{\omega}_k + \boldsymbol{\eta}_l + \varepsilon_{ikl}, \tag{2}$$

where k indexes the nearest mosque to polling station i and $\boldsymbol{\omega}_k$ are nearest mosque fixed effects. In this specification, the coefficients of interest β_1 and β_2 are identified from variations

[26] See Footnote 17 on the relevance of the variable measuring the share of foreign population given the restrictions on religious and ethnic statistics in France.

in the Front National vote shares across polling stations in the same life basin that share the same nearest mosque but are located at different distances from that mosque.

IV.B. Identifying the Halo Effect

IV.B.1. Main results

We report OLS coefficients from estimating Equations 1 and 2 in Table 4. Regressing the Front National vote share on a quadratic term in distance to the nearest mosque without other controls in Column (1) yields in a significant concave polynomial relationship, suggesting the reality of a halo effect: as distance to a mosque increases, the Front National vote share increases, but then declines as distance increases further, with an apex of the halo at 20 kilometers from the nearest mosque ($= -\hat{\beta}_1/2\hat{\beta}_2$). Including further controls for both the polling station and the one where the nearest mosque is located produces qualitatively similar results in Column (2) and (3), albeit less pronounced. As expected, the foreign population shares in the polling station and in the polling station where the nearest mosque is located are negatively correlated with Front National vote share. Importantly, including 1,010 nearest mosque fixed effects in Column (4) produces similar results, with an apex at 16 kilometers—about twice as close as the findings in Evans and Ivaldi (2021, p. 840).

To get a better sense of the magnitude of this halo effect, we use estimates from Table 4 to predict Front National vote shares at distances up to 30 kilometers from mosque locations – the distance up to which there is a sufficient density of polling stations – and report mean predictions in Figure 5 along with 95 percent confidence intervals. The blue curve uses estimates from Column (1) and the red curve uses estimates from Column (4). Both curves clearly show the reality of a halo effect, with an even more pronounced halo in our preferred specification represented by the red curve.

IV.B.2. Robustness

Clustering and Spatial Correlation Our results are robust to the choice of statistical procedure used to compute the precision of regression estimates (see Appendix Table A.1). In particular, clustering standard errors at higher levels of aggregation – closest mosque or life basin as opposed to polling station – to allow for broader spatial correlation of errors generates standard errors that are larger than for the baseline but that leave the coefficients of interest significant at the 1 percent level. Similarly, allowing for spatial correlation up to 30 kilometers and temporal correlation up to 4 years leaves the results unchanged.

Table 4. Vote Share for the Front National and Distance to Nearest Mosque

Dependent variable:	Front National vote share (%)			
	(1)	(2)	(3)	(4)
Distance to nearest mosque (km)	0.272***	0.190***	0.176***	0.166***
	[0.012]	[0.013]	[0.013]	[0.013]
Distance to nearest mosque, squared (km)	−0.007***	−0.007***	−0.006***	−0.005***
	[0.001]	[0.001]	[0.001]	[0.001]
Share foreign population (%)		−0.258***	−0.234***	−0.230***
		[0.007]	[0.008]	[0.008]
Controls	No	Yes	Yes	Yes
Nearest mosque polling station				
Controls	No	No	Yes	No
Share foreign population (%)			−0.075***	
			[0.006]	
Fixed effects				
Life basins	333	333	333	333
Nearest mosque	0	0	0	1,010
Polling stations	24,671	24,671	24,671	24,671
Within R^2	0.036	0.215	0.227	0.130
Front National vote share mean (%)	11.10	11.10	11.10	11.10
Halo apex (km)	19.45	14.53	14.75	15.95

Notes. This table reports OLS coefficients from estimating Specification 1 in Columns (1)–(3) and Specification 2 in Column (4). The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's share of foreign population, log population, area, average age, unemployment rate, the share of population with no diploma, and the share of population living in HLM. Standard errors are in brackets and are clustered at the level of polling stations. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.
*** Significant at the 1 percent level.

Sample Restrictions To assess the role of sample restrictions in generating our results, we repeat the analysis from Equation 2 when also including polling stations located in a life basin without mosques, increasing the sample of polling stations from 25 to 46 thousand. We report the results in Column (2) of Appendix Table A.2. The halo is still present, but less pronounced, with an apex at 28 kilometers—close to the findings in Evans and Ivaldi (2021, p. 840). We interpret this result as suggestive of the role of local social interactions, where comparing polling stations beyond life basins dilutes the chances of regular contacts between communities. As noted above, life basins define coherent units in terms of daily life, structuring intense exchanges between places of work and residence. Thus, more distant exposure to mosques but lack of quality contact with Muslims (as in the case of polling stations located in a life basin without mosques) is likely to dilute the halo effect.

We further assess the robustness of our findings to the use of distances computed on the set of all mosques in the 2012 file in Columns (3) and (4) of Appendix Table A.2, increasing the number of mosques in our sample from 1,010 to 1,905. Our results hold and are nearly identical to those based on the subset of mosques in the matched 1997–2012 file, suggesting

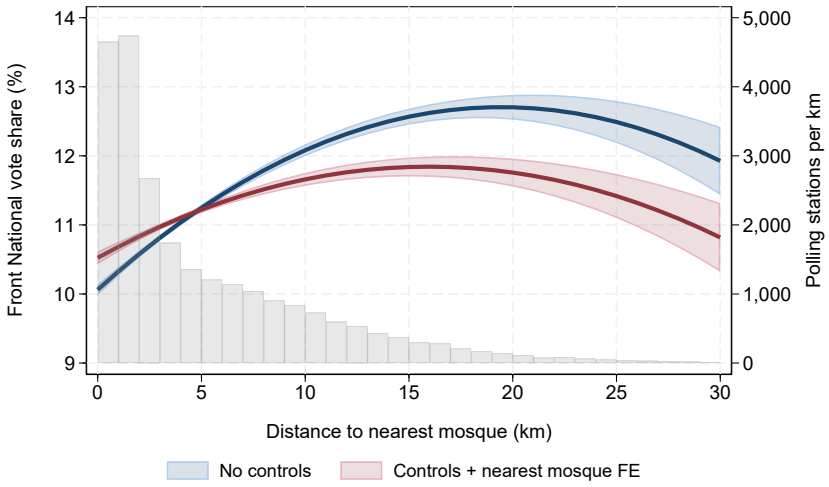


Figure 5. Predicted Front National Vote Shares Across Distance

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table 4 over distances to the nearest mosque along with 95 percent confidence intervals. The blue curve uses estimates from Column (1) and the red curve uses estimates from Column (4). These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.

little selection through this sample restriction procedure. To make these differences more apparent, we report mean predictions of Front National vote shares across distances to mosques in Appendix Figure A.4 under these four alternative sample restrictions—we predict vote shares across distances up to 60 kilometers when not restricting to polling stations located in life basins where at least one mosque is present, given the spatial distribution of mosques in these samples (see Appendix Figure A.5).[27]

Controlling for the Nationality of Foreigners Because religious and ethnic information is not collected by administrations in France, our baseline analysis can only control for the presence of foreigners as a proxy for the presence of Muslims.[28] To address some concerns regarding this imperfect strategy, we conduct a robustness check in which we control for the nationality of foreigners on a subset of the data.[29] More specifically, we match TRIRIS-level information on nationalities from the 1999 census – the closest census for which this information is publicly available – to CARTELEC's shapefile and calculate the share of foreigners by polling station among nationalities that may potentially capture the potential Muslim

[27] Mean predictions across samples along with 95 percent confidence intervals are displayed in Appendix Figure A.6.

[28] For a discussion of the limitations of this proxy and a more general reflection on the challenges of quantifying Muslim populations in Europe, see Brown (2000).

[29] As shown by McAvay (2018), the residential patterns of second- and first-generation immigrants in France are highly persistent over time.

population: Algerians, Moroccans, Tunisians, and Turks.[30] We also collect information on the proportion of the population that is naturalized, EU citizens, and other nationalities. We provide summary statistics in Appendix Table A.3.[31] We find that among the foreign population, 16 percent are Algerian; 14 percent, Moroccan; 5 percent, Tunisian; 5 percent, Turkish; 37 percent, from the EU; and 23 percent, from other nationalities. In addition, 6 percent of the total population are naturalized citizens.

Next, we reproduce the analysis on the subsample of the 14 thousand polling stations (out of 25 thousand) for which we have nationality information. We report the results in Column (2) of Appendix Table A.4. Results are very close to the baseline, which are reported in Column (1) for reference. Then, controlling for the share of the foreign population from the TRIRIS data instead of the CARTELEC data in Column (3) again yields similar results, suggesting that our matching strategy is sound. Finally, controlling for the nationalities of foreigners together with the share of the naturalized population in Column (4) highlights a similar halo effect, which is visible in Appendix Figure A.7. Overall, this robustness check supports the validity of our analysis, despite the unavailability of religious and ethnic information at the polling station level and thus the lack of precise identification of the Muslim population.

Relaxing Parametric Assumptions The identification of a halo may be driven by the parametric assumptions we impose—a quadratic term in distance. To address this concern, we adopt a non-parametric approach and deploy a model with a set of indicator variables by bins of distance:

$$\text{FN}_{ikl} = \alpha + \sum_{b=3}^{30} \beta_b \, \mathbb{1}_{\{b \geq \text{dist}_i > b-3\}} + \boldsymbol{\delta} \, \mathbf{X}_i' + \boldsymbol{\omega}_k + \boldsymbol{\eta}_l + \varepsilon_{ikl}, \tag{3}$$

where b is a three-kilometer bin, with the indicator variable $\mathbb{1}_{\{b \geq \text{dist}_i > b-3\}}$ equal to one if the distance to the nearest mosque is in that bin—we use three-kilometer bins to ensure that we have enough density of polling stations to estimate each of the ten bin-specific coefficients. Other variables are similar to those in Equation 2. To simplify the interpretation, the omitted

[30] Technically, we start by aggregating 2000 IRIS polygons from INSEE's (2000*a*) shapefile into TRIRIS – a grouping of three IRISs – using INSEE's (2000*b*) cross-walk between 2000 IRIS and TRIRIS, which we then match to the 1999 census data (INSEE, 1999). Given the non-overlapping nature of TRIRIS and polling stations, we only keep polling stations for which there is an overlap of at least 80 percent of their area. We use an area-based weighting scheme in the spatial matching process. Note that relying on data from 1999 ensures that we are abstracting from potential migration movements caused by mosques built after 1997, which we cannot observe in our mosque data.

[31] The share of foreigners according to the CARTELEC 2007 data among the restricted sample of polling stations for which TRIRIS 1999 data is available (8.19 percent) is very close to that from the TRIRIS 1999 data (7.71 percent), suggesting that our matching strategy is sound.

category is polling stations that contain a mosque—we normalize their distance to zero. We report the results in Appendix Figure A.8. It clearly shows that the halo holds with this non-parametric strategy, with an apex located about 16 kilometers from the nearest mosque, similar to that obtained with the parametric strategy.

IV.B.3. Heterogeneity

Heterogeneity across Elections Given the variation in the Front National's performance across types of elections as seen in Figures 2, A.1, and A.2, we assess the heterogeneity of the halo effect by estimating Equation 2 for each election separately. We report the results in Table 5, where we pool all three elections along with election fixed effects in Column (1) for reference. We identify the presence of a halo when we pool elections as well as for the presidential and European elections, but not clearly for the regional elections. To make the halo apparent, we again report mean predictions of the Front National's vote shares across distances from mosques in Appendix Figure A.9 for all three elections.[32] The overall halo effect appears to be driven by presidential elections, where the halo is much more pronounced than in other elections.

These results suggests that the salience of the election may enhance the halo effect. Presidential elections are often considered high-stakes elections, in contrast to regional and European elections, which are commonly described as second order and result in lower public interest and widespread abstention (Ehin and Talving, 2021). Moreover, PRR parties benefit from increased electoral mobilization in contexts of widespread political distrust (Schulte-Cloos and Leininger, 2022). For these reasons, the halo effect is likely to be accentuated in first-rate ballots. To support this interpretation, we repeat the analysis across quartiles of abstention rates. We report the results in Appendix Table A.5 as well as the predicted Front National vote shares in Appendix Figure A.11.[33] Consistent with our interpretation, we identify a more pronounced halo in polling stations with lower abstention rates. For instance, in polling stations in the lower quartile of abstention rates (13 percent on average), although we find a halo apex located about 16 kilometers from the nearest mosque – close to that for polling stations in the second and third quartiles – the curvature of the halo curve is much more pronounced.

There are good reasons to believe that the effects identified here hold for more recent elections in France.[34] In particular, Overos and Sauer (2023) have shown that the presence

[32]Mean predictions across elections along with 95 percent confidence intervals are displayed in Appendix Figure A.10.

[33]Mean predictions across quartiles of abstention rates along with 95 percent confidence intervals are displayed in Appendix Figure A.12.

[34]Since 2011, Marine Le Pen has replaced her father, Jean-Marie Le Pen, at the head of the Front National. Her

Table 5. Vote Share for the Front National and Distance to Nearest Mosque Across Elections

Dependent variable:	Front National vote share (%)			
Election:	All	Presidential	European	Regional
	(1)	(2)	(3)	(4)
Distance to nearest mosque (km)	0.087***	0.166***	0.074***	0.021
	[0.013]	[0.013]	[0.014]	[0.018]
Distance to nearest mosque, squared (km)	−0.003***	−0.005***	−0.003***	−0.002**
	[0.001]	[0.001]	[0.001]	[0.001]
Share foreign population (%)	−0.180***	−0.230***	−0.138***	−0.171***
	[0.008]	[0.008]	[0.008]	[0.011]
Controls	Yes	Yes	Yes	Yes
Fixed effects				
Elections	3	1	1	1
Life basins	333	333	333	333
Nearest mosque	1,010	1,010	1,010	1,010
Polling stations	24,671	24,671	24,671	24,671
Observations	74,013	24,671	24,671	24,671
Within R^2	0.054	0.130	0.088	0.042
Front National vote share mean (%)	10.58	11.10	7.67	12.97
Halo apex (km)	13.77	15.95	14.29	6.33

Notes. This table reports OLS coefficients from estimating Specification 2, separately across all three elections. The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's share of foreign population, log population, area, average age, unemployment rate, the share of population with no diploma, and the share of population living in HLM. Standard errors are in brackets and are clustered at the level of polling stations. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.
*** Significant at the 1 percent level. ** Significant at the 5 percent level.

of mosques in rural areas was associated with greater support for the Front National in the 2017 presidential election, but decreased in densely populated urban areas. However, while their study provides insights into a new episode of the Front National's expansion as its candidate reached the second round for the second time, it focuses on the municipal level and does not allow for the granular approach we provide here, nor for a precise estimation of the spatial effect of mosque presence on far-right support.

Heterogeneity by Urbanity Finally, we assess the heterogeneity of the halo effect across polling stations with different population densities and urban structures. To do so, we repeat the analysis from Equation 2 on three different samples: the sample of rural polling stations (those outside urban areas), the sample of peri-urban polling stations (those inside urban areas but outside urban units), and the sample of urban polling stations (those inside urban

political platform has reinforced the party's anti-Islamic stance, emphasizing the supposed incompatibility between Islam and French secularist *laïcité*, and portraying Muslim populations as a threat to republican values (Amengay, 2020).

units). We report the results in Table 6 as well as predicted Front National vote shares in Appendix Figure A.13.[35] The halo effect appears to be driven by urban polling stations, with the distinctive curvilinear relationship being particularly pronounced in strictly urban environments. In contrast, we observe a steady increase in the Front National vote share in peri-urban polling stations as the distance from the nearest mosque increases, as well as a reversed relationship in rural polling stations, with a steady decrease in the Front National vote share as the distance from the nearest mosque increases.

Table 6. Vote Share for the Front National and Distance to Nearest Mosque by Urbanity

Dependent variable:	Front National vote share (%)			
Zoning:	All	Rural	Peri-urban	Urban
	(1)	(2)	(3)	(4)
Distance to nearest mosque (km)	0.166***	−0.093**	0.132***	0.158***
	[0.013]	[0.045]	[0.043]	[0.019]
Distance to nearest mosque, squared (km)	−0.005***	0.001	−0.002	−0.006***
	[0.001]	[0.001]	[0.002]	[0.001]
Share foreign population (%)	−0.230***	−0.156***	−0.124***	−0.216***
	[0.008]	[0.030]	[0.039]	[0.009]
Controls	Yes	Yes	Yes	Yes
Fixed effects				
Life basins	333	232	267	302
Nearest mosque	1,010	287	461	940
Polling stations	24,671	3,113	4,867	16,729
Within R^2	0.130	0.070	0.117	0.152
Front National vote share mean (%)	10.58	14.36	13.30	9.91
Halo apex (km)	15.95	44.30	32.41	13.53

Notes. This table reports OLS coefficients from estimating Specification 2, separately across types of zoning. *Rural* refers to polling stations not in urban areas; *Peri-urban* refers to polling stations in urban areas but not in urban units; *Urban* refers to polling stations in urban units. The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's share of foreign population, log population, area, average age, unemployment rate, the share of population with no diploma, and the share of population living in HLM. Standard errors are in brackets and are clustered at the level of polling stations. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.
*** Significant at the 1 percent level. ** Significant at the 5 percent level.

We propose three tentative explanations to account for these mixed results: the electoral geography of PRR parties, the greater visibility of religious buildings in rural environments, and the localism of some rural communities. First, several studies have shown that the rise of PRR support is particularly strong in areas outside but close to urban environments in France (Girard, 2012; Fourquet, 2012; Gombin, 2015*b*; Faury, 2024) and other European countries (van Gent, Jansen and Smits, 2014). One reason is the class division between the "diversity-seeking" middle classes living in urban centers – who are less likely to support the Front

[35] Mean predictions across zoning along with 95 percent confidence intervals are displayed in Appendix Figure A.14.

National when in direct contact with Muslim communities, in line with contact theory – and the "traditional" middle and working classes living in peri-urban peripheries—who display a defensive attitude toward social and cultural diversity and tend to vote for PRR parties even when living near Muslim communities (Brookes and Cappellina, 2023). As for rural areas, they are characterized by a strong heterogeneity towards the Front National (Barone and Négrier, 2015; Gombin, 2015*b*; Huc, 2019). A second explanation for the decreasing support for the Front National in rural polling stations as the distance from the nearest mosque increases could be the more salient visibility of minority religious buildings in rural areas compared to urban and peri-urban areas. This visibility – but also the fact that communes with very few mosques tend to have stronger electoral support for the Front National (Overos and Sauer, 2023) – may explain why the polarizing effect of mosque presence on political behavior is stronger but fades more quickly in these areas. A third explanation may be localism: research has shown that small rural communities, characterized by strong feelings of local attachment, are more likely to support PRR parties (Fitzgerald, 2018). Thus, attachment to one's community may be associated with a higher perceived threat from religious and ethnic diversification, with this place-based resentment fueling PPR parties. Overall, our findings on the heterogeneous effect of mosque presence on Front National support by urbanity are consistent with previous research showing that the relationship between immigrant presence and far-right support is reversed in rural and urban areas (Barone et al., 2016; Fremerey, Hörnig and Schaffner, 2024).

IV.C. Visibility and Novelty of Mosques

Mosque Visibility We now evaluate the variations of the halo effect we identify in light of the visibility of mosques. The richness of our data on mosques enables us to measure visibility along three dimensions: whether the mosque has a minaret, its attendance (number of worshipers in 2012), and its surface area (in square meters). To compare polling stations that are closer to mosques with low versus high visibility, we divide the sample into quartiles of visibility for attendance and surface area, and compare polling stations in the highest and lowest quartiles. We then repeat the analysis on these subsamples and report the results in Table 7 as well as the predicted vote shares in Figure 6. We identify a halo in all subsamples, but it is much more pronounced when the mosque is more visible in the local landscape. This is especially the case when the mosque has a minaret and when the building that houses the mosque is larger. Minarets increase the conspicuousness of mosques: in the majority gaze, they are perceived as standing out from their built environment and symbolize a disruptive threat to majority culture (Göle, 2011). As such, mosques with minarets are likely to be associated with greater polarization because both nearby and distant

Table 7. Vote Share for the Front National and Distance to Nearest Mosque Across Visibility

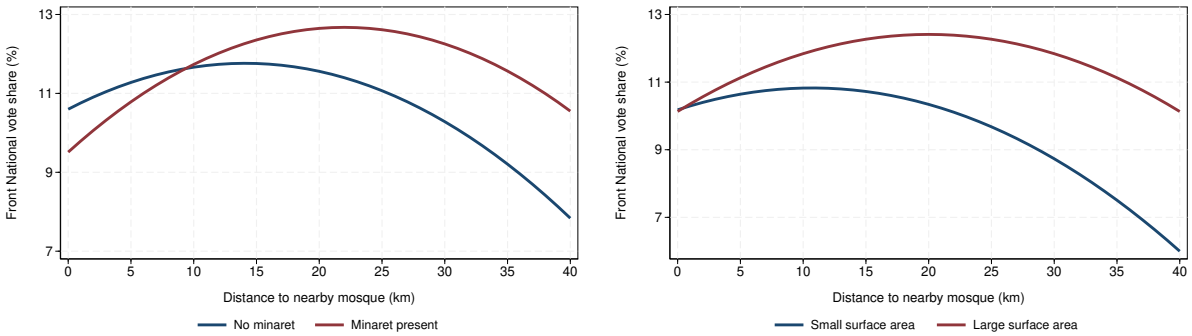
Dependent variable:	Front National vote share (%)					
Visibility measure:	Minaret		Attendance		Surface area	
	No	Yes	Q1	Q4	Q1	Q4
	(1)	(2)	(3)	(4)	(5)	(6)
Distance to nearest mosque (km)	0.165***	0.288***	0.139***	0.144***	0.121***	0.228***
	[0.013]	[0.048]	[0.021]	[0.027]	[0.023]	[0.029]
Distance to nearest mosque, squared (km)	−0.006***	−0.007***	−0.005***	−0.003***	−0.006***	−0.006***
	[0.001]	[0.002]	[0.001]	[0.001]	[0.001]	[0.001]
Own controls	Yes	Yes	Yes	Yes	Yes	Yes
Closest mosque's station controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects						
Life basins	327	27	154	73	107	112
Polling stations	22,883	1,811	6,150	6,010	5,986	5,928
Within R^2	0.217	0.332	0.188	0.318	0.231	0.277
Front National vote share mean (%)	11.13	10.71	11.46	9.98	10.45	11.02
Visibility measure mean	0	1	35	576	55	1,102
Halo apex (km)	14.10	21.99	13.55	21.59	10.71	20.00

Notes. This table reports OLS coefficients from estimating Specification 1 across various measures of visibility. *Q* indicates quartiles. The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's share of foreign population, log population, area, average age, unemployment rate, share of population with no diploma, share of population living in HLM, and an indicator for whether it contains a sensitive urban zone. Standard errors are in brackets and are clustered at the level of polling stations. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.
*** Significant at the 1 percent level.

voters can more easily identify the building, with only the former in a position to experience regular, high-quality interactions with Muslim worshipers. Similarly, the surface area of a mosque may signal to passersby the size of the local Muslim community, while also increasing the conspicuousness of the building. These reasons are likely to lead to greater political polarization, with less exclusionary attitudes among nearby residents and stronger anti-Muslim sentiments among more distant residents. This is in line with Lubbers, Coenders and Scheepers (2006), who show that opposition to asylum centers is stronger for larger centers compared to smaller ones. Nevertheless, we find no heterogeneity across mosques with more worshipers, suggesting that it is the visibility of the building that matters in relation to the halo effect.

Old versus New Mosques We now examine whether the timing of a mosque's establishment has a differential effect on political polarization. The baseline analysis thus far has focused on mosques established by 1997 and still in existence in 2012, i.e., older mosques.

[35] In a somewhat complementary analysis, Gravelle, Medeiros and Nai (2021) find that proximity to mosques with minarets accentuates PRR support among right-leaning individuals.



(a) Minarets (b) Mosque Surface

Figure 6. Predicted Front National Vote Shares Across Visibility

Notes. This figure displays the predicted Front National vote shares with estimates from Table 7 across distances to the nearest mosque. Panel (a) uses estimates from Column (2), and Panel (b), estimates from Column (3). These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.

To determine whether the integration of new mosques into the urban landscape affected support for the Front National in neighboring polling stations, we compare the halo effect generated by old mosques to that of mosques established after 1997. This sample includes the 1,077 mosques that are present in the 2012 file but not in the 1997 file. Specifically, we estimate Equations 1 and 2 augmented with the two distance measures on the set of polling stations located in a life basin where both an old and a new mosque are present. The results are reported in Appendix Table A.6. When considered separately, distances to both types of mosques generate a comparable halo effect, as seen in Columns (1) and (2). However, when considered together in Column (3), we find that support for the Front National responds to the presence of an old mosque but not to that of a new mosque. This result remains consistent when we include fixed effects for combinations of old and new mosques in Column (4).[36]

This finding somewhat contradicts predictions derived from the contact hypothesis and tested in other empirical contexts, according to which the long-term presence of immigrant groups induces more positive behavior and attitudes toward these groups (Steinmayr, 2021; Bursztyn et al., 2024). However, this could be explained by the fact that local residents may not be immediately aware of the establishment of a new mosque in their neighborhood, with this awareness materializing gradually over time. Moreover, qualitative research on far-right voting in France has shown that it is precisely when Muslim religion becomes institutionalized in the long term – rather than when religious practices remain private,

[36]Results in Columns (3) and (4) should be treated with caution, however, as both variables are highly correlated as shown in Figure A.15, which may lead to a degree of collinearity that prevents proper identification of the parameters.

discreet, and perceived as temporary – that "feelings of invasion" grow stronger among the native population (Faury, 2024).

V. Conclusion

Analyses of European politics have regularly shown a correlation between the presence of immigrants and support for PRR parties. They have also highlighted that the scale of analysis matters: at the municipal level, large immigrant populations are associated with lower support for the far right (Della Posta, 2013), while this association is reversed at higher administrative levels (Edo et al., 2019). Our study takes a fresh look at this puzzle by considering an infra-municipal unit of analysis: the polling station. Building on a unique dataset provided by the CARTELEC project – that matches election results in 2007–10 at the polling station level with fine-grained socio-economic indicators in France – we examine whether the distance from a mosque affects support for the Front National. Our research design contributes to the emerging literature on the spatial measurement of exposure to immigrant populations, which attempts to provide a precise assessment of the geographical distance between areas with high immigrant presence and areas with high support for PRR parties (Evans and Ivaldi, 2021; Gravelle, Medeiros and Nai, 2021; Fremerey, Hörnig and Schaffner, 2024). Specifically, we identify an apex at about 16 kilometers from a mosque where electoral support for the Front National is highest. This result is consistent with research at the individual level, which emphasizes that French natives who do not frequently interact with immigrants are significantly less favorable toward immigrants from non-Western countries (Clayton, Ferwerda and Horiuchi, 2021).

Moreover, our study sheds light on the heterogeneous effects that the presence of immigrants can have on far-right support by level of urbanity. The halo effect we identify is driven by urban polling stations, with the distinctive curvilinear relationship being particularly pronounced in strictly urban environments. In contrast, we observe an opposite relationship in rural polling stations, with a steady decline in the Front National vote share as the distance from the nearest mosque increases. These results are consistent with previous findings in Germany, where refugee influx rates have a positive effect on far-right support in rural areas, but a negative effect at the neighborhood level in urban areas (Fremerey, Hörnig and Schaffner, 2024). These contrasting effects may be explained by a stronger sense of threat from religious and ethnic diversification among rural residents, with locally tied individuals more likely to be attracted to PPR parties (Fitzgerald, 2018). Another explanation could be that the salience of minority religious buildings (in this case, mosques) may be more pronounced in rural areas, consistent with our findings on the heterogeneous effect of mosque

presence on far-right voting according to visibility.

Overall, our findings on the halo effect of mosque presence on far-right support contribute to a broader discussion on the nature of interactions between minority and majority group members (Dinas et al., 2019; Hangartner et al., 2019) and, in particular, between Muslim minorities and non-Muslim majorities in Western European contexts (Adida, Laitin and Valfort, 2016). While the available data enables us to test effects but not mechanisms, we hypothesize that proximity to a mosque (and its worshipers) facilitates the prejudice-reducing effects of outgroup contact, while moderate spatial distance produces the deleterious effects of outgroup exposure. This hypothesis builds on the classic distinction made in the literature between exposure, based on distant observation of outgroup members, and contact, based on intentional interactions (Valdez, 2014; Janssen et al., 2019). More broadly, it is consistent with a recurring finding on the non-linearity of the relationship between minority presence and far-right support, which deserves further exploration in terms of mechanisms (Savelkoul, Laméris and Tolsma, 2017; Janssen et al., 2019).

In addition, previous ecological studies of the correlation between immigrant presence and support for the Front National have taken the proportion of their foreign population as the main variable of interest (Della Posta, 2013; Vasilopoulos, McAcay and Brouard, 2022; Lubbers and Scheepers, 2002). However, given the increasing crystallization of anti-Muslim sentiments in European societies (Bleich, 2009) and the growing salience of anti-Muslim discourses in the platform of the Front National (Benveniste and Pingaud, 2016) and other populist movements (Hafez, 2014; Brubaker, 2017), we resort to a different research design to capture the anti-Muslim dimension of the nativist backlash, similar to Colussi, Isphording and Pestel (2021) and Gravelle, Medeiros and Nai (2021). By using mosques as a proxy for the practicing Muslim population, composed of foreigners, but also of first-generation naturalized immigrants, converts without immigrant ancestry, and second- and third-generation French Muslims, our results point to the importance of taking into account a particular cultural trait – in our case, a minority religion – of the immigrant-origin population when studying its effect on voter polarization. Indeed, when controlling for the share of the foreign population from North Africa and Turkey in neighboring polling stations – an imperfect but useful proxy for identifying Muslim population (Brown, 2000) – we still find a significant effect of exposure to the presence of a mosque, pointing to the specifically anti-Muslim dimension of contemporary Front National support.

A final contribution of this study is to focus on the visibility of immigrant-origin groups rather than their size. We postulate that changes in the visibility of these groups are more likely to affect majority members than the mere number of minority members. Mosques are indeed permanent, conspicuous marks on the urban landscape that make visible the per-

manent settlement of immigrant-origin Muslim populations as well as their willingness to practice their religion publicly (Becker, 2021). Exposure to these buildings and the Muslim worshipers who regularly visit them is thus likely to shape majority attitudes toward immigration and Islam (Faury, 2024). Indeed, our findings confirm the interest in focusing on the visibility of minority cultural difference, in line with the salience hypothesis (Newman and Velez, 2014; Valdez, 2014). Exposure to a mosque induces support for parties with anti-immigrant and anti-Muslim agendas in polling stations located some distance from the mosque. This effect is stronger for mosques with a minaret and for mosques with a larger surface area suggesting the importance of visibility markers in shaping political behavior. Given the hardening of exclusionary secularism in France (Esmili, 2023) and its use as an identity marker against Islam by the Rassemblement National – the new name of the Front National since 2018 – it is likely that polarization around the presence of mosques will continue to have lasting effects on French politics (Almeida, 2017; Cremer, 2023).

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The Mosque Nearby

Visible Minorities and Far-Right Support in France

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July 2024

Online Appendix

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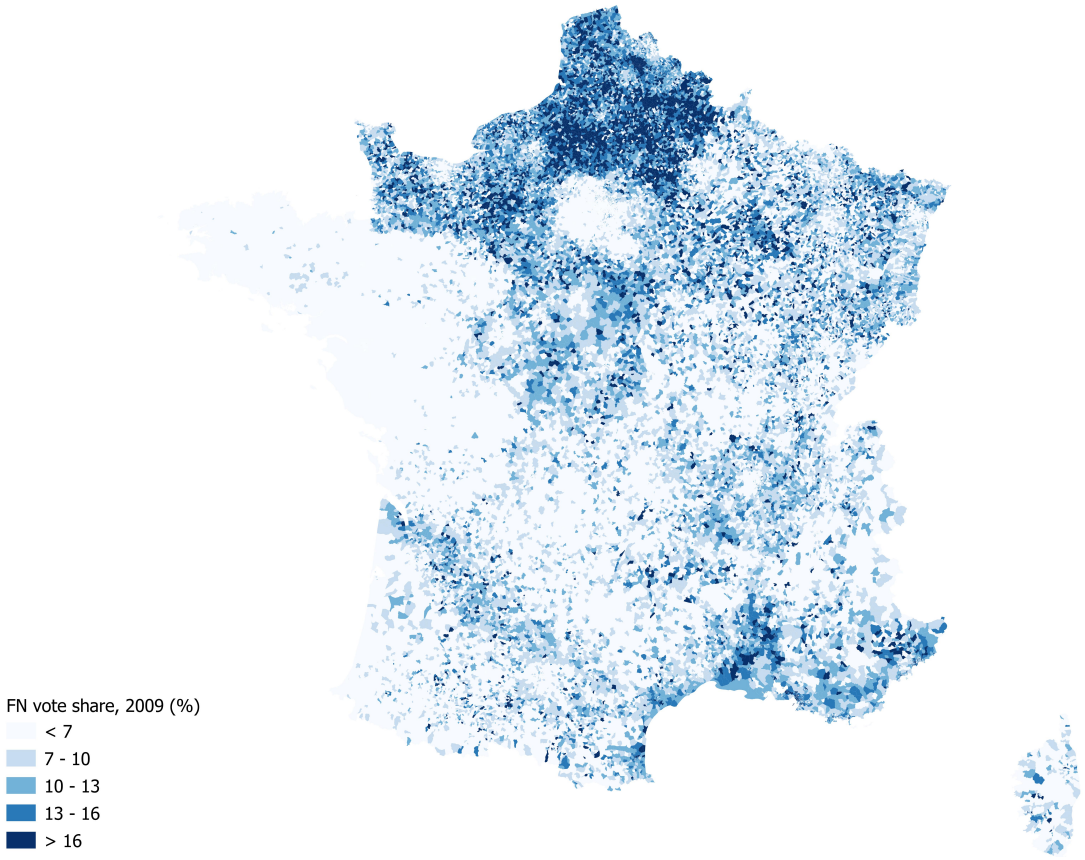


Figure A.1. Front National Vote Share, European Elections 2009 (%)

Notes. This figure displays the vote share of the Front National in the 2009 European elections at the level of the 50,397 polling stations for which this information is available in the CARTELEC database (Jadot et al., 2010; Beauguitte and Colange, 2013). Discontinuities on the map correspond to limits of electoral constituencies with different sets of candidates.

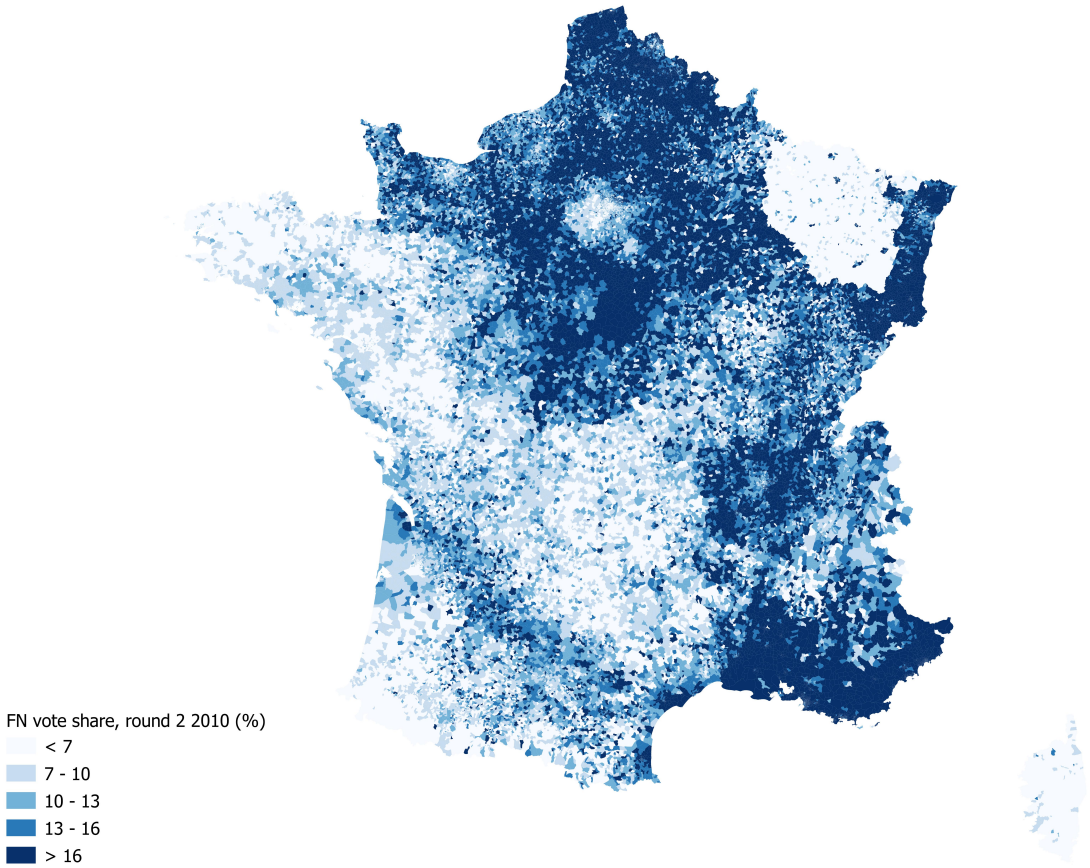


Figure A.2. Front National Vote Share, Regional Elections 2010 (%)

Notes. This figure displays the vote share of the Front National in the first round of the 2010 regional elections at the level of the 50,477 polling stations for which this information is available in the CARTELEC database (Jadot et al., 2010; Beauguitte and Colange, 2013). Discontinuities on the map correspond to limits of electoral constituencies with different sets of candidates.

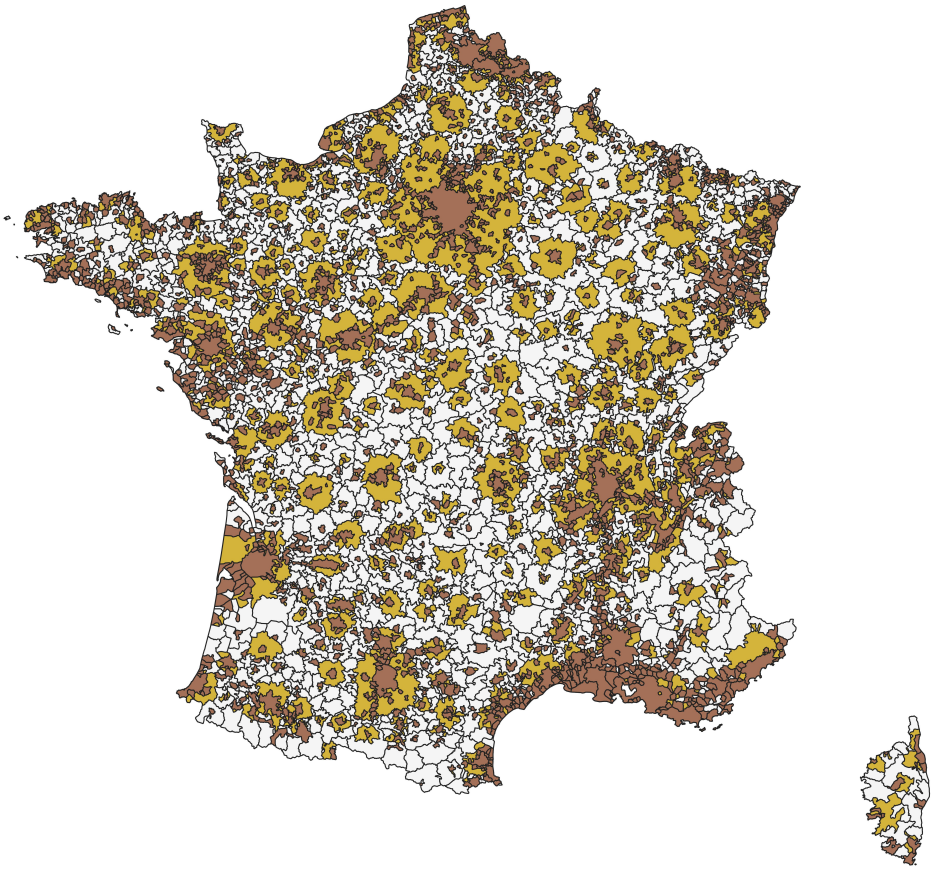
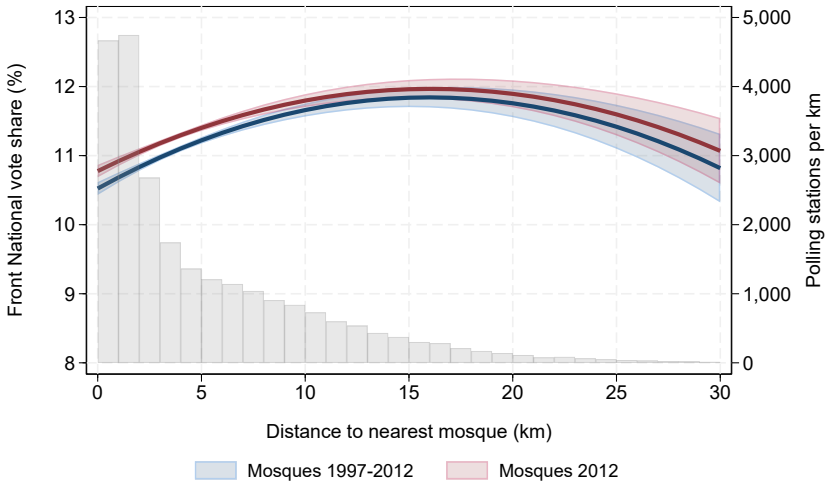
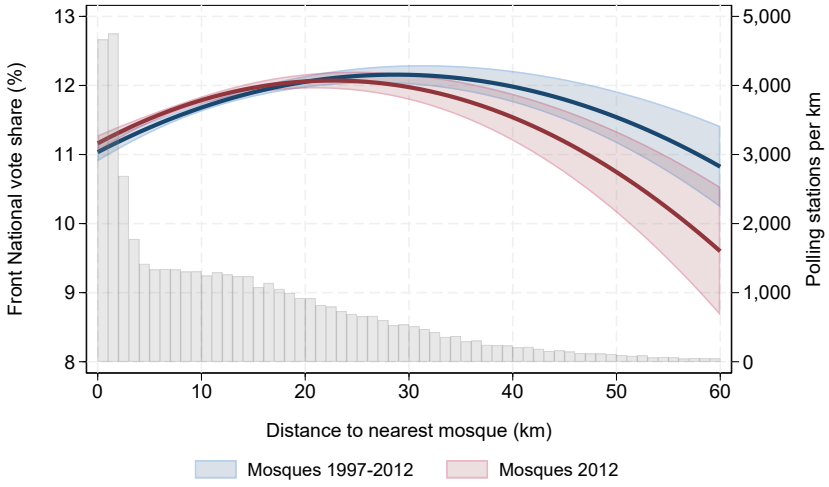


Figure A.3. Statistical Zoning into Life Basins, Urban Areas, and Urban Units

Notes. This figure displays the distribution of life basins (back lines), urban areas (yellow zones), and urban units (brown zones). Rural areas implicitly correspond to white zones. See Section III.C. for a description of data sources.



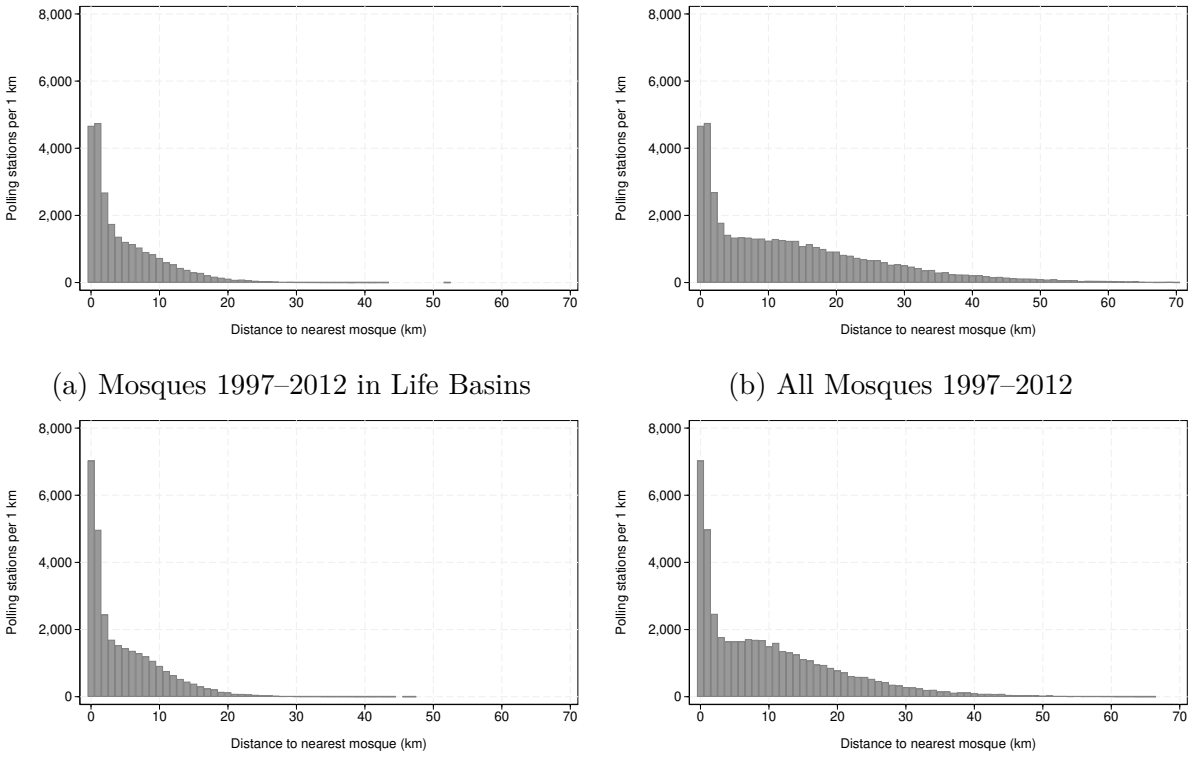
(a) Mosques in Life Basins



(b) All Mosques

Figure A.4. Predicted Front National Vote Shares Across Distance and Samples

Notes. This figure displays the predicted Front National vote shares with estimates from Table A.2 across distances to the nearest mosque. Panel (a) uses estimates from Columns (1) and (3), and Panel (b), estimates from Columns (2) and (4). Polling station densities correspond to those relative to the 1997–2012 matched file. These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.



(a) Mosques 1997–2012 in Life Basins

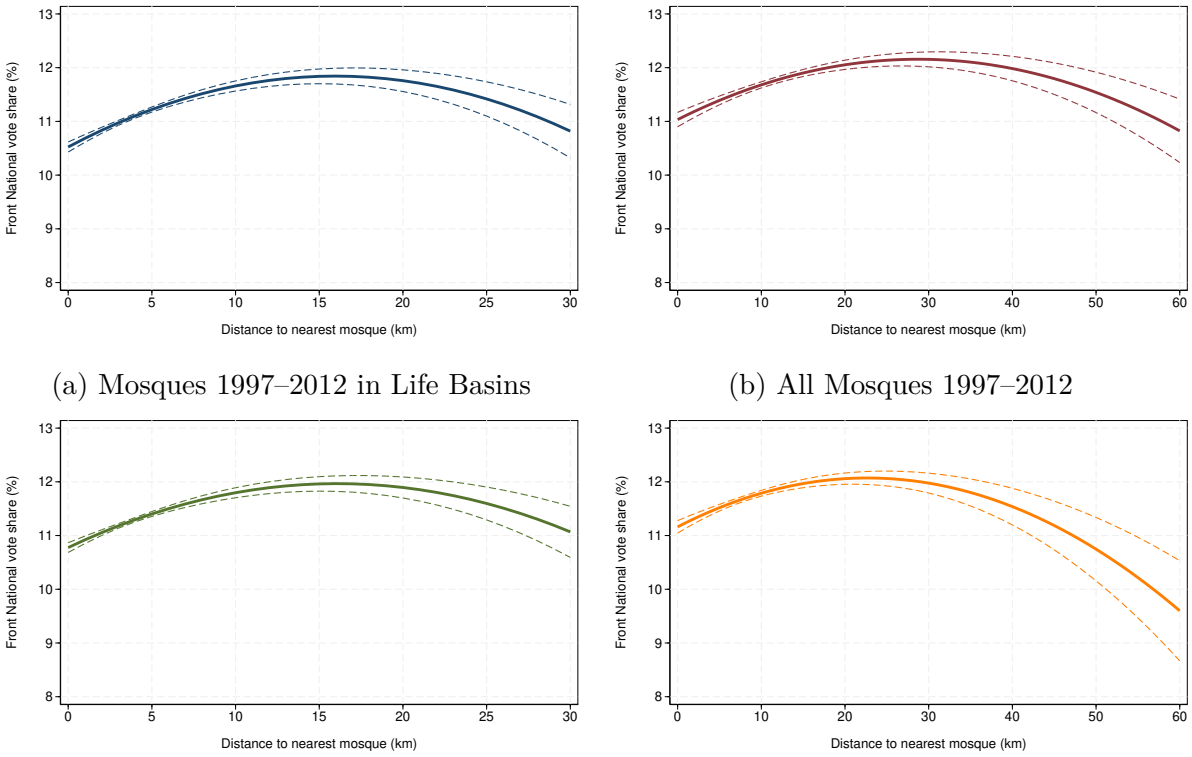
(b) All Mosques 1997–2012

(c) Mosques 2012 in Life Basins

(d) All Mosques 2012

Figure A.5. Polling Station Density by Distance to Nearest Mosque

Notes. This figure displays density of polling stations across various samples by bins of distance to their nearest mosque. Panels (a) and (c) focus on the samples of polling stations located in life basins where at least one mosque is present, while Panels (b) and (d) focus on the sample of all polling stations.



(a) Mosques 1997–2012 in Life Basins

(b) All Mosques 1997–2012

(c) Mosques 2012 in Life Basins

(d) All Mosques 2012

Figure A.6. Predicted Front National Vote Shares Across Distance and Samples

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table A.2 across distances to the nearest mosque along with 95 percent confidence intervals. These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.

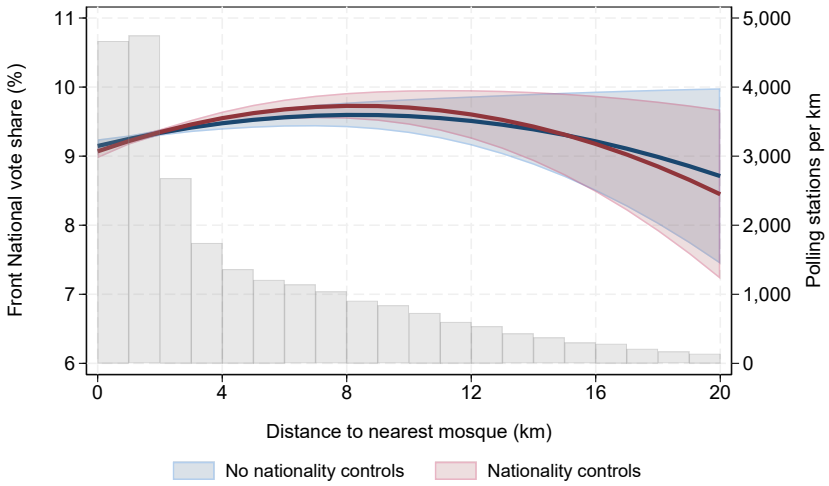


Figure A.7. Predicted Front National Vote Shares Across Distance
Nationality Controls

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table A.4 across distances to the nearest mosque along with 95 percent confidence intervals. The blue curve uses estimates from Column (2) and the red curve uses estimates from Column (4). These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.

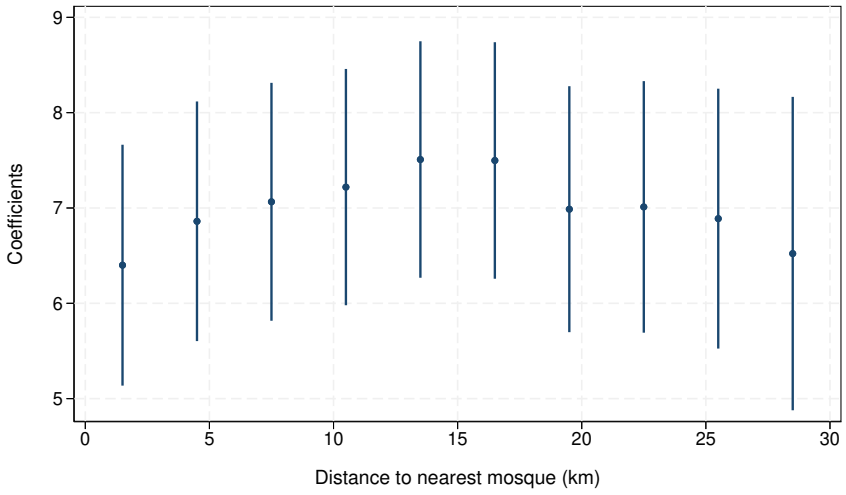


Figure A.8. Distance-Specific Coefficients of the Relationship between Front National Vote Shares and Distance to Nearest Mosque

Notes. This figure displays the bin-specific coefficients from estimating Equation 3 along with 95 percent confidence intervals. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.

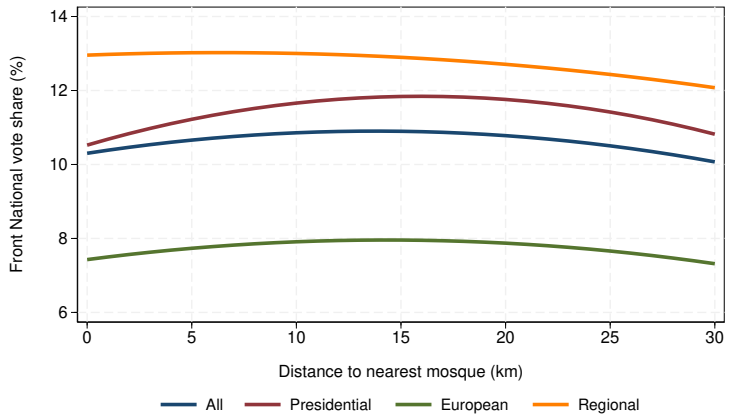
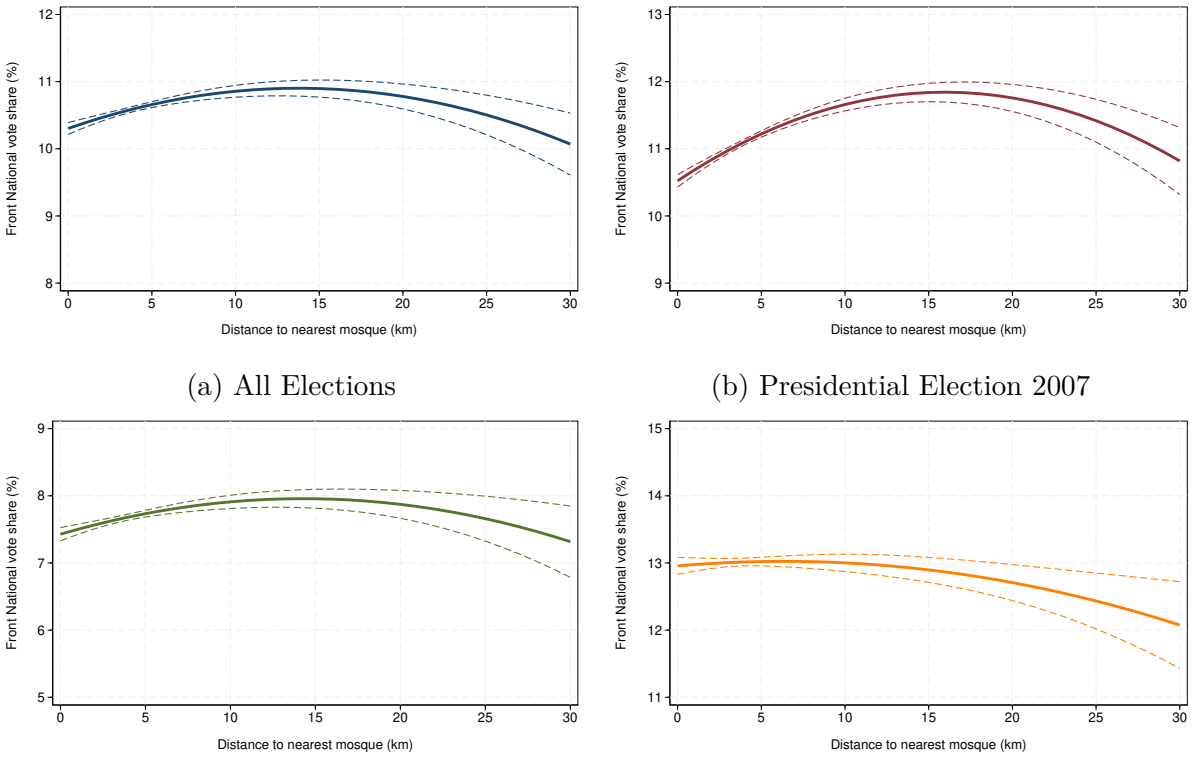


Figure A.9. Predicted Front National Vote Shares Across Distance and Elections

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table 5 across distances to the nearest mosque. These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.



(a) All Elections

(b) Presidential Election 2007

(c) European Elections 2009

(d) Regional Elections 2010

Figure A.10. Predicted Front National Vote Shares Across Distance and Elections

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table 5 across distances to the nearest mosque along with 95 percent confidence intervals. These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.

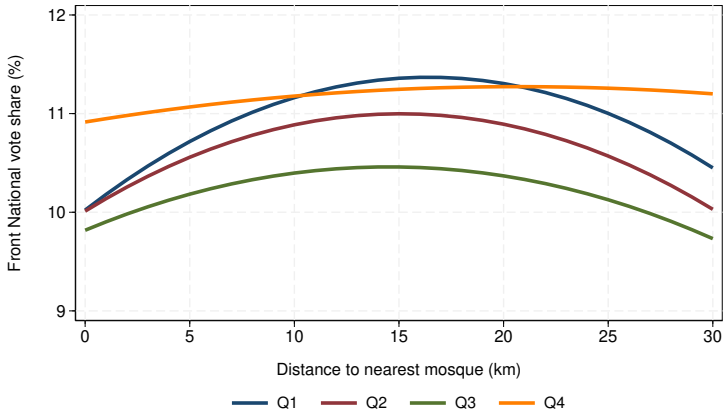
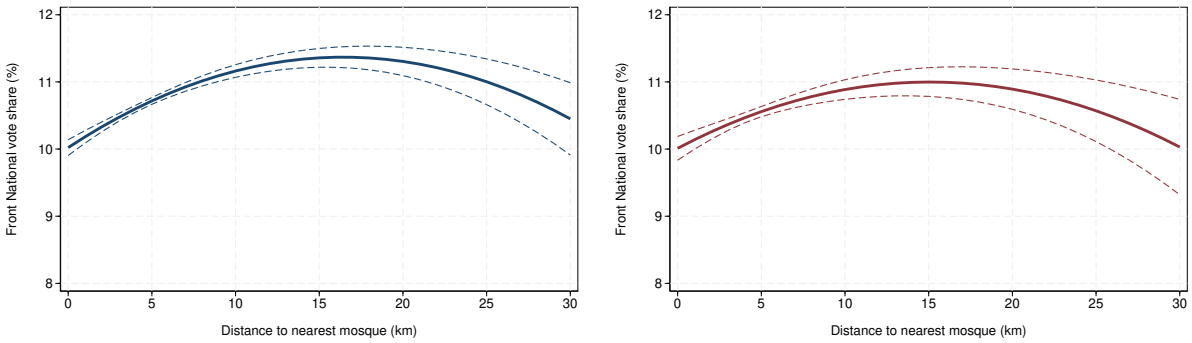


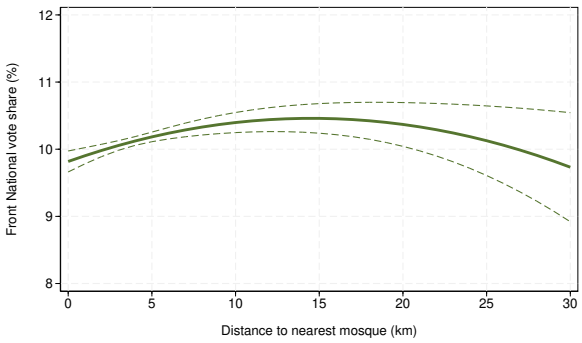
Figure A.11. Predicted Front National Vote Shares Across Distance and Quartiles of Abstention Rates

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table A.5 across distances to the nearest mosque. These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.

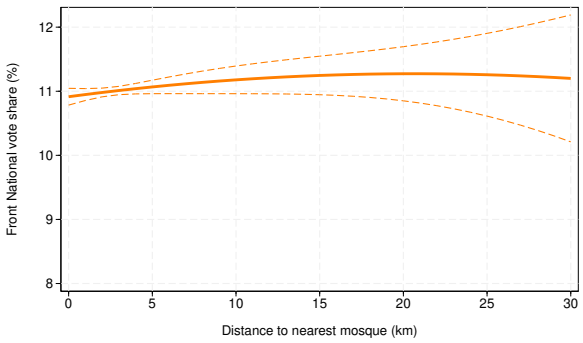


(a) Abstention Rate Q1

(b) Abstention Rate Q2



(c) Abstention Rate Q3



(d) Abstention Rate Q4

Figure A.12. Predicted Front National Vote Shares Across Distance and Quartiles of Abstention Rates

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table A.5 across distances to the nearest mosque along with 95 percent confidence intervals. These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.

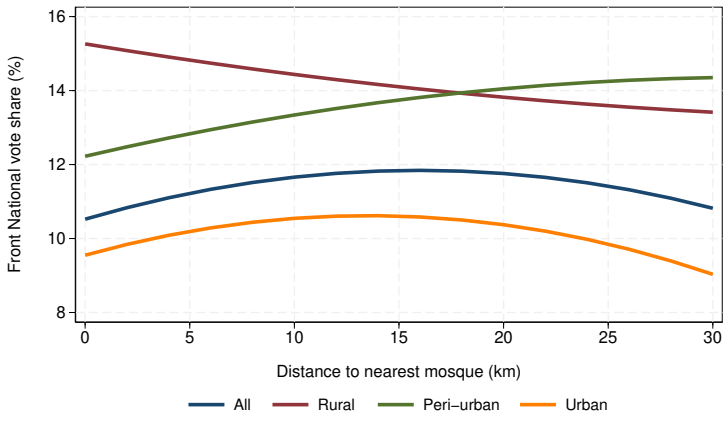
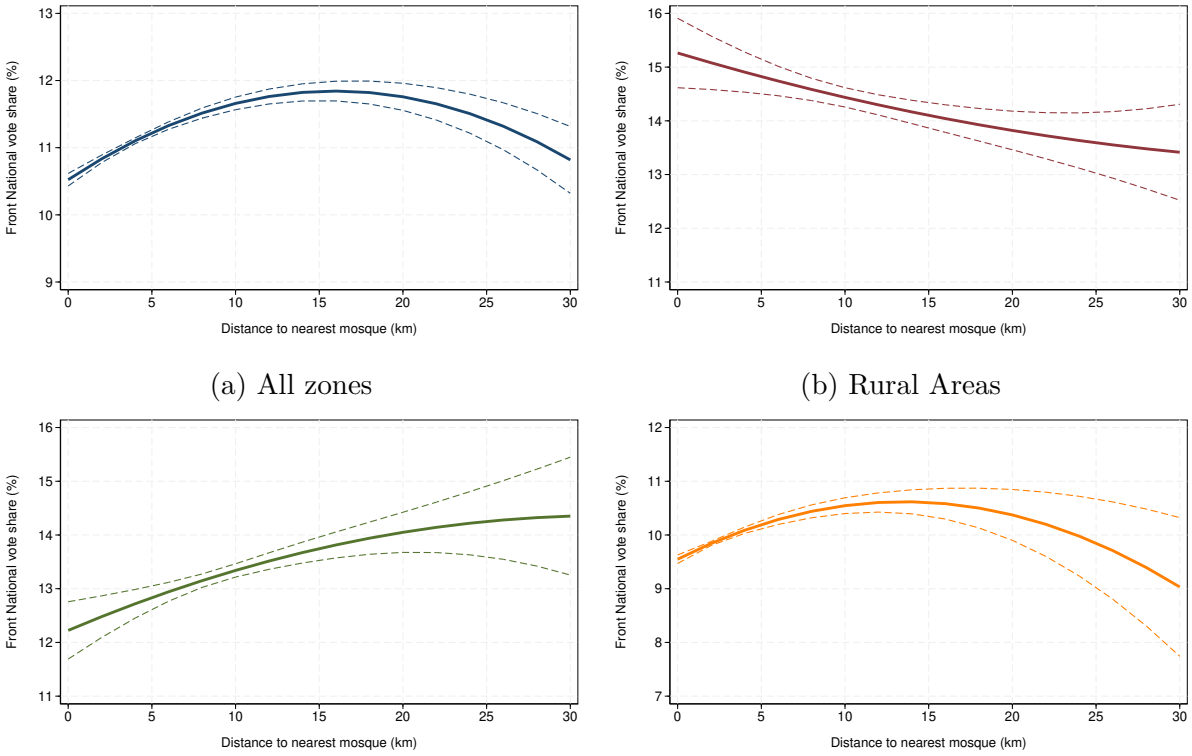


Figure A.13. Predicted Front National Vote Shares Across Distance and Zoning

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table 6 across distances to the nearest mosque. These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.



(a) All zones

(b) Rural Areas

(c) Peri-Urban Areas

(d) Urban Areas

Figure A.14. Predicted Front National Vote Shares Across Distance and Zoning

Notes. This figure displays the mean prediction of Front National vote shares using estimates from Table 6 across distances to the nearest mosque along with 95 percent confidence intervals. These predictions are generated using Winter's (2021 [2014]) `combomarginsplot` Stata package.

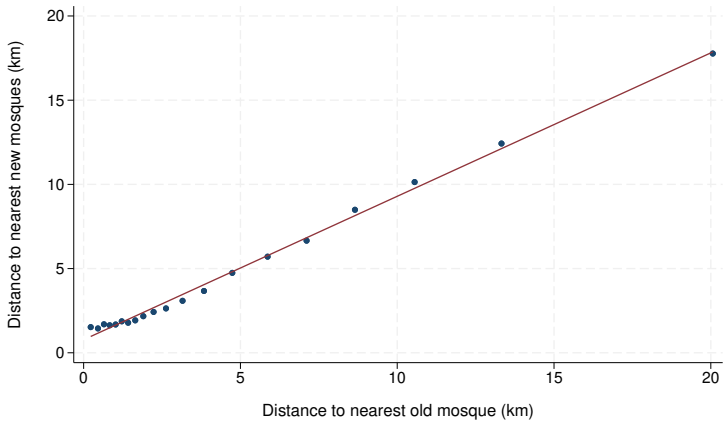


Figure A.15. Distance to Old versus New Mosques

Notes. This figure plots the distance to the nearest old mosque versus the distance to the nearest new mosque by bins of distance using Pinna's (2021) Stata `binscatterhist` package (Pinna, 2022). The coefficient of the linear fit is 0.85.

Table A.1. Vote Share for the Front National and Distance to Nearest Mosque
Robustness of Standard Errors

Dependent variable:	Front National vote share (%)					
	A. Clustering			B. Spatial correlation		
	Polling station	Nearest mosque	Life basin	30 km	4 years	30 km & 4 years
	(1)	(2)	(3)	(4)	(5)	(6)
Distance to nearest mosque (km) ($\widehat{\beta}_1$= 0.166)	0.013	0.019	0.021	0.019	0.013	0.019
Distance to nearest mosque (km) ($\widehat{\beta}_2$= −0.005)	0.001	0.001	0.001	0.001	0.001	0.001
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects						
Life basins	337	337	337	337	337	337
Nearest mosque	1,037	1,037	1,037	1,037	1,037	1,037
Clusters	24,698	1,037	337			
Polling stations	24,698	24,698	24,698	24,698	24,698	24,698

Notes. This table reports standard errors associated with OLS coefficients from estimating Specification 2. The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's share of foreign population, log population, area, average age, unemployment rate, the share of population with no diploma, and the share of population living in HLM. *Clustering* corresponds to standard errors being clustered at the levels of polling stations (Column 1), nearest mosque (Column 2), or life basin (Column 3). *Spatial correlation* corresponds to standard errors being corrected for spatial correlation up to 30 kilometers (Column 4), 4 lags (Column 5), or both (Column 6). These standard errors are calculated using weights in the variance covariance matrix that are linearly decreasing in distance and time. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package. Standard error calculations in Panel B are made using Colella et al.'s (2021) `acreg` Stata package (Colella et al., 2023).

Table A.2. Vote Share for the Front National and Distance to Nearest Mosque Robustness Across Samples

Dependent variable:	Front National vote share (%)			
Mosques file:	1997–2012		2012	
Restriction:	Life basin	None	Life basin	None
	(1)	(2)	(3)	(4)
Distance to nearest mosque (km)	0.166***	0.078***	0.148***	0.080***
	[0.013]	[0.008]	[0.013]	[0.009]
Distance to nearest mosque, squared (km)	−0.005***	−0.001***	−0.005***	−0.002***
	[0.001]	[0.000]	[0.001]	[0.000]
Share foreign population (%)	−0.230***	−0.171***	−0.197***	−0.153***
	[0.008]	[0.007]	[0.008]	[0.007]
Controls	Yes	Yes	Yes	Yes
Fixed effects				
Life basins	333	1,613	524	1,612
Nearest mosque	1,010	1,019	1,905	1,928
Polling stations	24,671	46,254	29,045	46,161
Within R^2	0.130	0.077	0.106	0.072
Front National vote share mean (%)	11.63	11.63	11.63	11.63
Halo apex (km)	15.95	28.72	16.06	22.66

Notes. This table reports OLS coefficients from estimating Specification 2 across samples. The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's share of foreign population, log population, area, average age, unemployment rate, the share of population with no diploma, and the share of population living in HLM. Standard errors are in brackets and are clustered at the level of polling stations. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.
*** Significant at the 1 percent level.

Table A.3. Summary Statistics of Population by Nationality

Baseline sample					
	Mean	S.d.	Min.	Max.	Stations
Share foreign (CARTELEC 2007)	5.69	6.03	0.00	54.53	24,698
Restricted sample					
	Mean	S.d.	Min.	Max.	Stations
Among total population					
Share foreign (CARTELEC 2007)	8.19	6.57	0.00	54.53	13,933
Share foreign (TRIRIS 1999)	7.71	5.73	0.21	48.99	13,933
Share naturalized	5.90	3.29	0.45	25.35	13,933
Among foreign population					
Share Algerian	15.94	10.34	0.00	68.31	13,933
Share Moroccan	14.01	11.85	0.00	76.24	13,933
Share Tunisian	5.06	6.00	0.00	57.16	13,933
Share Turkish	4.55	7.24	0.00	79.32	13,933
Share EU	37.00	16.80	1.89	92.75	13,933
Share other nationalities	23.44	12.66	0.00	87.64	13,933

Notes. This table reports summary statistics for the share of the foreign population at the polling station level in percent. *Baseline sample* corresponds to the full sample of polling station used in baseline analyses. *Restricted sample* corresponds to the sample of polling stations for which overlapping TRIRIS data from the 1999 census are available, with an overlap threshold of 80 percent. All data refer to those from the 1999 census except when otherwise indicated.

Table A.4. Vote Share for the Front National and Distance to Nearest Mosque Nationality Controls

Dependent variable:	Front National vote share (%)			
	(1)	(2)	(3)	(4)
Distance to nearest mosque (km)	0.166***	0.108***	0.122***	0.158***
	[0.013]	[0.031]	[0.036]	[0.032]
Distance to nearest mosque, squared (km)	−0.005***	−0.007**	−0.007**	−0.009***
	[0.001]	[0.003]	[0.003]	[0.003]
Share foreign population (%, CARTELEC 2007)	−0.230***	−0.191***		
	[0.008]	[0.010]		
Share foreign population (%, TRIRIS 1999)			−0.107***	
			[0.009]	
Share naturalized population (%, TRIRIS 1999)				−0.205***
				[0.019]
Share Algerian population (%, TRIRIS 1999)				0.014***
				[0.004]
Share Moroccan population (%, TRIRIS 1999)				0.025***
				[0.004]
Share Tunisian population (%, TRIRIS 1999)				0.017**
				[0.008]
Share Turkish population (%, TRIRIS 1999)				0.018***
				[0.005]
Share other foreign population (%, TRIRIS 1999)				−0.031***
				[0.003]
Share EU population (%, TRIRIS 1999, excluded)				
Controls	Yes	Yes	Yes	Yes
Fixed effects				
Life basins	333	154	154	154
Nearest mosque	1,010	719	719	719
Polling stations	24,671	13,735	13,735	13,735
Within R^2	0.130	0.143	0.114	0.133
Front National vote share mean (%)	11.10	9.37	9.37	9.37
Halo apex (km)	15.95	8.32	8.48	8.35

Notes. This table reports OLS coefficients from estimating Specification 2. The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's log population, area, average age, unemployment rate, the share of population with no diploma, and the share of population living in HLM. *TRIRIS 1999* indicates that the foreign population controls are from the 1999 census. Standard errors are in brackets and are clustered at the level of polling stations. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.
*** Significant at the 1 percent level. ** Significant at the 5 percent level.

Table A.5. Vote Share for the Front National and Distance to Nearest Mosque by Abstention Rate

Dependent variable:	Front National vote share (%)			
Quartile of abstention:	Q1	Q2	Q3	Q4
	(1)	(2)	(3)	(4)
Distance to nearest mosque (km)	0.164***	0.131***	0.088***	0.035
	[0.015]	[0.022]	[0.022]	[0.025]
Distance to nearest mosque, squared (km)	−0.005***	−0.004***	−0.003***	−0.001
	[0.001]	[0.001]	[0.001]	[0.001]
Share foreign population (%)	−0.209***	−0.210***	−0.136***	−0.142***
	[0.010]	[0.013]	[0.014]	[0.012]
Controls	Yes	Yes	Yes	Yes
Fixed effects				
Elections	3	3	3	3
Life basins	330	321	329	313
Nearest mosque	932	927	901	968
Polling stations	18,459	14,518	14,114	12,291
Within R^2	0.129	0.049	0.049	0.044
Front National vote share mean (%)	10.69	10.50	10.14	11.01
Abstention rate mean (%)	12.68	37.18	54.24	64.46
Halo apex (km)	16.43	15.07	14.53	20.67

Notes. This table reports OLS coefficients from estimating Specification 2, separately across all four quartiles in abstention rates. The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's share of foreign population, log population, area, average age, unemployment rate, the share of population with no diploma, and the share of population living in HLM. Standard errors are in brackets and are clustered at the level of polling stations. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.

*** Significant at the 1 percent level.

Table A.6. Vote Share for the Front National and Distance to Nearest Mosque
Old versus New Mosques

Dependent variable:	Front National vote share (%)			
	(1)	(2)	(3)	(4)
Distance to nearest pre-1997 mosque (km)	0.193***		0.187***	0.190***
	[0.014]		[0.018]	[0.024]
Distance to nearest pre-1997 mosque, squared (km)	−0.008***		−0.009***	−0.008***
	[0.001]		[0.001]	[0.001]
Distance to nearest post-1997 mosque (km)		0.156***	0.008	−0.017
		[0.015]	[0.018]	[0.024]
Distance to nearest post-1997 mosque, squared (km)		−0.005***	0.002**	0.003***
		[0.001]	[0.001]	[0.001]
Controls	Yes	Yes	Yes	Yes
Nearest pre-1997 mosque's station controls	Yes	No	Yes	No
Nearest post-1997 mosque's station controls	No	Yes	Yes	No
Fixed effects				
Life basins	184	184	184	184
Nearest mosque pre-1997 × post-1997	0	0	0	1,591
Polling stations	19,534	19,534	19,534	19,194
Within R^2	0.267	0.255	0.271	0.131
Front National vote share mean (%)	10.65	10.65	10.65	10.65

Notes. This table reports OLS coefficients from estimating Specification 1 in Columns (1)–(3), and Specification 2 in Column (4), augmented with distances to the nearest mosque built after 1997. The dependent variable is the vote share of the Front national in percent. The unit of observation is the polling station. The distance measure is with respect to the nearest mosque located in the same life basin as the polling station. Controls include the polling station's share of foreign population, log population, area, average age, unemployment rate, the share of population with no diploma, and the share of population living in HLM. Standard errors are in brackets and are clustered at the level of polling stations. Estimates are calculated using Correia's (2023 [2014]) `reghdfe` Stata package.
*** Significant at the 1 percent level. ** Significant at the 5 percent level.

Polling Booth Locations To determine the exact location of polling booths associated with each polling station, we use the following six-step procedure. First, we overlay the 2007 polling station shapefile with the geocoded addresses of the 2017 polling booths (the earliest dataset available), relying on the fact that the location of polling booths is relatively stable over time.[1] If the 2007 polling station polygon contains a unique 2017 polling booth address, we attribute it to the 2007 polling station—this enables us to geocode 29,261 polling booths. Second, we repeat the operation on the missing polling stations with the geocoded 2020 polling booth addresses—this gives us an additional 7,852 polling booths.[2] Third, we overlay the shapefile of the remaining ungeocoded 2007 polling stations with the locations of the 2011 town halls, since they always contain polling booths—2011 is the earliest year for which a town hall shapefile is publicly available.[3] If the 2007 polling station polygon contains a city hall, we attribute it to the 2007 polling station—this gives us 5,258 additional polling booths. Fourth, we consider the remaining 2007 polling stations that contain multiple 2017 polling booths, and take their centroid as long as it falls within the polling station polygon—this gives us another 1,177 polling booths. For the remaining 6,758 polling stations, we assign their centroid. For the 270 polling stations whose centroid falls outside their (non-convex) polygon, we assign a random point.

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[1] This dataset is available at https://public.opendatasoft.com/explore/dataset/bureaux-vote-france-2017/information (accessed in July 2024). Because the addresses provided by the Ministry of the Interior are sometimes inaccurate, only 57,663 of the 63,548 polling booths are properly geocoded in this file.

[2] This dataset is available at https://www.data.gouv.fr/fr/datasets/geolocalisation-des-bureaux-de-vote (accessed in July 2024). Again, because the addresses provided by the Ministry of the Interior are sometimes inaccurate, only 59,131 of the 67,797 polling booths are properly geocoded in this file.

[3] This dataset is available at https://geoservices.ign.fr/geofla (accessed in July 2024).

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