Minority Salience and Political Extremism*

Tommaso Colussi† Ingo E. Isphording‡ Nico Pestel§

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Abstract

This paper studies the electoral effects of exposure to religious minorities in the context of Muslim communities using unique data on mosques' construction and election results across German municipalities over the period 1980–2013. To establish causality, we exploit natural variation in the distance of the election date to the month of Ramadan, when Muslim communities become more visible to the general public. Our findings reveal an increased polarization of the electorate. In municipalities with a mosque vote shares for both right- and left-wing extremist parties become larger when the election date is closer to Ramadan. A complementary analysis on smaller-scale electoral districts in Berlin shows that the increased support for the far-right mainly occurs in districts surrounding a mosque. Survey evidence supports the importance of salience during Ramadan: respondents interviewed in the proximity of Ramadan have more negative attitudes towards Muslims and perceive a larger share of foreign-born living in their country than those surveyed later on. Finally, we show that the change in minority salience further increases the likelihood of crimes against Muslims.

JEL Codes: D72, D74, J15

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†Corresponding author. IZA - Institute of Labor Economics, colussi@iza.org

‡IZA - Institute of Labor Economics, isphording@iza.org

§IZA - Institute of Labor Economics and Centre for European Economic Research (ZEW), pestel@iza.org

1 Introduction

Over the last decades, the constant inflow of international migrants has rapidly changed the ethnic, cultural, and religious composition of Western societies.[1] The increasing ethnic heterogeneity has sparked a well established literature on its effects on a variety of social and economic outcomes (Alesina & La Ferrara, 2005; Putnam, 2007). While diversity may have positive effects on the economy in the long run (Alesina *et al.*, 2016), empirical evidence mounts that it deteriorates trust and social capital (Alesina & La Ferrara, 2002; Putnam, 2007), preferences for redistribution (Dahlberg *et al.*, 2012), and social relationships (Algan *et al.*, 2016). Politicians and governments are currently concerned about the potential effects of large migrations, including refugees' inflows, on social unrest and support for nationalist political parties. Several studies have estimated the electoral effects of immigration, providing mixed results.[2] On the one hand, contacts with ethnic minorities may reduce prejudice and informational asymmetries between the minority and the majority group, thus resulting into a low support for anti-immigration parties (Allport, 1954). An alternate possibility is that exposure to different ethnic groups may trigger in-group bias and thus social conflict, ultimately polarizing the electorate (Glaeser & Sunstein, 2009).

This paper empirically investigates the impact of exposure to religious minorities on political preferences of the majority group. In particular, we analyze how a change in *salience* of Muslim communities influences voters' behavior, potentially increasing the level of political extremism. With respect to related studies, we focus on the visibility of the minority group rather than its (relative) size; moreover, our empirical design exploits both geographical and time variation in Muslims' salience, namely the establishment of visible

[1] As of 2014, the share of foreign-born individuals residing in OECD countries was about 10%, and a further 5% of the native-born population had at least one immigrant parent (OECD, 2014, 2015).

[2] Increasing vote shares for right-wing parties by immigrant share have been found for Italy (Barone *et al.*, 2016), Austria (Halla *et al.*, 2016), Denmark (Dustmann *et al.*, 2016), Switzerland (Brunner & Kuhn, 2014), the UK (Becker & Fetzer, 2016), and the city of Hamburg (Otto & Steinhardt, 2014). Steinmayr (2016) instead finds that exposure to refugees in Austrian neighborhoods decreases the support for the far-right; along similar lines, Dill (2013) shows a negative relationship between foreigners' share and right-wing voting in Germany.

mosques across German municipalities and the occurrence of the festivity of Ramadan.

We focus on Germany because its multi-party system covers the full political spectrum from far left to extreme right. Germany is also home to more than 4 million Muslims, the largest number among European countries, accounting for about 5% of the total population. Relative to other religious groups, Muslims display stronger and more persistent cultural identity (Adida *et al.*, 2014), which is often perceived by natives as a threat and a source of social conflict (Bisin *et al.*, 2016).[3] These perceptions have been aggravated through escalating acts of Islamic terrorism and the growing number of refugees from the Middle East. Such events have renewed the attention to the Muslim population in the host countries, ultimately pushing the political debate toward extreme positions.[4] Both right and left-fringe parties have been successfully exploiting this controversial issue, by tailoring their messages and targeting particular (more extremist) voters in an attempt to increase their political support (Bölsche, 2008; Worley, 2016).

This study aims at establishing a causal link between the visibility of Muslim communities and aggregate voting behavior. This empirical analysis is challenging for several reasons. First, the number of Muslims living in German municipalities is not recorded in any official register. Second individual location choices are not random and may depend on unobservable characteristics, which also affect electoral results through channels other than exposure to Muslims. There may also be reverse causality if minority groups decide to cluster and segregate as a reaction to increased hostility by the majority group (Slotwinski & Stutzer, 2015). Finally, a plausible and observable variation in the visibility of Muslim communities is hard to find in a non-experimental set up.

To recover causal estimates of the electoral effects, we exploit two different sources of variation: the establishment of mosques in German municipalities and the occurrence of

[3] In Europe, the population share of Muslims increased from 4% in 1990 to 6% in 2010, representing now the largest non-Christian religious denomination (Pew Research Center, 2011, 2012)

[4] In general, extremism is more likely along politically divisive topics, such as the integration of Muslim immigrants, where the heterogeneity of preferences is greater (Glaeser *et al.*, 2005; Mullainathan & Shleifer, 2005).

Ramadan relative to election dates. Our identification is based on a difference-in-differences strategy that allows us to measure how the change in Muslims' visibility due to Ramadan translates into differential vote shares for extremist parties in municipalities with and without a mosque. The construction of representative mosques is a visible imprint of Muslims' cultural presence; it also attracts a large number of Muslims from surrounding areas for weekly prayers, possibly creating misperception on the actual size of their population. Since the timing and location of mosques' establishment is potentially endogenous, we additionally use the distance of the election date to the start of Ramadan as an exogenous change in Muslim communities' salience. Ramadan is a month of religious observances consisting of fasting and extra prayers; over this month Muslim communities become more visible because of the increased mosque-going due to different religious and social events taking place at the mosque, as we observe in the data. An important feature of Ramadan is that it rotates over the seasons according to the lunar calendar, providing us with a natural variation in the distance of a particular election to Ramadan.[5]

For this empirical investigation, we employ unique data on mosques' construction across German municipalities. We combine this dataset with election results at the municipality level for 18 federal and state elections between 1980 and 2013 in the state of North Rhine-Westphalia (NRW), which hosts the largest number of Muslims in Germany. Regression results show that municipalities experienced an increase in both far-right and far-left vote shares in elections after the establishment of a mosque. Exploiting the variation in the elections' time distance to Ramadan allows us to isolate the additional effect of increased visibility from other confounding factors. The difference in the vote share for far-right parties in elections between municipalities with and without a mosque increases by about 15% of a standard deviation if an election is happening within three months since the start of Ramadan. The respective effect for left-fringe parties displays a similar magnitude of 20%

[5] Several papers have used the exogenous timing of Ramadan to estimate the effect of religiuos practices on health (Almond & Mazumder, 2011) and educational outcomes (Oosterbeek & van der Klaauw, 2013; Almond *et al.*, 2015). Campante & Yanagizawa-Drott (2015) show that Ramadan fasting reduces productivity in Muslim countries, but it increases Muslims' subjective well-being.

of a standard deviation.

We provide several additional checks to investigate the validity of our results. We first show that the occurrence of Ramadan in combination with the presence of a mosque is not correlated with observable characteristics of the municipality. We then ensure that our results are not driven by municipality specific time trends in political polarization. In order to check that our results are not an artifact of a small number of treated municipalities and election dates we implement placebo tests of random allocation of mosques to municipalities and Ramadan treatment to election dates. The results further show that the occurrence of Ramadan mainly impacts short-term political preferences: as the distance of the election from Ramadan increases, the magnitude of the electoral effects decreases. We also study how the effect of exposure to Muslims varies across municipalities' characteristics. The estimated effect of minority salience is larger for municipalities that have a larger share of young voters (aged 18-24) and a greater male to female ratio.

To corroborate our results on elections in the state of NRW, we make use of additional information from several sources. First, we employ data on mosques, electoral results and population characteristics of electoral districts in the city of Berlin in order to investigate the effect of increased Muslim salience on electoral outcomes at a smaller geographical level than the municipality. We find that the occurrence of Ramadan only increases the support for the extreme right in blocks surrounding a mosque. The polarization of the electorate does not seem to happen within the same areas of the municipality; these results also suggest that the effect on the far-left is unlikely to be driven by a direct exposure to Muslims. Second, we provide survey evidence to shed light on the potential mechanisms driving the results. Using the seventh wave of the European Social Survey, we show that respondents interviewed just after Ramadan reveal more extreme political attitudes than those surveyed later on. This group of respondents also show more negative attitudes towards Muslims, they perceive a larger share of foreign-born living in the country, and they are more concerned about cultural dissimilarities between natives and foreign-born. Finally, to supplement data

on political preferences, we analyze attacks on mosques, as an expression of anti-Muslim sentiment other than voting behavior. Using daily records on attacks in Germany over the 2001–2011 period, we find that there is a considerable increase in the probability of attacks on Muslim communities in the two months after the end of Ramadan.

Our results fit the narrative of intergroup conflict based on social identity theory, predicting that the in-group favoritism and out-group discrimination increase with the salience of the out-group (Tajfel, 1982; Turner, 1981). This paper relates to the growing number of studies that brought the general insight of the intergroup interaction theory to the field of political interaction, showing that the coexistence of different ethnic groups has led to increased political polarization and support for extremist positions (Grosfeld *et al.*, 2013; DellaVigna *et al.*, 2014; Dippel, 2014; Sakalli, 2016).[6] With respect to this set of studies, which mainly rely on cross-sectional variation, our paper employs a novel empirical design which exploits exogenous time variation in the salience of the minority group.

Overall, our findings are in line with anecdotal evidence that the renewed attention on the aspects of Muslims' life and integration in Western countries increases the polarization of the electorate. As the right-wing movements target and mobilize angry citizens to protest against Islam and mosques' construction, left-wing parties organize counter-rallies to stop the extreme right and ultimately increase their consensus among German citizens (Müller-Vogg, 2016).

The paper proceeds as follows. Section 2 provides background information on Muslims' life in Germany and their evolution over time. Section 3 describes the data used in the empirical analysis, while in Section 4 we discuss the identification strategy. Section 5 presents our empirical findings and a set of robustness checks. Section 6 concludes.

[6] Sakalli (2016) studies historical settlement patterns in Turkey, arguing that coexistence of different religious groups has a long-term impact on political extremism through its effect on culture and its interaction with formal institutions. Similar patterns of regional coexistence and political polarization have been identified for Jews and Gentiles in the Russian Empire (Grosfeld *et al.*, 2013). Other studies have also found increased ethnic hatred in Croatians being exposed to Serbian Radio (DellaVigna *et al.*, 2014) and negative externalities of forced coexistence of different Native-American tribes in the US reservation system (Dippel, 2014).

2 Background

Electoral and party system. Germany is a federal parliamentary republic, comprising 16 constituent states (*Länder*). The political system is multi-party and characterized by a mixture of a proportional representation and a majoritarian voting system. In elections for the national parliament's lower house (*Bundestag*), voters cast two different votes, which each determine half of the seats in parliament. The first vote in each electoral district (*Erststimme*) determines which candidate is elected directly to parliament representing his or her constituency, following a majority rule voting system. The second vote (*Zweitstimme*) is cast for a party list by federal state. The total number of seats assigned to each party in each state (including the directly elected ones) is determined by the party-by-state *second vote share*, following a proportional representation system. The elections for the state parliament (*Landtag*) of North Rhine-Westphalia (NRW) are organized in a very similar way.

For elections on both the national and the state level, we focus on the second vote which expresses voters' party preferences. The party system in Germany covers the entire spectrum of political preferences from extreme left to extreme right. Politics in Germany is to a large extent dominated by two parties, the center-right Christian Democrats (*CDU*) and the center-left Social Democrats (*SPD*). Since after World War II, either one of the two main parties has always been leading the federal or state government and proposed the Federal Chancellor or the State Prime Minister. Governments rely on the support of a majority in parliament, typically coalitions between one of the two main parties and the Liberal Party (*FDP*) or the Green Party (*GRÜNE*). In addition, the two main parties occasionally form a joint government as a so-called "Grand Coalition". Since the reunification of East and West Germany in 1990, the left-wing successor parties of the former Communist Party of East Germany (nowadays *Die Linke*) has regularly won seats in the *Bundestag* and occasionally in the *Landtag* NRW, but has never been part of the federal or state government.[7]

[7] The party *Die Linke* has been and currently is part of state government coalitions in former East German states though.

In each parliamentary election, a large number of further smaller parties run for seats in parliament. Since entering the national or the state parliament requires a party vote share of at least 5% and other parties receive vote shares usually well below this threshold they have never entered the *Bundestag* or the *Landtag* of NRW.[8]

However, a very interesting feature of the German political system is that parties are to a large extent publicly financed. Political parties become eligible for public subsidies to fund their political activities if they received at least 0.5% of votes in the last federal or European election or at least 1.0% in a state election.[9]

Muslims and Mosques in Germany. Islam is the largest minority religion in Germany. There are no official statistics on the number of Muslims living in Germany, as the affiliation to the Islamic religion is not recorded in any official register. However, the Federal Office for Migration and Refugees estimated that in 2008 Germany was home to about four million Muslims, roughly 5% of the total population (Haug *et al.*, 2009); an estimated 45% of them were naturalized between 1998 and 2005 and they are now German citizens.[10] Figure 1 plots the distribution of Muslims across German states as of 2008. Muslims are almost exclusively geographically concentrated in West Germany (98%); more than 30% of them reside in the state of North Rhine-Westphalia (NRW), followed by large populations in Baden-Wuerttemberg (BW), Bavaria (BY) and Hesse (HE).[11]

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[8] Occasionally, some extreme right-wing parties have gained seats in other federal states of Germany though. Recently, the right-wing *Alternative für Deutschland* (*AfD*) has entered a number of state parliaments in East and West Germany. However, the period of our investigation (until the last federal election in 2013) does not cover the *AfD*'s current electoral outcomes.

[9] Parties receive 0.83 euros (1 euro for the first 4 million votes) from the government budget for each second vote they get in state, federal and European elections.

[10] The report specifies that these figures are based on "extrapolations on the ascertained quota of naturalized citizens and data from the central register of foreigners".

[11] According to Haug *et al.* (2009), the Muslim population seems to be quite heterogeneous in terms of countries of origin and religious subgroups; most of them arrived in Germany with the signing of recruitment agreements (*Anwerbeabkommen*) with states, such as Turkey (1961), Morocco (1963), Tunisia (1965) and Yugoslavia (1968). Many immigrants ultimately decided to stay in Germany permanently and were rejoined by their families over the course of time (Stoop, 2016). The dominant group is composed of Turkish descents (70%), while other largest sending countries are Albania, Bosnia, and Middle Eastern countries. Concerning the different religious groups, the most numerous are the Sunnis, followed by Alevis and Shiites; these three groups alone account for about 94% of the total Muslim

Since the mid-1970s mosque associations and Islamic centers were set up in order to serve religious and cultural needs of a growing number of Muslim migrants.[12] A common goal of these organization has always been to build representative places of worship, in order to relocate their members from backyard locations to visible mosques with minarets and domes (Kuppinger, 2014). Given the growth of the Muslim population, Islamic associations started buying land and buildings in order to turn them into representative prayer houses, claiming their constitutionally guaranteed rights of undisturbed practice of religion.

The construction of mosques in Germany is thus a relatively recent but highly-debated phenomenon.[13] Local residents and anti-immigration movements have used several different arguments to prevent the establishment of new mosques. City-space related arguments against mosques' construction usually involve traffic problems, parking spaces, and the fit of the new building into the city's skyline. Other concerns are related to fundamentalism, influence from foreign countries or (hostile) organizations, and the creation of ghettos and parallel societies (Stoop, 2016). This last set of arguments generally reflects a widespread suspicion and prejudice towards Muslims and their religious activities (Bölsche, 2008). Far-right parties have been using these fears and concerns as propaganda vehicles to support their anti-immigration ideologies: several protests and demonstrations have taken place to oppose to construction of new mosques.[14] At the same time, several counter-rallies opposing the anti-Islam protesters were also organized by left-wing and radical groups, resulting in higher social tension.[15]

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population in Germany.

[12] The main organizations are the Turkish-Islamic Union of the Institutions for Religious Affairs (DITIB), the Union of Islamic Cultural Centres (VIKZ), the Islamic Council of the Federal Republic (IRD), the Central Council of Muslims in Germany (ZMD). The first two are associations for Muslims of Turkish origin, whereas the IRD and the ZMD gather Muslims of different backgrounds (Stoop, 2016).

[13] Schmitt (2003) provides a complete description on the history and evolution of mosques' presence in Germany.

[14] In Cologne, the biggest municipality of the state of NRW, the anti-Islam movement (*Pro Köln*) spilled over into local politics, managing to present an own list to 2009 city council elections. The party has constantly been under observation by the domestic intelligence service (Federal Office for the Protection of the Constitution) for their extreme right-wing ideologies.

[15] Figures A1(a) and A1(b) shows pictures taken at Pro Köln rally in Cologne and the counter-protests organized by left wing parties.

Ramadan and Muslims' salience. Religious events and mosque attendance spike during the Muslim holy month of Ramadan; this is the ninth month of the Islamic lunar calendar, when the Quran was revealed to the prophet Muhammad. Muslims follow the lunar calendar, whose 12 months add up to approximately 354 days; the lunar year is therefore 10 to 11 days shorter than the solar year (or Gregorian calendar). Figure 2 depicts how Ramadan rotates over the seasons in cycles of around 33 years over the time period analyzed. The figure plots the the first day of Ramadan and the day of the election each year. The distance between the two dates varies depending on the time of the year in which Ramadan happens to occur in any given election years. While elections are typically held in the same month, the first day of Ramadan moves backward by about 11 days each year.

During this festivity, which lasts for about thirty days, Muslims are called upon to re-evaluate their lives in light of Islamic guidance, which includes fasting from sunrise to sunset along with daily prayers, charity, and pilgrimage to Mecca (at least once in a lifetime). Individual lifestyle and social life of Muslims all around the world are thus heavily affected by this holy month (Marshall Cavendish, 2010). All Muslims are required to take part and observe the daily routine, which includes a pre-dawn (*suhur*) and fast-breaking meals (*iftar*); these events usually take place at the mosque where tents and tables are set for banquets. Ramadan is also a time of socialization: many Muslims come together and visit the mosque to share meals with relatives and acquaintances, as well as to attend special prayers (*tarawih*) only performed during this month. The end of Ramadan is celebrated with a three-day event called *Eid al-Fitr*: Muslims gather at the local mosque or public spaces for special prayers, gift exchange and to have first daylight meal in a month.[16] All these celebrations and additional prayers result in increased mosque-attendance, and, to some extent, in higher levels of religiosity (Akay *et al.*, 2013; Campante & Yanagizawa-Drott, 2015).[17]

[16] Figures A1(c) and A1(d) in the Appendix portrait typical Ramadan banquets at the mosque in Duisburg and in Dortmund.

[17] Using the seventh wave of the European Social Survey, we provide evidence that Muslim respondents interviewed in the three months after Ramadan show a higher level of religiosity and more frequent attendance to religious services than the rest. Table A1 shows ordered probit regression results on the effect of Ramadan on the degree of religiosity (Panel A), frequency of prayers (Panel B) and mosque

To demonstrate the increased salience of Muslim communities during Ramadan, we use data on the contents of *Tagesschau* (i.e. *Day's Show*), a national news program on German television; this is the oldest and the most watched news program on German television, followed by about 10 million viewers every day.[18] The show consists of a 15-minute bulletin, broadcasted at 08:00 pm each day; the program continues to air at 10:15 pm each evening with a half-hour show, providing more in-depth reports and commentary (*Tagesthemen*). The official website provides the daily content of each show since April 2013. Figure 4 plots the coverage of Ramadan by *Tagesschau* and *Tagesthemen*, aggregated by week (measured by the number of times the word *Ramadan* appears): begin and end dates of Ramadan are usually covered by this TV program, thus reaching a large number of German voters.

Additionally, we use Google Trends data to examine whether searches for words like Islam, Ramadan, and mosque (*Moschee*) change during Ramadan within Germany. Google Trends provides an index of the volume of Google searches by geographic location and category. The raw level of queries is not available, instead Google collects, normalizes and scales the number of searches into an index that ranges between 0 and 100. Data are weekly and available at the country and state level starting from January 2004 (Choi & Varian, 2012). Figure 5 plots the evolution of the query-index for each of the keywords mentioned above over the period January 2004 to December 2014 for Germany; it clearly shows a positive correlation between term-queries and Ramadan weeks.[19] As the data do not provide us with information on the identity of the users who search for these words, we do not know their religious affiliation. It is however interesting to observe that the query for *Ramadan* has a peak at the beginning of Ramadan, as Muslims may look for the exact start date and time; but the level of searches continues to be large during the whole month, suggesting that also searches from non-Muslim users may intensify over this period.

attendance (Panel C). Figure A2 shows the distribution of the responses distinguishing between people interviewed within three months since Ramadan and the rest.

[18] Information on this TV show and its contents can be found at the following website http://www.tagesschau.de/.

[19] Regressions results are shown in Table A2 in the Appendix. During Ramadan the query-index for Ramadan, mosque (*Moschee*), and Islam increases by 150%, 30% and 18% respectively.

3 Data

The main analysis is based on data from 396 municipalities (*Gemeinden*) in the state of North Rhine-Westphalia (NRW), which has the largest population size among the German *Länder* (about 18 million or more than 20% of the total population).

Elections. The data on electoral outcomes come from NRW's Statistical Office and contain for each municipality the number of eligible voters, the actual number of valid and invalid votes as well as the number of valid votes cast for each party. Overall, we exploit information for 18 different elections between 1980 and 2013; ten federal elections as well as eight elections for the state parliament.[20] The municipalities are responsible for the execution of both national and state elections using uniform ballots across the state. In addition, we obtained various time-varying characteristics of the municipalities that we use as control variables from the Statistical Office: population size, population density, share of foreigners, share of women and number of employed. Overall, the estimation sample comprises **7,128** municipality-election observations.

Following Falck *et al.* (2014), we aggregate votes for specific parties in three different groups: votes for established, far-right, and far-left parties. We define as established the following political parties: Christian Democrats (*CDU*), Social Democrats (*SPD*), the Liberal Party (*FDP*), and the Green Party (*GRÜNE*). Right-wing parties are movements following anti-immigration and nationalist ideologies, the core members of this group are: the National Democratic Party of Germany (*NPD*), Republicans (*REP*), German People's Union (*DVU*), and Pro Germany Citizens' Movement of North Rhine-Westphalia (*ProNRW* or the associated *ProDEU* for federal elections).[21]

[20] The Bundestag is elected for a four-year term, but there were early elections in 1983, 1990 and 2005. The *Landtag* NRW is elected for a five-year term with an early election in 2012. Election dates for the *Landtag* are always in May, while most *Bundestag* elections are in September and October with exceptions in the 1980s due to early elections.

[21] Some minor parties included in this list because of their anti-islam or immigration ideologies are Bund für Gesamtdeutschland (*BGD*), Unabhängige Arbeiter-Partei (*UAP*), Christliche Mitte (*CM*), Freiheitliche Deutsche Arbeiterparte (*FAP*), Volksabstimmung, Bürgerrechtsbewegung Solidarität (*Büso*),

Finally, left-fringe parties are those characterized by communist ideologies, featuring anti-capitalist and anti-globalist opinions. These include the German Communist Party (*DKP*), Communist Party of Germany (*KPD*), Marxist-Leninist Party of Germany (*MLPD*), Social Equality Party (*PSG*), Eco-Social Left (*OKOLI*) and the Left Party (*Die LINKE*).[22] We divide the total number of votes at the municipality level for each of these three group by the number of eligible voters.

Mosques. We combine the municipality data with a unique dataset on all mosques that were established in the state of North Rhine-Westphalia. The mosque dataset provides so far unavailable, but extremely important information for Germany. Differently from most Western countries, out of historical reasons German administrative and Census data do not contain any information on ethnicity, race or religion apart from a binary christian/non-christian indicator. The best available information on the regional distribution of Muslims is usually based on extrapolations from small-scale surveys and cannot be analyzed on a regional level lower then the federal state. The existence of a mosque in a municipality or electoral district is therefore an important and strong proxy for the existence of a sizable and active Muslim community.

We obtained these data from different sources, mainly from a website (*www.moscheesuche.de*) providing for each mosque information on the year of opening (or closure), the postal code as well as the organization running the mosque.[23] In addition, we have information on different characteristics of the mosque and we focus on "visible" mosques that are clearly recognizable

and Deutsche Partei (*DP*). The exclusion of these minor parties does not affect the magnitude and the statistical significance of the estimated effects. The newly arising Alternative for Germany (*AfD*) is not included as it was only founded in 2013.

[22] The Left party was founded in 2007 as the merger of two existing parties: the Party of Democratic Socialism (*PDS*) and the Electoral Alternative for Labour and Social Justice (*WASG*); therefore, for elections before 2007 we sum the total votes for the WASG and PDS.

[23] To check the information provided by this website, we proceeded as follows. First, for each Muslim organization appearing in the raw data we downloaded the list of their prayer houses, including the year of establishment and the address. We then used Google Earth and Street View to check whether the prayer houses was present in the indicated address. The total number of mosques in our data is in line with other studies conducting similar researches, such as Schmitt (2003).

as such from the outside. This means, we only consider mosques having a minaret as well as a dome and exclude so-called backyard mosques which are accommodated in buildings that were previously used for different purposes (e.g., warehouses, factory halls or supermarkets). Figures A1(e) and A1(f) illustrate the difference between a backyard mosque (which would not be part of our data) and a visible mosque with minaret and dome. For each prayer house, we further collected information on whether it is located in a residential area, the size in squared meters, and the distance to the municipality's town hall. Figure 3 provides a map of mosques' presence across municipalities of the state of North Rhine-Westphalia by decade. Before 1980 there were just eight municipalities where a mosque was established, this number increased to 55 in the following three decades.

Descriptives. Table 1 presents averages over the observation period of observable characteristics and electoral outcomes for NRW municipalities' over election years, distinguishing between those where at least one mosque is located once throughout the observation period and those that had none. Population size ranges from a minimum of 3,730 to a maximum of more than one million inhabitants (Cologne). Over the period analyzed, there are 55 out of 396 municipalities with at least one mosque during any of the elections; these municipalities are on average larger in terms of resident population and density. Municipalities with mosques also have a higher share of foreign-born residents, which is slightly larger than 10%. The data also provide the number of private sector employees working in each municipality, figures are again higher for cities with mosques. Further, municipalities with or without mosque differ in average electoral outcomes over the 18 elections. Both average vote shares for left and right parties are higher in municipalities which have a mosque throughout the observation period, while turnout is marginally lower.

4 Identification

Our aim is to estimate the relationship between the salience of religious minorities and voting behavior. In this section, we describe how we use arguably exogenous variation in mosque construction and election dates in relation to Ramadan to claim a causal interpretation of our estimates. We first describe a difference-in-differences comparison approach using precise information on location and date of construction of mosques. We compare election outcomes within municipalities before and after mosque construction, relying on municipalities not experiencing a mosque construction as control group. Interpreting the estimated parameter as causal implicitly assumes as-good-as-random allocation of mosques, and common trends in the absence of mosque construction, which is unlikely to hold. We therefore additionally use variation in the timing of elections in relation to Ramadan: we compare differences of elections by proximity to Ramadan between municipalities having a mosque with those who do not have a mosque within their borders at the date of the election in the sense of a difference-in-difference-in-differences estimator.

Lacking administrative information on the number of Muslims by municipality, we take the existence of a mosque within a municipality's borders as a proxy for the existence of a religiously active Muslim population. Our initial model

$$votingoutcome_{it} = \beta_0 + \beta_1 m_{it} + \varepsilon_{it} \tag{1}$$

then relates the existence of a mosque m_{it} in municipality i at time t to electoral outcomes. The voting outcomes analysed are absolute votes and relative vote shares for extreme left/right and established parties as well as voter turnout. The error term can be thought of to consist of three components

$$\varepsilon_{it} = \eta_i + \eta_t + \eta_{it} \tag{2}$$

The first component includes unobserved time-invariant factors at the municipality level,

such as remoteness, geographical endowments, and historical determinants of political opinion. The second component reflects unobserved time-varying influences on electoral outcomes that are shared by all municipalities such like preceding terrorist attacks, rising anti-Muslim sentiments over time or the state of the national economy. We absorb this potentially confounded variation by including fixed effects on the level of municipalities (λ_i) and single elections (δ_t) which yields the respective fixed effects model

$$votingoutcome_{it} = \beta_0 + \beta_1 m_{it} + \lambda_i + \delta_t + \eta_{it} \tag{3}$$

The third component refers to influences that differ over time within municipalities and varies accordingly at the same level as the outcomes of interest. Therefore, if we were to interpret β_1 of equation 3 as a causal estimate of the influence of mosques on electoral outcomes, we would have to maintain the assumption that $E[m_{it}, \eta_{it}|\lambda_i, \delta_t] = 0$, that is that there are no unobserved influences on the municipality/election date level which are systematically related to the mosque construction.

There are at least two compelling reasons why such an assumption will be violated. First, Muslim ethnic enclaves are not randomly distributed across municipalities; for instance, these communities may tend to grow in municipalities characterized by low housing prices. The same unobserved characteristics attract marginalized native households that might display a higher propensity of voting for extreme right or left parties. Second, a positive correlation between the construction of a mosque and extreme voting behavior could display a reverse causality running from nationalist voting behavior to mosque constructions. While we argue in our main discussion that nationalist voting behavior is a reaction of native voters to a higher salience of the out-group, following the same line of reasoning, one could argue that Muslims see the need of larger in-group identification via mosque construction when being exposed to a hostile environment expressed through nationalist voting outcomes.

To address these potential threats to identification, we extend our initial model by additionally taking into account the relative timing of an election with respect to the beginning

of Ramadan. Specifically, we compare differences between municipalities with and without mosques if an election happens within a certain time span after Ramadan or otherwise. To do so, we estimate the following model:

$$votingoutcome_{it} = \beta_0 + \beta_1 m_{it} + \beta_2 m_{it} \times r_t + \lambda_t + \delta_i + \eta_{it} \tag{4}$$

where r_t is an indicator variable which equals one if an election date t is in close proximity to the beginning of Ramadan, e.g. within 90 days since the begin date in our preferred specification.[24] The indicator r_t only enters the specification through the interaction with the mosque indicator, its main level is absorbed in the election dates fixed effects λ_t.

The month of Ramadan rotates over the seasons according to the lunar calendar, and election dates in Germany are in no respect set with taking Ramadan dates into account, thus the distance of the election date to the begin of this festivity is unarguably exogenous to the electoral outcomes of interest. Further, based on the discussion in 2 in which we argued that mosques during Ramadan have a significantly higher visibility for the surrounding neighborhood, this setup provides us with an ideal source of idiosyncratic variation in the visibility of Muslim communities. We can reasonably argue that $E[m_{it} \times r_t, \eta_{it} | \lambda_i, \delta_t] = 0$ and that β_2 provides us with a causal estimate of the effect of increased salience of religious minorities (indicated by the presence of a mosque) during Ramadan.

To further raise confidence into our results, we later provide balancing tests of observable characteristics with respect to $m_{it} \times r_t$ and estimate variants of equations (3) and (4) adding fixed effects for election type by municipality (state or federal elections) and allowing for heterogeneous time trends by municipality (via decade times municipality interactions). Additional robustness checks include alternative definitions of the ramadan dummy variable.

Ideally, we would need to have a measure of visibility that varies at the local level and over time and employ an instrumental variable approach to identify the effect of Muslims'

[24] In Section 5 we vary the definition of election after Ramadan and we also employ a continuous measure of days since last Ramadan.

salience on political extremism (using the interaction of Ramadan with the mosque presence as an instrument for visibility in the first stage). However, in the absence of such data, our main analysis basically focuses on the reduced-form impact of increased visibility on political extremism.

Figure 6 helps visualizing our two sources of variation. The vertical bars indicate the distance in days since the last Ramadan for each election; while the dashed line reports the number of municipalities where a mosque is located. Out of 18 elections, four elections are treated according to our definition of Ramadan, i.e., national elections in 1980, 2009, and 2013 and state parliament elections in 1990. The share of $Mosque \times Ramadan$ treated observations on the municipality/election date level is thus equal to 1.94%.

5 Empirical findings

5.1 Minority salience and electoral results

In this section we present estimates of the effect of a change in salience of Muslim communities on a set of electoral results. Table 2 reports main estimates of β_1 and β_2 in equations (2) and (4) on four different outcomes: vote shares for far-right, far-left and established parties as well as voter turnout. In all regressions the dependent variable is expressed as the percentage of eligible voters in order to wash out any effect due to changes in the turnout. Every specification includes fixed effects for the date of the election and the interaction between the municipality and the type of the election, thus comparing results of the same type of elections within the same municipality.[25] Columns (2) and (4) add to the main specification municipality characteristics, such as population density, share of women, foreigners,

[25] We exclude from the final sample municipal elections (*Kommunalwahlen*) for several reasons. First, non-German European Union citizens are also allowed to vote in these elections; second, the data may mis-specify information on some local extremist parties if they only run locally. Finally, mosques' construction may directly influence the political campaign of extremist parties at the very local level. Nevertheless, the inclusion of municipal elections (for years 1994-2014) does not affect the size and significance of estimated coefficients.

and employed standard errors are always clustered at the municipality level in order to allow for correlated effects within elections in the same municipalities.

The first two columns of Table 2 report the estimated effect of mosques' presence on voting behavior, i.e., β_1 in equation (2). Panel A shows that municipalities experienced an increase in the share of right-fringe votes after the establishment of a mosque; the estimated coefficient corresponds to about a 11% increase at the baseline. Including municipalities' characteristics leads to point estimates that are smaller in absolute value but consistently positive and statistically significant at conventional levels.

Positive and significant effects are also recovered for the vote share for left-fringe parties (Panel B). It is not straightforward to compare estimates across different panels of Table 2, as they clearly depend on the values of the dependent variable that substantially change over time and across municipalities, as shown by Table 1; the effects on far-right and far-left are quite large and of comparable magnitude as they correspond to 13% and 19% of a standard deviation of the dependent variable, respectively. Support for established parties and political participation appears to decline in treated municipalities and elections, but these estimates loose statistical significance with the inclusion of additional controls.

At this stage, we refrain from interpreting the estimated coefficients causally. Unobserved characteristics simultaneously affecting political extremism and the establishment of a mosque may generate spurious correlations. Second, the effect can also be explained by a change in the composition of treated municipalities' voters following mosques' construction: a growing community of Muslims in a municipality may lead moderate voters to move out and, at the same time, attract more extremist voters.

In order to overcome these confounding factors and to establish causality and to isolate the effect of a change in Muslims' salience, we exploit variation in the distance of election dates to the start of the Ramadan. As Ramadan is likely to affect attitudes and political preferences through increased salience especially in the short-run, we consider as treated all elections taking place within three months since the first day of Ramadan. Columns (3)

to (4) of Table 2 report estimated coefficients for the four electoral outcomes considered, according to different empirical specifications.

Results indicate that far-right parties' vote share is increased by 15% of a standard deviation in municipalities where a mosque is present and the election is within three months since the start of the Islamic festivity. The inclusion of additional controls for municipalities' characteristics leave estimated coefficients almost unchanged, suggesting that the distance of the election to Ramadan is indeed orthogonal to selected observable characteristics. Similarly, far-left parties' support is increased in elections during Ramadan by about 20% of a standard deviation.[26] This set of results confirms that the occurrence of this Islamic holy month renews the attention to Muslim communities in German municipalities, ultimately polarizing political preferences of voters.

On the contrary, established parties experience a one percentage point reduction in treated municipalities and elections, i.e., about 1% reduction at the baseline. The increased political extremism reduces voter turnout as shown by the negative coefficients in Panel D. The effect is almost negligible in size, but it is consistent with the idea that polarization has led to a general withdrawal from politics: as the political debate becomes harsher the moderate voter may decide not to vote (Rogowski, 2014).

Overall, our findings confirm anecdotal evidence that the growth and thus the increased visibility of Muslim communities have polarized the political preferences of German voters. As far-right parties mobilize angry citizens to protest against Islam, far-left movements have gain support by organizing counter-rallies to support Muslim communities, ultimately increasing the level of political and social conflict. The estimated effect is not sufficiently large to allow any representative of the fringe parties to seat in the Parliament (though it might do so at the margin in some municipalities), but it is large enough to get these parties eligible for public reimbursements of their political activities.[27]

[26] We also run weighted regressions using eligible voters in each municipality and election as weights. Estimated coefficients are similar to the ones in Table 2 both in magnitude and statistical significance.

[27] In 2014, the total amount of public money received by the oldest alt-right party *NPD* was around 1.4 million euros (source: "*Festsetzung der staatlichen Mittel für das Jahr 2014*").

5.2 Robustness checks

This section discusses results from different robustness checks aimed at corroborating the empirical analysis. Tables 3 and 4 report main regression results.[28]

Balancing tests. The fundamental identification assumption is that the residual variation of the main explanatory variable $Mosque \times Ramadan$ is independent of the error term u_{it}. Although this assumption is essentially untestable, Table 3 provides results from an indirect test for exogeneity. Specifically, we test if several municipal characteristics, which may potentially influence electoral outcomes, are correlated with the dummy $Mosque \times Ramadan$. Estimated coefficients in Table 3 are never significantly different from zero.[29] In general, point estimates are also very small in magnitude. Moreover, the inclusion of these controls in the main specification (i.e. Table 2 column (4)) leave estimates almost unaffected, further providing evidence that the occurrence of Ramadan is orthogonal to observable characteristics. Overall, there is no evidence that elections within the month of Ramadan are systematically correlated with time-varying municipal characteristics that could also impact voting behavior.[30]

Another concern with the specification is that the establishment of a mosque may be correlated with the date of the election; for instance, decisions regarding the opening of a new mosque could be postponed if extremist parties are on the rise. To deal with this issue, we use the share of foreigners as a proxy for the presence of Muslims; more specifically, we replace the mosque dummy with the share of foreigners in the municipality; estimated coefficients shown in Table A4 in the appendix have similar sign and statistical significance as the ones reported in Table 2 on all the four outcomes analyzed.

[28] Table 4 only reports coefficients on the two main outcome variables: vote shares for far-right and far-left parties. For exposition purposes, we removed from the main text robustness tests on other outcome variables and presented them in the appendix, Table A3.

[29] The specification includes fixed effects for the municipality and the decade of the election. Less restrictive specifications do not provide significant coefficients.

[30] We also check whether a dummy indicating whether a municipality has ever had a mosque and its interaction with the Ramadan dummy are correlated with the same observable characteristics, columns 2, 4, 6, 8.

Time trends and outliers. A relevant concern is that our estimates reflect unobserved differential time trends in the vote share for extremist parties between treated and non-treated municipalities. We thus interact municipality fixed effects with dummies for 10 and 5 year sub-periods to allow municipalities to have differential non-parametric trends in the support to extremist parties. Results are reported in the first two columns of Table 4; estimated coefficients become smaller for both right and left-fringe support, but they remain statistically significant at the 1% level. As we restrict the number of years in each sub-period, the identification relies on differences in relatively close elections, hence leading to less precise estimates.

Another potential issue is represented by the large deviations in the far-right and far-left vote shares reported in Table 1 that may distort the estimates of coefficients in our linear regression model. We address this point by transforming the dependent variables in order to reduce the influence of outliers; more specifically, we take the square root of the vote shares for each party.[31] Estimated coefficients are still positive and statistically significant for both extremist parties, though reduced in magnitude. While we observe similar increases at the baseline for the effect on right-wing parties, the estimates provide much lower effect for the far-left parties, suggesting that part of the effect is possibly driven by outliers in particular municipalities.

Finally, in the same table, we present regression results from a model in which the mosque dummy takes value one if the municipality *ever* had a mosque, and its interaction with the Ramadan dummy. This specification allows us to have a larger proportion of treated observations (i.e. 3.1%) and mitigate the problem of the uneven distribution of the treatment over the time window analyzed. Estimated coefficients are in general smaller than the one estimated in Table 2 but still statistically significant on both far-right and far-left

[31] We prefer the square root to a logarithmic transformation as our dependent variables contain many zeros. Square root transformation treats numbers of 1 and above differently than non-negative numbers lower than 1 (Osborne, 2005). Regression results are unchanged if we take the square root of the share (i.e. 0-1) or percentage (i.e. 0-100) of the votes to far-right and far-left parties. Median regressions, which are more robust to outliers than OLS, provide similar estimates.

support. The smaller magnitude of the coefficients could be due to measurement error in the explanatory variable, as we assign a Muslim community to a municipality when this is not yet present.

Lower bound estimates. A considerable share of Muslims are German citizens and thus entitled to vote at state and federal elections; therefore, we cannot exclude that part of the estimated electoral effects is driven by a change in Muslims' voting behavior. While it is unlikely that Muslims vote for anti-islam and xenophobe political parties, it could be the case that Ramadan has both a direct and an indirect effect on the far-left support.[32] Increased mosque-going may directly affect political preferences of Muslims, leading them to support political parties characterized by more open positions towards Islam, such as *Die Linke*. German Muslims may also vote for the far-left as a response to the increased hostility towards them.

In order to estimate the extent to which the effect reported in Panel B of Table 2 can be due to a shift to the left of Muslim voters, one would need to know their number in each municipality. Given that this information is not available, our solution consists of using the number of votes collected by the party Bündnis für Innovation & Gerechtigkeit (BIG) as a proxy for Muslim voters.[33] More specifically, we compute the maximum number of votes for BIG in each municipality over the whole observation period, as a proxy for the number of Muslim voters; we then subtract this number to the far-left votes in treated elections and municipalities.[34] This procedure allows to get a lower bound estimate of the change in Muslims' salience on left-fringe vote shares. Estimated coefficients in Panel C are around

[32] Using individual microdata from the German Socio-Economic Panel, we find that Muslims or second generation immigrants with a Turkish background predominantly vote for center-left parties (i.e. SPD), displaying low support for extremist parties; they also show a relatively low interest in politics. See Tables A6 and A7 for detailed regression results.

[33] This is the first political party founded by German Muslims in 2010. This party's members and candidates are mainly Turkish descents, who specifically target Muslim voters through policy programs oriented towards their integration and cultural needs.

[34] Since naturalization of Turkish descents started in 1998, we subtract the number of Muslim voters from the far-left votes only in elections after this year.

20% lower than the ones of Table 2, but they are still positive and statistically significant. This last exercise suggests that our main empirical findings cannot be solely explained by a direct effect of Ramadan on Muslims' political preferences.

Timing of Ramadan and elections. The implicit assumption of model (4) is that Ramadan affects political preferences mainly in the short run; we should then expect the estimated effects to decline as the distance of the election to the first day of Ramadan increases. In order to test for this assumption, we run separate regressions where the definition of treated election varies from 2 to 6 months since the start of Ramadan. Figure 8 plots estimates of β_2 from 5 different regressions for both far-right and far-left parties. The specification is the same as the one used in Table 2 column (3), standard errors are clustered at the municipality level. The estimated effect increases as the election date is closer to the start of Ramadan, while it declines over time.[35] It becomes statistically not significantly different from zero after the fifth month since the first day of the Islamic month for the far-right party; for the far-left parties the effect is still significant, but its magnitude reduced by a half. Table A4 in the Appendix further provides regression results in which the Ramadan dummy has been replaced with a continuous variable indicating the distance in days since the last Ramadan. Results are robust and consistent with previous findings, showing that the effect on political extremism declines as the election moves away from the start of Ramadan.

Random assignment of mosques and Ramadan. We run two different placebo exercises to ensure that our main results are not an artifact arising from the small number of "treated" municipalities having a mosque during an election shortly after Ramadan. In our specification just 4 elections and 55 municipalities are treated, their interaction accounts for about 2% of the observations. This small number aggravates the possibility that our results

[35] As shown in Figure 6 there are no elections during Ramadan. The share of treated observations is 1.04% for elections within 2 months since first day of Ramadan, 1.94% for elections within 3 months, 2.36% for elections within 4 and 5 months, and 2.82% for elections within 6 months.

could simply be driven by a bad random draw. To provide evidence on the fact that our results are actually representing a meaningful effect exceeding random fluctuations in voting outcomes, we randomly define elections to happen during Ramadan, as well as artificially distribute mosques to municipalities on a random basis.

First, we artificially change the geographical location of mosque constructions. In our sample, out of 7,128 municipality $\times$ elections observations, 568 cases are treated because a mosque is present at the time of the election. We mimic this spatial and time distribution by randomly assigning mosques to 568 municipalities in our sample. Repeating this randomization 5,000 times and estimating the empirical model (4) yields the distribution of coefficients displayed in Figure 7(a). The vertical dashed line indicates the magnitude of the "true" estimate based on the actual locations and construction timing of mosques, i.e. column (3) Table 2. In almost every case the placebo coefficients are lower than the "true" one.

In a second placebo test, we artificially change which elections are "treated" by happening shortly after the beginning of Ramadan. In our sample, 4 out of 18 elections happen during the time window of 90 days after beginning of Ramadan. In this placebo test, we mimic this distribution of "treated" elections by assigning the treatment status to 4 randomly chosen elections, keeping the original number of mosques, and re-run our main specification. We repeat this exercise 5,000 times without replacement. The results displayed in Figure 7(b) show the distribution of the 5,000 resulting "placebo" point estimates. The vertical dashed line indicates the "true" estimate based on 4 elections actually happening shortly after Ramadan. The results indicate that the estimated coefficient in our preferred specification exceeds about 84% and 95% of all simulated coefficients for the far-right and far-left dependent variables, respectively. With respect to the Figure 7(a), this second placebo test has a 1/4 chance that the fake treatment coincides with the real one, thus explaining the large number of placebo coefficients greater than the true one.

5.3 Heterogeneous effects

So far, we have focused on an average effect of mosques in interaction with the occurrence of Ramadan, which might mask differential effects according to the characteristics of the population in each municipality. Similarly, the exogenous variation we exploit is likely to affect voters in opposite ways, thus being *non-monotone*. In the following, we use information on the characteristics of mosques and municipalities of the state of NRW to uncover this potential heterogeneity and to shed light on the *compliers*.

Municipalities' characteristics. This sections explores the heterogeneity of the estimated effect across different characteristics of the municipality. Table 5 reports results from regressions in which we interact the treatment variable with a dummy equal to one for values above the median for any characteristics considered. All regressions include the same set of controls as in column (3) of Table 2.[36]

We first focus on the share of young in the municipality's population, i.e., residents aged 18-24. Supporters of right-wing extremist parties are most numerous among young people, as these parties build the foundations of their campaign upon their needs. The effect is positive and statistically significant for the far-right parties; while it is negative and not significant for the far-left movements, which have historically targeted workers, union members and pensioners. Regression results in column (2) show significant differences in municipalities where there is a large male to female ratio. We compute this ratio for all municipalities and elections by considering the population aged 15 to 49 only. Gender imbalances are believed to be a driver of extremism in Germany. However, these differences may also pick up differences between urban and rural areas, as in the latter women have been shown to be more mobile than men. Column (3) finally reports that high-density populated municipalities experience a larger increase in far-left support.

[36] Results are robust to the inclusion of the interaction between decade and municipality.

Mosques' characteristics. We finally illustrate the heterogeneity of responses to Muslim exposure across mosques with different characteristics. The estimates are based on a far smaller number of treated observations and are therefore far less precise. The data provide information on mosques' size (in squared meters), distance in kilometers to the Town Hall (as a proportion of municipality's surface), the year of construction, and whether they are located in a residential area.[37] We first interact the $Mosque \times Ramadan$ variable with a residential dummy. Column (4) of Table 5 shows that there is a larger effect on both far-right and far-left parties in municipalities where the mosque is located in a residential area, where Muslims also become more visible to the resident population; however, the coefficient on the far-right is not statistically significant. There are no significant differences in the distance to the town hall (*Rathaus*) and the size of the mosque. Finally we also look at the years since the first mosque has been established. There is no significant difference in the median number of years since the mosque has been established (i.e. 12 years), but the effect is negative for the right-wing parties suggesting that the effect may disappear over the years as the majority group gets acquainted with the minority group.

5.4 Elections in Berlin

In this section we use data for the electoral districts of Berlin over the 2006–2016 period to investigate the effect of increased salience on political extremism at a very detailed geographical level. The city of Berlin has a population of about 3.5 million people, being one of the three city states in Germany; it is sub-divided in twelve boroughs (*Bezirk*) made up by a number (approx. 160) of smaller neighborhoods, roughly coinciding with electoral districts (*Wahlkreis*) whose average population is about 1,700 people. Our sample covers two federal and three state level elections between 2006 and 2016.[38] The data provide information

[37] In case two mosques are present in a municipality we only consider the characteristics of the first one.

[38] The city of Berlin is both a city and a federal state. As for the state of NRW, federal elections took place on September 27, 2009 and September 22, 2013. State elections instead occurred on September 17, 2006, September 18, 2011 and September 18, 2016. All but 2006 and 2016 elections happened within three months since the start of Ramadan.

on votes to each party and population characteristics at the *Wahlkreis* level.[39] Electoral districts' borders vary across elections due to changes in population, while the borders of the *Bezirk* remain constant. Our final sample consists of 9,709 electoral district-election observations.[40]

We then augmented the data on mosques by including those located in the state of Berlin. The mosque dataset includes the exact address of each mosque, allowing us to measure their distance from the centroid of each electoral district.[41] Figure 9 pins down the location of mosques in Berlin, which is divided in boroughs (yellow dashed lines) and electoral districts (light grey lines) in 2016 elections. The color intensity of each electoral district varies depending on its distance to the closest mosques. The small geographical level of this dataset allows us to estimate the effect of an increase visibility of Muslims in blocks surrounding the mosque.[42] As shown by Figure 9, we identified seven mosques, which have all been established before 2006. Given that there is no variation in the opening of mosques, we are mainly interested in estimating the coefficient β_2 in equation 4. In this setting the unit of observation is the electoral district in each election and the dummy for the presence mosque is replaced by the distance between each block and the closest visible mosque. One issue is that the borders of electoral districts change across elections, we thus consider the dataset as a repeated cross-section: within each borough, the smaller (geographical) units of observations change over time. The main specification will then include fixed effects for the boroughs, the election date and the election type.

Table 6 summarizes the main results. The variable *DistanceMosque* in columns (1)

[39] The statistical office of Berlin provides information about the number of foreigners (based on citizenship) and population size, in any elections for each electoral districts.

[40] The number of observed districts ranges from 1,709 to 2,501 over the period considered.

[41] Overall there are seven visible mosques in Berlin; all of them were constructed before 2006.

[42] Each electoral district has an average population size of about 1,767 people and 1,220 voters. About 11% of all electoral district/election observations have a visible mosque within 1,500 m from its geographical centroid. Table A5 shows that voter turnout is virtually the same for electoral districts within or outside this 1,500m radius circle (47%), while voter shares of right-wing parties are lower on average in proximity to mosque (2.0% vs 3.1%). Furthermore, electoral districts in close proximity to visible mosques display a significantly higher share of foreigners (23%) then those outside the 1500m radius (12%).

and (2) refers to the log distance of each district to the closest visible mosque.[43] Results tell us that a 100% increase in the distance between a mosque and the geographic centroid of an electoral district decreases the share of right-wing votes by 0.7 percentage points in elections that happen within three months since the start of Ramadan.[44] The inclusion of population characteristics controls does not affect our results, i.e. column (2). In columns (3) to (5) of Table 6 the variable *DistanceMosque* is a dummy equal to one when a visible mosque is within a 1000-, 1500-, 2000-meter radius, respectively. We estimate positive coefficients on the support for the far-right: blocks within 1,500 meter distance from a visible mosque experience an increase of about 0.78 percentage points in far-right vote shares during elections that happen during or just after Ramadan.

There is no statistically effect on other electoral outcomes. At this small geographical level, we do not find evidence of political polarization; if anything, vote shares for the extreme left are reduced, though coefficients remain insignificant at any conventional confidence level.[45] A plausible interpretation is that the increased salience of Muslims does not affect far-left support in the areas surrounding a mosque; thus there is no evidence that polarization occurs within the same electoral district, but it could still arise at a more aggregate level, e.g. within a municipality. These results also suggest that the effect on the left-wing extremism is not due to a direct exposure to Muslims, it could be instead driven by exposure to protests and political rallies. An alternate explanation has to do with the political history of Berlin, where far-left parties have been seen as established parties compared to West Germany. In East Berlin, the predecessor of the "Die Linke" party held the incumbent position in the German Democratic Republic for about 40 years.

[43] We first computed the centroid of each electoral district. Using the exact address of mosques in Berlin, we measure the distance in meters between each district's centroid and the nearest visible mosque.

[44] Using the linear distance instead of the logarithm provides similar results: each additional 100m distance between a district and a visible mosque decrease the far-right vote shares by 0.16 percentage points.

[45] The definition of far-left parties is the same used in analysis for the state of NRW. Among far-right parties in Berlin, we also included the *Afd*, given their strong anti-immigrant and nationalist manifesto.

5.5 Individual attitudes

This section provides survey evidence in order to shed light on the potential mechanisms behind the effect of increased Muslim salience on political preferences. We use the seventh wave of the European Social Survey, which interviewed roughly 3,000 German residents between August 2014 and February 2015. These data are particularly suitable for our purposes as they ask specific questions eliciting individual attitudes towards minority groups, including Muslims.[46] The data also provide information on demographic and economic characteristics of the respondents that we use as controls. Since the municipality of residence is not disclosed, we only exploit variations in the interview date, defining as *treated* all individuals interviewed within 3 months since the start of Ramadan. We further condition on federal state of residence, to compare individuals living in the same region. The estimated equation is thus:

$$y_i = \gamma_0 + \gamma_1 Ramadan_i + \epsilon_i \tag{5}$$

where y_i is the outcome of respondent i and *Ramadan* is a dummy indicating whether the interview took place within three months since the start of Ramadan. The share of *treated* individuals is about 21%. The equation further includes controls for the *Länder* of residence and a set of individual characteristics, such as gender, age, education, country of birth, and employment status. The identification relies on the assumption that the time of the interview is as good as random, i.e. not correlated with unobservable characteristics also influencing attitudes towards minorities and political preferences.

Table 7 reports regression results for a wide range of outcomes considered.[47] We first look at whether the occurrence of Ramadan affects political preferences, as we recovered

[46] Respondents are asked a variety of questions, which aim at measuring opinions towards minorities and immigration, as well as political preferences and socio-economic characteristics. (Card *et al.*, 2012; d'Hombres & Nunziata, 2015). The specific question on attitudes toward Muslims is: "*Would you allow many or few Muslims to come and live in your country?*". Answers range from "*Allow many to come and live here*" (1) to "*None*" (4). The website http://www.europeansocialsurvey.org/ provides a complete description of the data.

[47] All the estimated coefficients should be interpreted as a sort of intention to treat effect as we do not know whether respondents have been exposed to Muslim communities.

from Section 5. The dependent variable in Panel A of Table 7 is a measure of political extremism, indicating whether respondents place themselves at the extreme left or right of the political spectrum.[48] Linear regressions show that effect is positive and statistically significant in column (1) and (2), when individual pre-determined characteristics have been additively included. Column (3) instead reports marginal effects from a probit regression.[49] Respondents interviewed just after Ramadan have more extremist political preferences than the rest. We then distinguish between far-right (Panel B) and far-left (Panel C) extremism, finding positive effects on both extremes of the political spectrum; however, the effect on the far-left is only weekly significant.

We then investigate whether Ramadan specifically influences attitudes towards Muslims. Panel D analyses the answers to the question *"Would you allow many or few Muslims to come and live in country?"*. The respondent has four choices ranging from "allow many" (1) to "allow none" (4). Regression results show that treated individuals have more favorable attitudes towards Muslims than non-treated. Replicating the same exercise with other religious groups, e.g. jewish communities, does not provide statistically significant differences. This first set of results provides suggestive evidence that Ramadan affects individuals' political views and attitudes towards Muslims, we then turn our focus on uncovering the potential channels driving these differences.

We argued that Ramadan increases the salience of Muslims; for instance, the increased mosque going during the Islamic festivity may create mis-perception about the number of Muslim living in a municipality. We thus should see an effect on the perceived share of foreign-born individuals living in the respondents' country depending on the date of the interview.[50] The perceived share of foreign-born individuals living in the country increases by about 8% when the survey takes places within three months since the start of Ramadan.

[48] This variable has been constructed from the question on individuals' placement on left-to-right scale, where 0 represents extreme left and 10 indicates far-right.

[49] Table A8 reports descriptive statistics of all dependent variables analyzed.

[50] The question specifically asks "Of every 100 people in Germany how many born outside Germany". The answer goes from 0 to 100. The dependent variable in Panel B is the log share.

Adding the full set of individual characteristics slightly increases the magnitude of the estimated coefficient. The xenophobic propaganda of right wing parties, which make use of words such as invasion and islamization, may more easily spread and root in when voters perceive more foreigners in their country.

Ramadan celebrations may also alter the perception of cultural distance (or cultural dissimilarities) between Muslims and the majority group. We then investigate responses to questions regarding immigration, traditions and customs. First, we show that surveyed individuals are more likely to agree with the sentence *"Better for a country if almost everyone shares customs and traditions"* when interviewed in the proximity of Ramadan. Second, we show that for this group of people the more important requirements for immigrants are being Christian and white; while, good educational qualifications do not seem to be very relevant.

5.6 Politically motivated crimes

So far, our empirical findings have shown that a change in salience of a religious minority significantly affects political preferences of the natives; whether the increase in political extremism translates into violent behavior against minorities remains an open question. This section specifically addresses this point by examining if the change in Muslims' salience during Ramadan also affects the probability that a mosque is attacked.

We thus collected information on politically motivated crimes against Muslims. Following a parliamentary inquiry by the *Die Linke* party, the Federal Ministry of the Interior released a list of "anti-Muslim" offenses that occurred between January 2001 and December 2011 all over Germany; this list consists of 219 politically motivated crimes against mosques, including vandalism (e.g., swastika graffiti), death threats, and arsons.[51] The final sample

[51] The complete list can be found at the following website: http://dip21.bundestag.de/dip21/btd/17/095/1709523.pdf. It has to be noted that this list may be incomplete; several Muslim organizations complained that there is a large number of unreported offenses. The dataset contains information on crimes' calendar date and type. The state of NRW experienced the largest number of attacks (i.e. 79), followed by Baden-Württemberg, the second most populated

used in this analysis is a time series consisting of 4,017 observations, i.e. each day from January 1, 2001 to December 31, 2011. Ignoring other covariates, we estimate the following linear probability model:

$$y_t = \gamma_0 + \gamma_1 Ramadan_t + \epsilon_t \tag{6}$$

where y is a dummy indicating if an attack occurred on day t.[52] *Ramadan* is a dummy that switches on when day t is within 90 days since the start of Ramadan. We augment the equation with controls for the day of the week, the day of the year, and the calendar month (i.e., interaction between month and year). Standard errors are clustered at the week level to allow for arbitrary correlation of errors across the observations of the same calendar week.[53]

Table 8 shows regression results. In column (1) the estimated coefficient indicates that the likelihood of attacks increases by four percentage points on days within three months after Ramadan starts. This is a considerable increase given that the baseline probability is about 5.3%. In column (2) we include a dummy indicating whether an offense happened the day before t, as this may lower the likelihood that a Mosque is attacked, for instance because of an increase in police displacement around Mosques. The estimated coefficient is almost unchanged. In column (3) we split our explanatory variable in two different variables: a dummy for days during Ramadan and another dummy indicating days in the second and third month after the begin of Ramadan; we expect this type of offenses to be unlikely to happen during the festivity given the increased number of Muslims going to the mosque at any time of the day. Results show that the estimated effect turns to be positive but statistically not significant for days during Ramadan and positive and statistically significant for the days in the two months after the end of Ramadan. We eventually run a placebo regressions including a dummy for days within Ramadan and days in the three months

state by Muslims.

[52] The maximum number of attacks per day is 2. Using the number of attacks instead of a dummy as dependent variable does not affect the results.

[53] Results are robust to a more conservative clustering of standard errors, e.g. clustering at the calendar month level or at the week level.

before, i.e column (4): the estimated coefficient is negative and not significant, confirming our intuition. [54]

Furthermore, Figure 10 plots estimated coefficients of days since the start of Ramadan on the attack probability. In practice, we modify model (6) by replacing the dummy *Ramadan* with a set of dummies for each day since the start of the Ramadan. As we can only identify 354 coefficients, we restrict the coefficient of the first day of Ramadan to be zero. The model additionally includes fixed effects for the calendar week. The figure shows a clear pattern on the offense probability: it starts increasing after the second week of Ramadan, reaching its peak in the third month, and finally decreasing after the 120th day. This figure provides additional evidence on the effect of salience on the short-term attitudes towards Muslim communities. It further suggests that the estimated effect of Ramadan on offenses is not due to a time displacement of crime. Since an attack on a mosque is more difficult to perform during Ramadan than in other dates, crimes against Muslims may be postponed or anticipated. However, there is no statistically significant reduction in crime on days during Ramadan nor an increase in the days before the start of the Islamic holy month.

6 Conclusion

While ethnic diversity has been shown to be a driver of economic growth and prosperity, in the short-run policy makers are concerned with increased conflict and unrest. This is particularly true for increasing tensions between native and Muslim populations in European countries in the wake of Islamist terror since the 2000s. Against this background, this study uncovers an important causal link between the exposure of natives to Muslim communities and political extremism.

We address potential endogeneity issues by relying on an arguably exogenous change in the salience of Muslim minorities generated by the occurrence of Ramadan and the estab-

[54] In order to prevent fixed effects creating an incidental parameters problem we also run Poisson regressions (Cameron & Trivedi, 1998), which provide very similar estimates.

lishment of mosques in German municipalities. While mosque locations may be endogenous, the month of Ramadan moves backwards each year providing us with a natural variation in the distance to the date of elections. We thus use a difference-in-differences analysis to show how elections happening closely after Ramadan have differential vote shares for extremist parties in municipalities with and without the presence of a mosque. Regression results indicate that both right- and left-fringe parties gain substantial support if a vote has been cast shortly after Ramadan. This polarization of the electorate does not seem to happen in the same areas of a municipality; in Berlin, electoral districts surrounding a mosque only experience an increase in the votes to the far-right parties. Survey evidence further shows that people interviewed in the proximity of Ramadan have less favorable attitudes towards Muslims and they also perceive a larger share of foreign-born living in the country. Finally, in addition to the effect on voters' preferences, we also find a considerable effect of minority salience on politically motivated crime: the likelihood that a mosque is attacked or damaged significantly increases in the two months after Ramadan.

These results shed light on a previously under-researched driver of the increasing success of populist and nationalist parties all over Europe. While previous studies primarily focused on the (relative) size of the immigrant population, this paper investigates the role of salience of minorities, specifically considering the religious denomination. Our results are in line with a psychologically-based social identity theory: increased salience and distinctiveness of Muslims during Ramadan leads the majority group (i.e. non-Muslims) to exhibit a in-group behavior, ultimately giving rise to nationalism and xenophobia. The same change in Muslims' visibility generates a positive effect on the left-fringe vote share, as a reaction to increasing support for anti-immigration parties.

These results further underline that ethnic diversity may have negative implications mainly in the short run, such as increases in social unrest and political polarization. Social conflicts, hostility, and prejudice against particular ethnic or religious minorities ultimately increase their costs of assimilation, hence their integration in the host country (Gould &

Klor, 2015). In order to address these undesirable ramifications, policy-makers should ensure better integration of religious minorities, for example, by improving exchange between Muslim and native groups and opposing social segregation along cultural and religious lines within communities.

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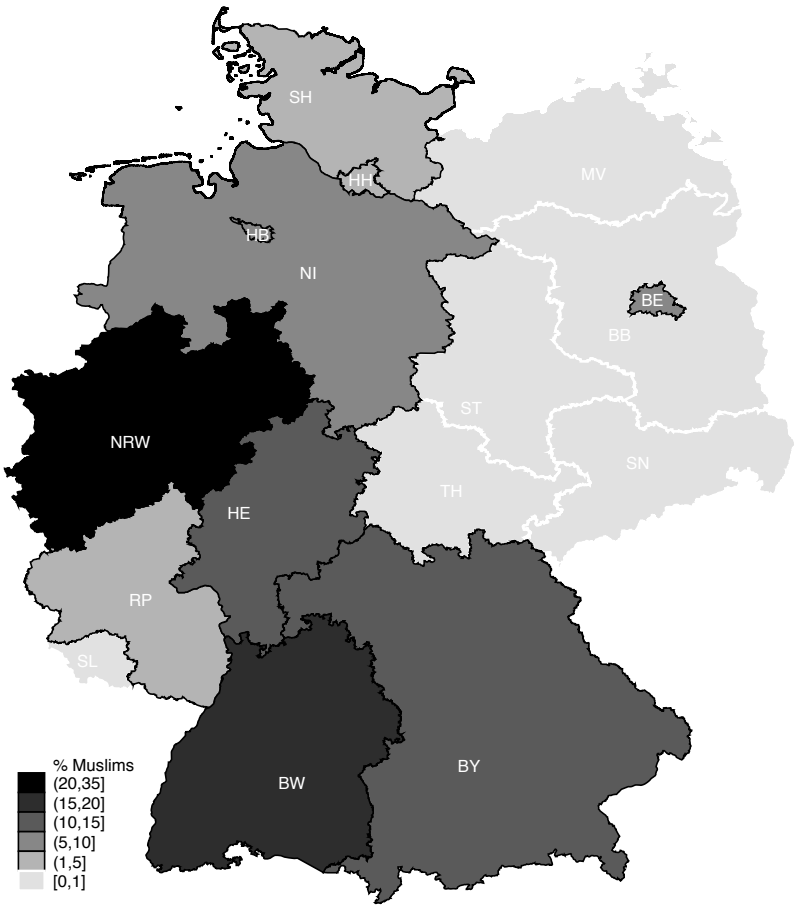
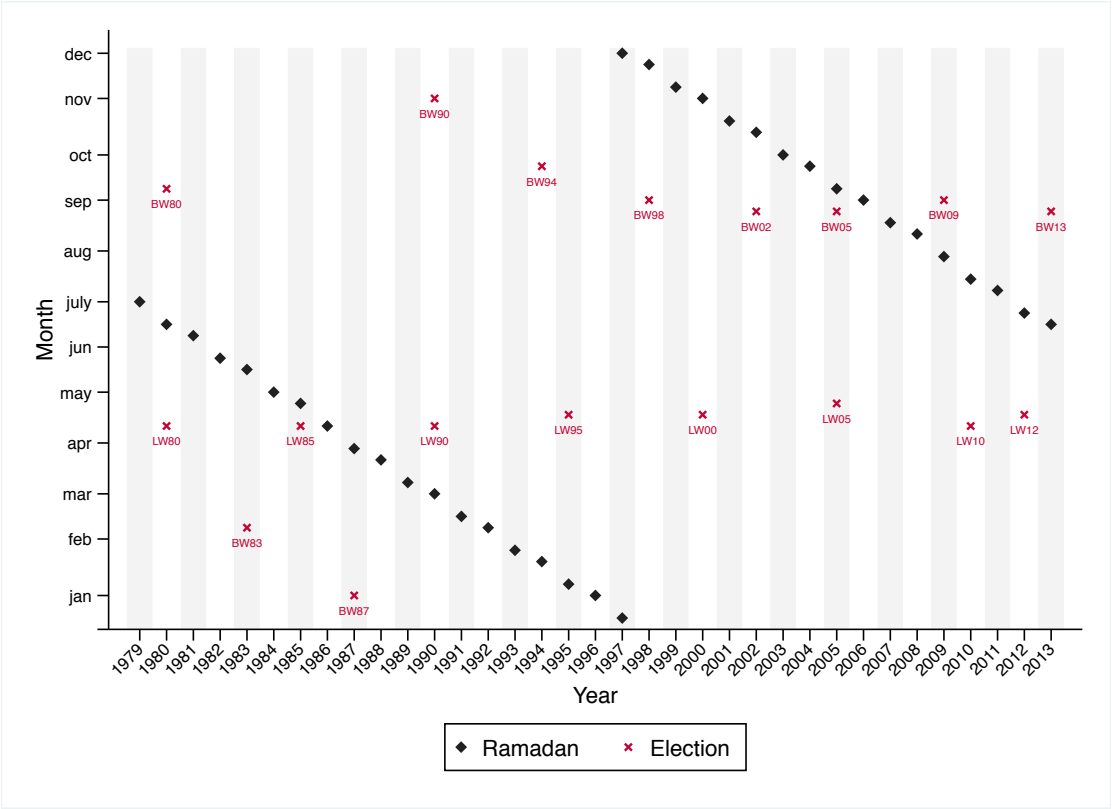
Figures

Figure 1: The geographical distribution of Muslims across states



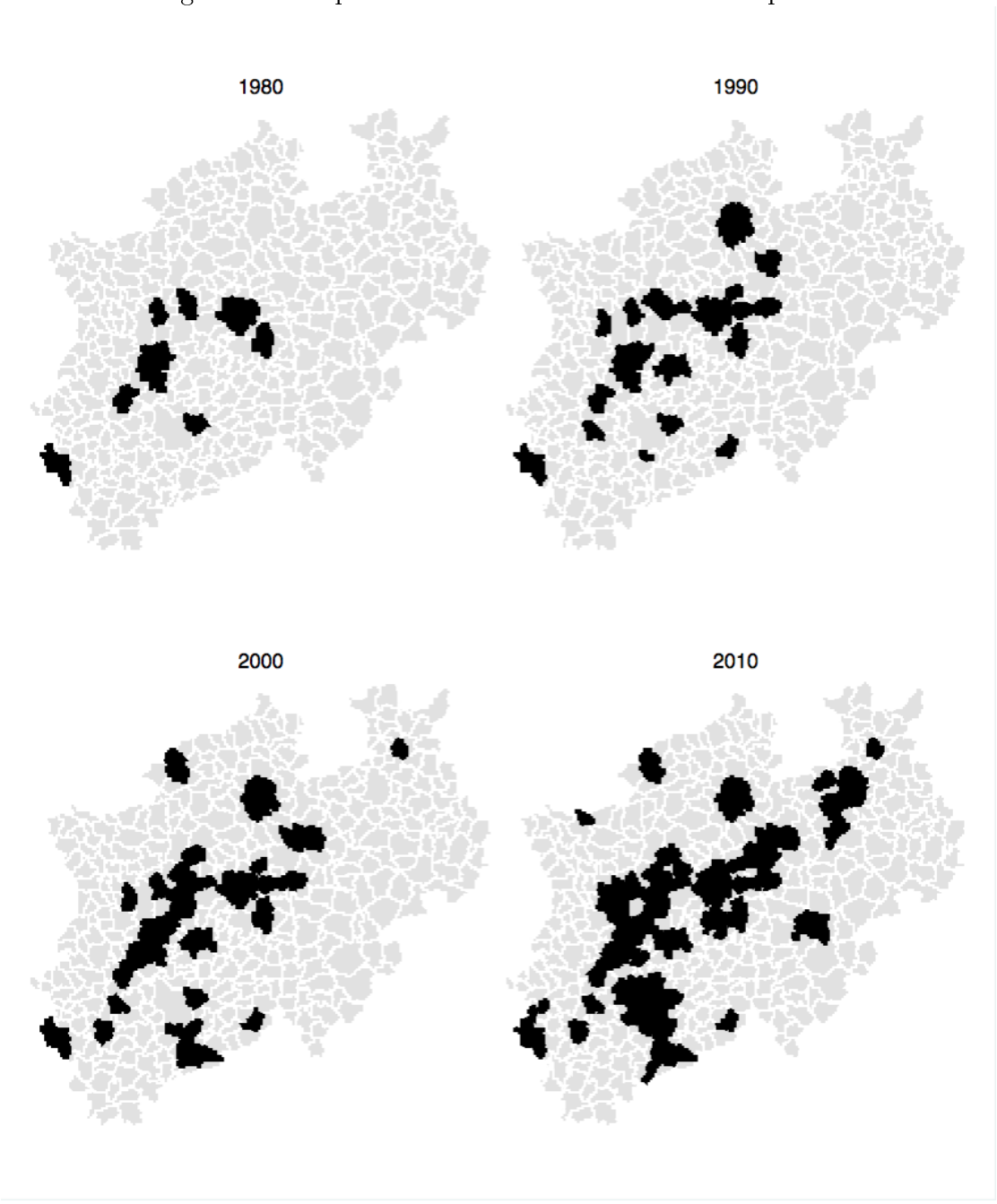
Notes: Authors' calculations on data provided by the report "Muslim Life in Germany" (2009). The figure plots the estimated number of Muslims residing in each German state as a proportion of the total Muslim population in 2008.

Figure 2: Ramadan cycle and election dates



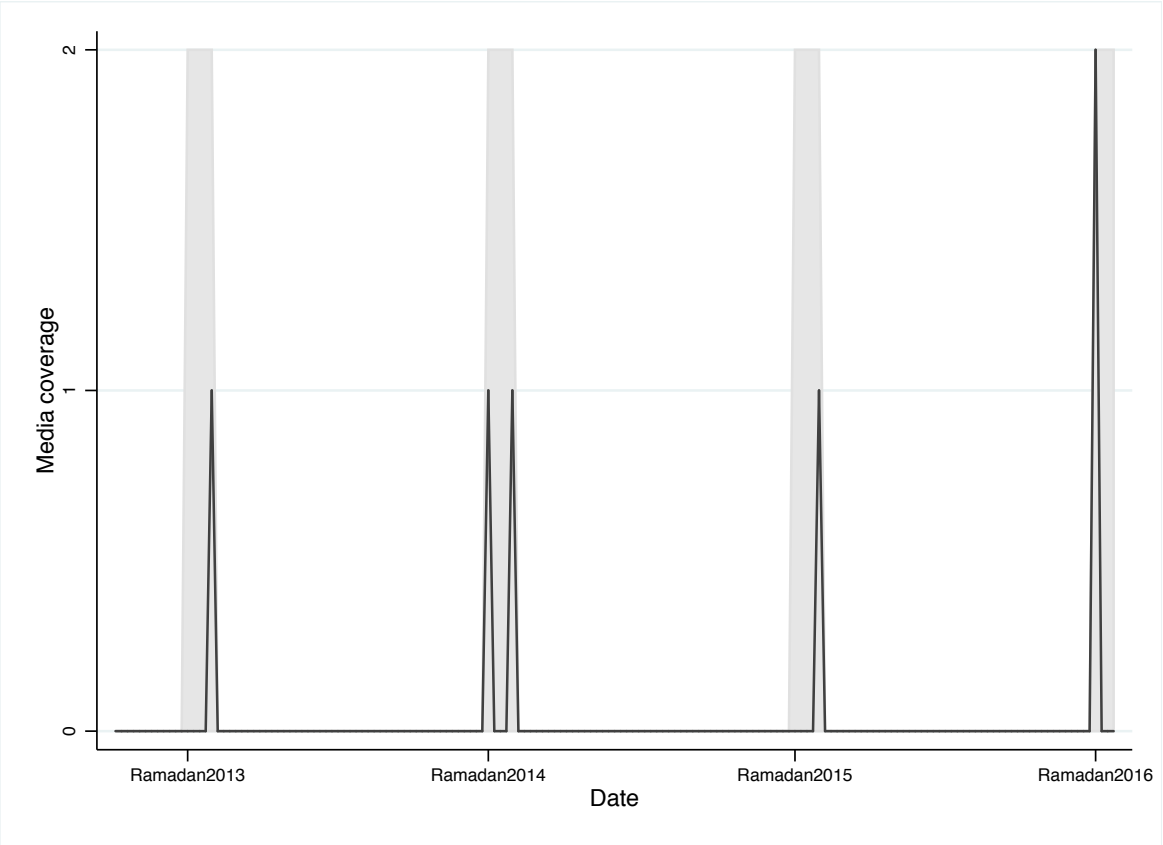
Notes: Black squares indicate the week of the year in which Ramadan started; year 1997 is the leap year. Red x-symbols represent the week of the year in which the election took place. The labels *BW* and *LW* refer to federal (*Bundestagswahlen*) and state elections (*Landtagswahlen*), respectively.

Figure 3: Mosques' diffusion in North Rhine-Westphalia



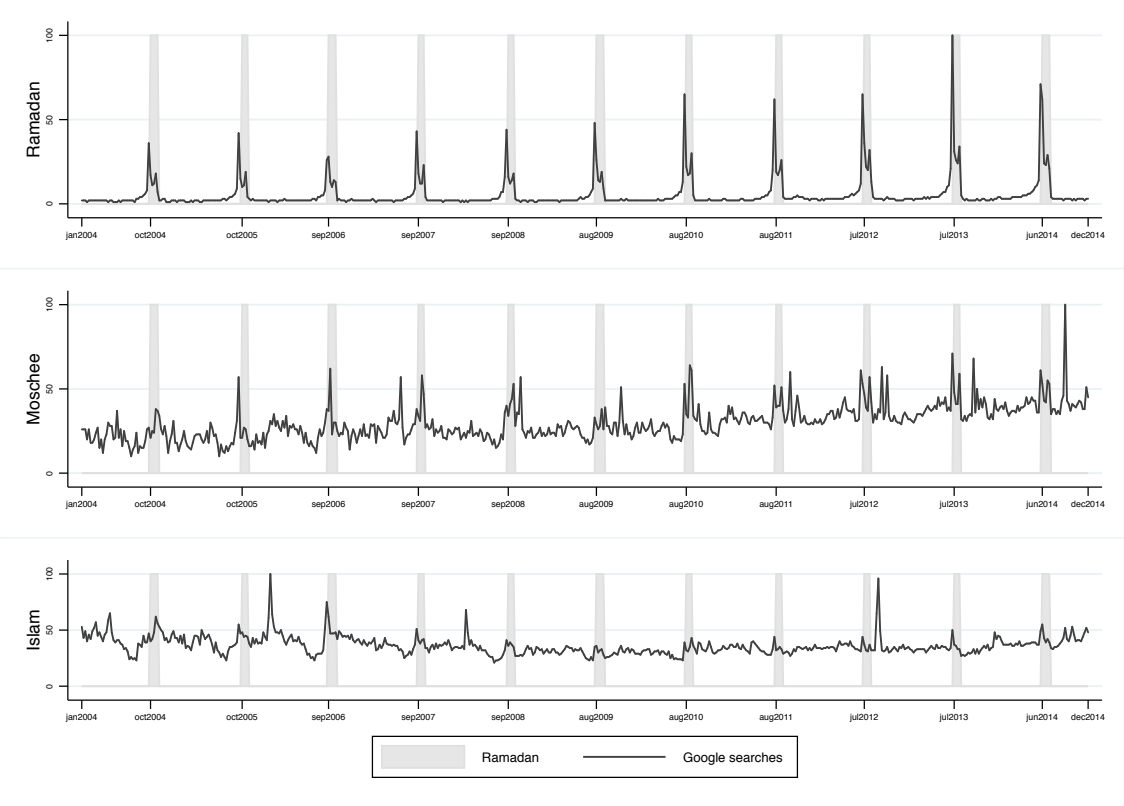
Notes: The figure shows the diffusion of mosques across municipalities in the state of North Rhine-Westphalia, from 1980 to 2010. Black areas indicate municipalities where at least one visible mosque is present.

Figure 4: Ramadan coverage by national news program



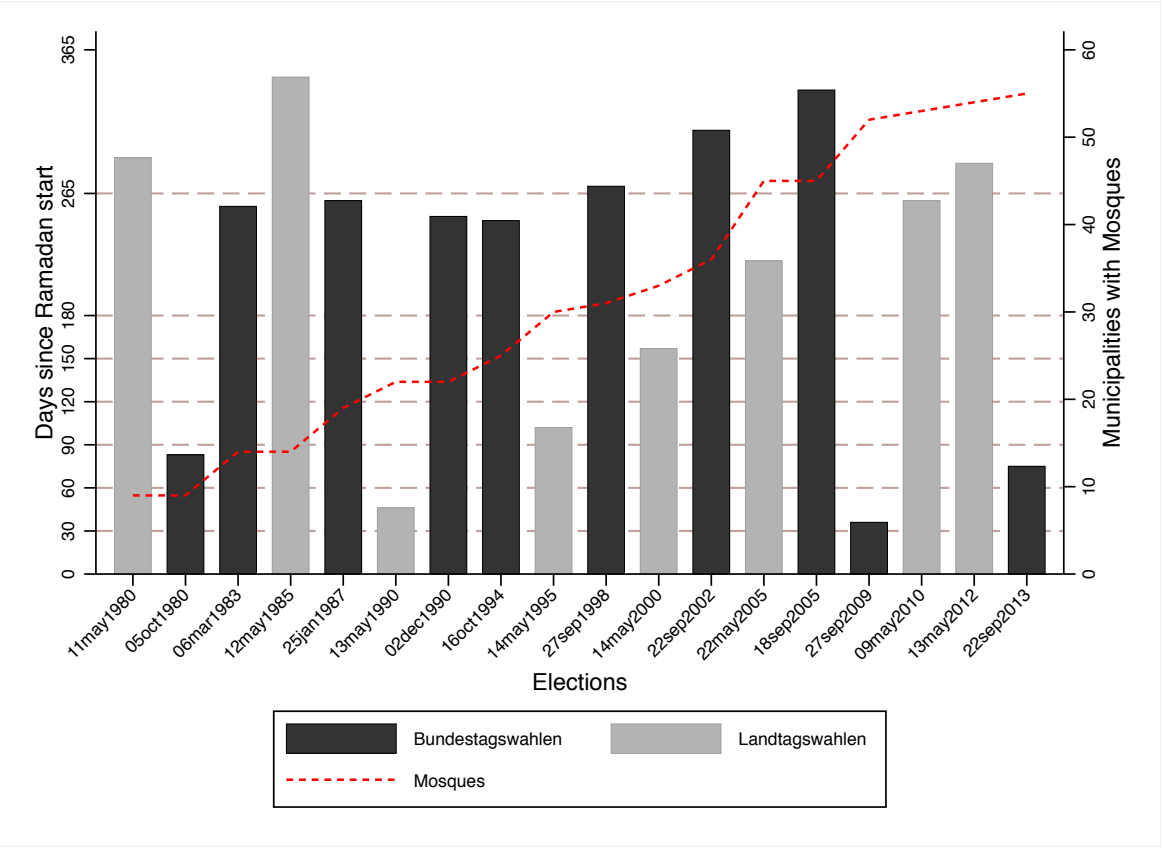
Notes: The figure plots weekly data on coverage by German national news programs *Tageschau* and *Tagesthemen* of the term *Ramadan* over the period 2013-2016. Highlighted areas indicate weeks during Ramadan. Coverage indicates the number of times in a week the term *Ramadan* has been reported in these two shows.

Figure 5: Google searches during Ramadan



Notes: The figure draws weekly Google search interest index in Germany for the terms *Ramadan*, *Moschee*, and *Islam* over the period 2004-2014. Highlighted areas indicate weeks during Ramadan.

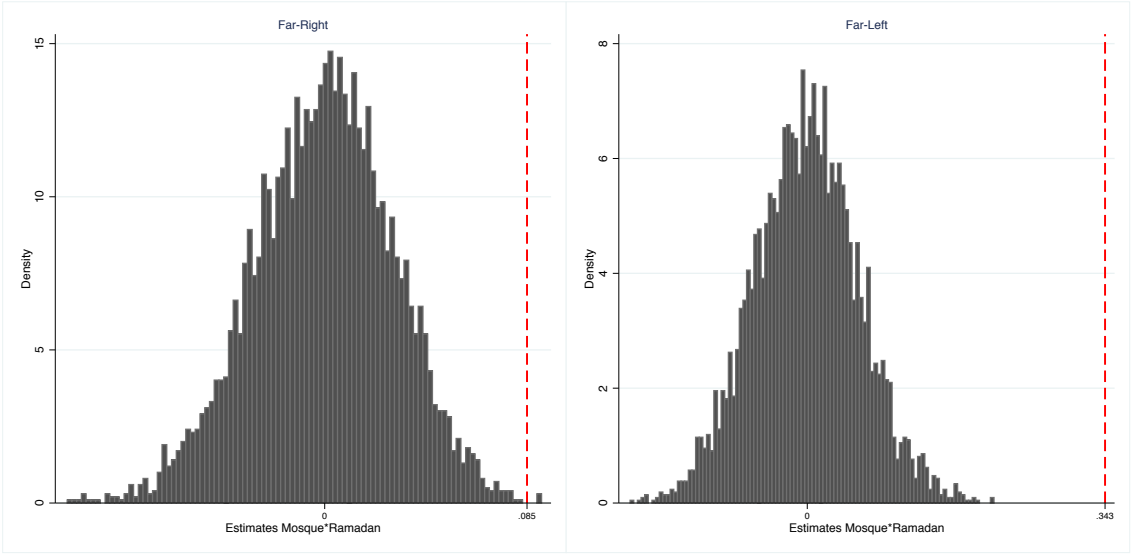
Figure 6: Municipalities with mosques, election dates and distance to Ramadan



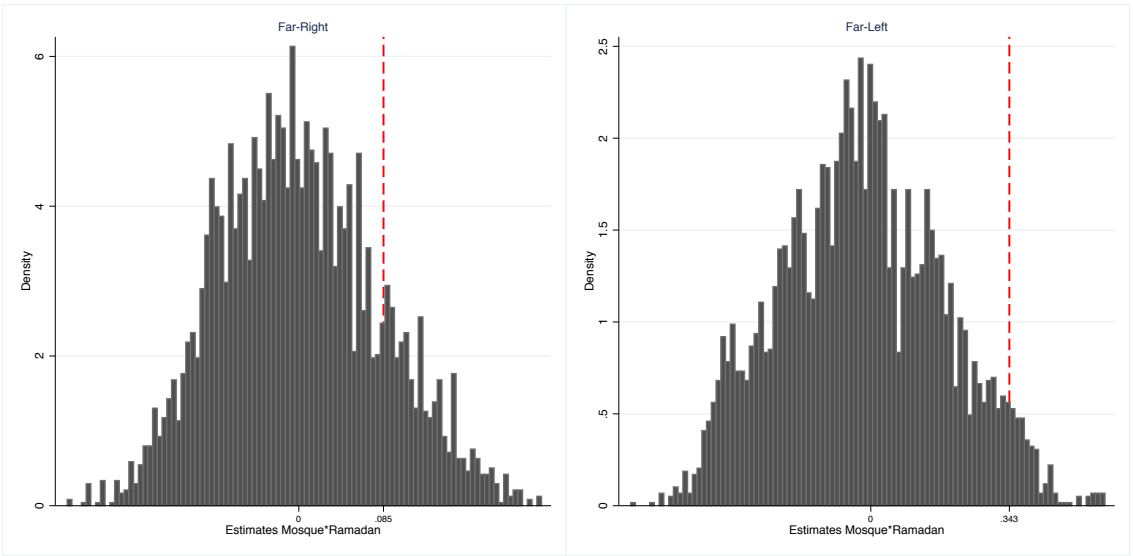
Notes: Vertical bars on the left y-axis show the distance (in days) of each election to begin date of the last Ramadan; dark grey and light-gray bars indicate federal (*Bundestagswahlen*) and state elections (*Landtagswahlen*), respectively. On the right y-axis, the dashed line reports the number of municipalities in which at least a mosque is present.

Figure 7: Placebo Tests

(a) Randomly allocated mosques

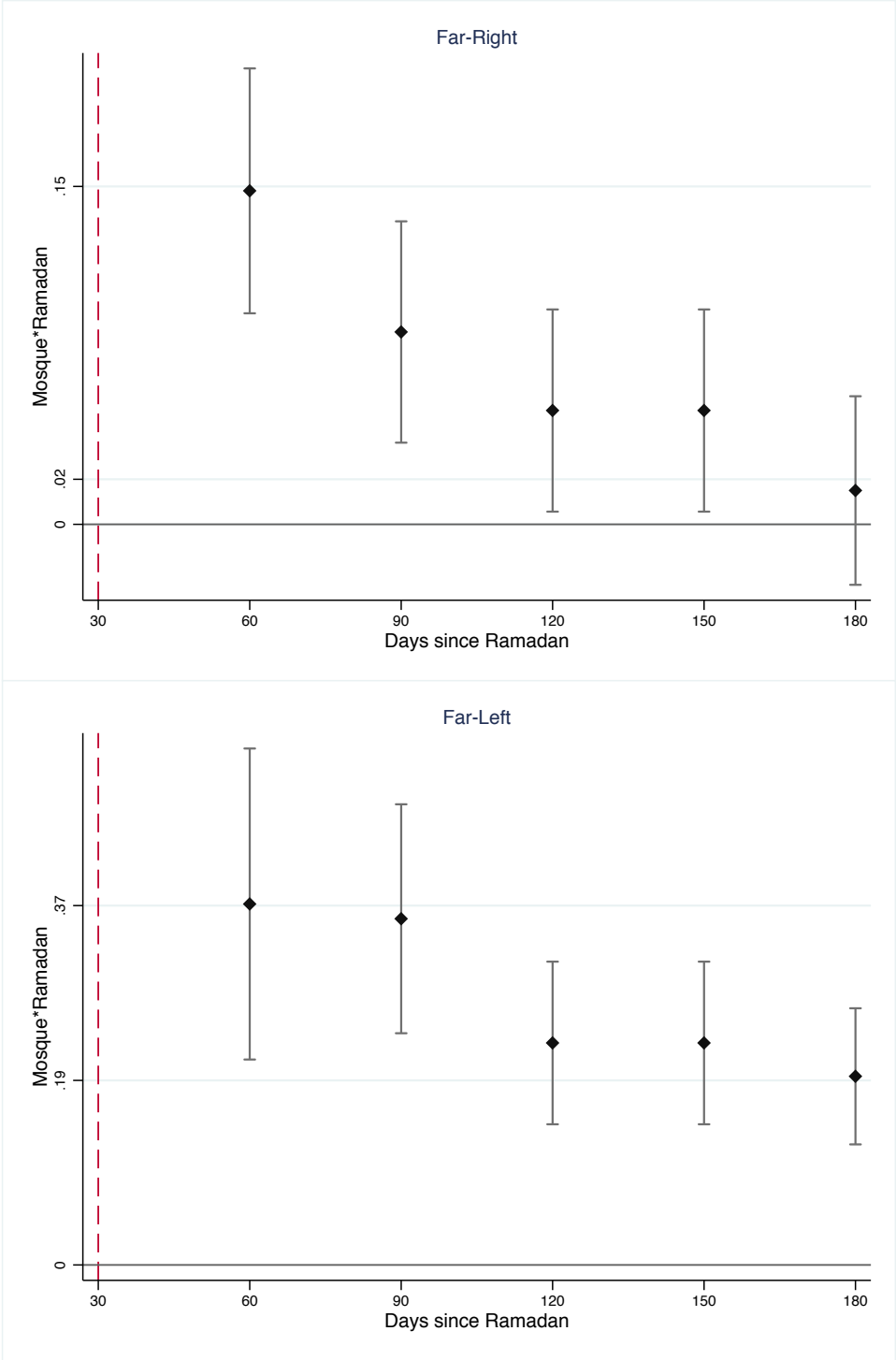


(b) Randomly allocated Ramadan Dates



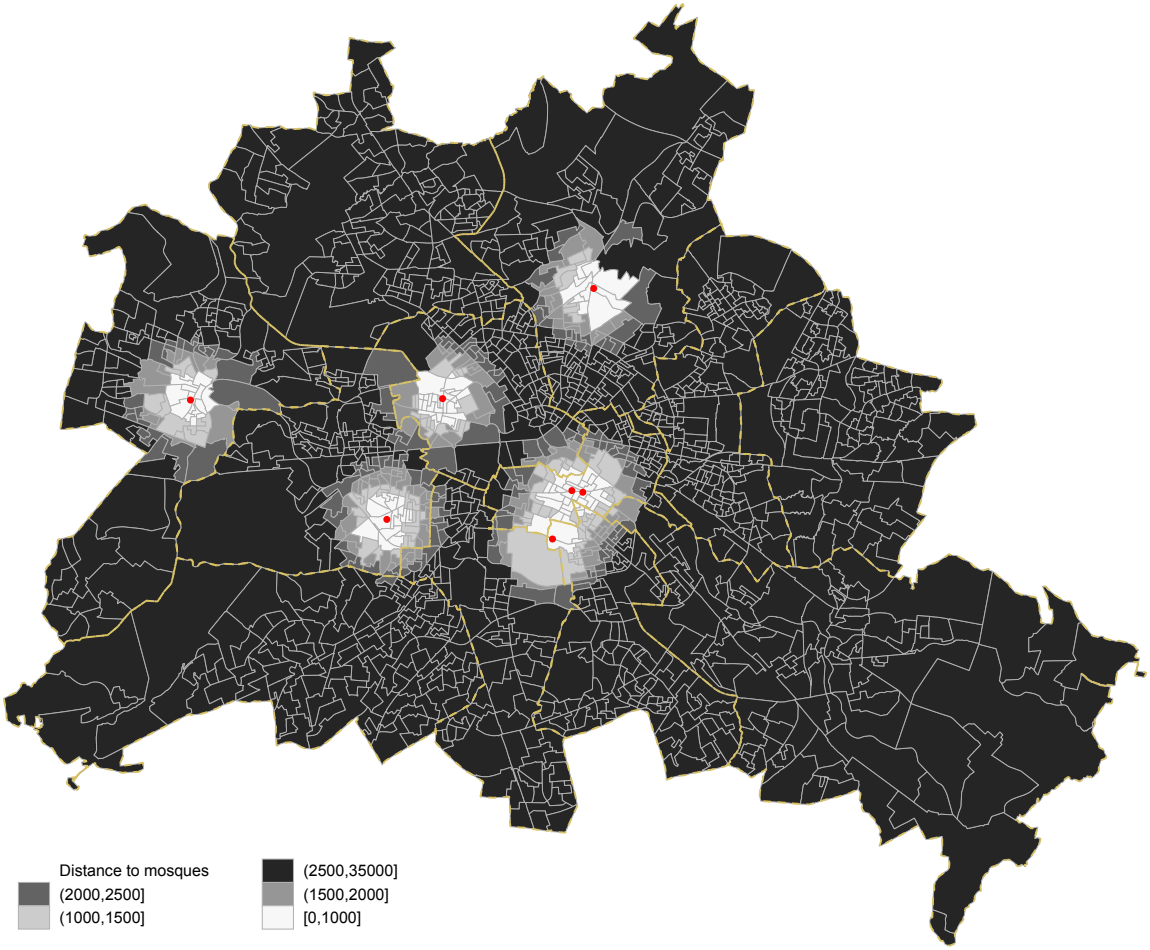
Notes: The figures plot the distribution of placebo coefficients obtained by estimating regression (2) with the "placebo" mosque dummy (a) and the "placebo" Ramadan dates (b). Placebo mosques and dates have been obtained by randomly assigning mosques to municipalities and ramadan treatment to election dates. We repeated this procedure 5,000 times. Vertical dashed lines report the true coefficient, i.e. column (3) Table 2.

Figure 8: Electoral effect and distance to Ramadan



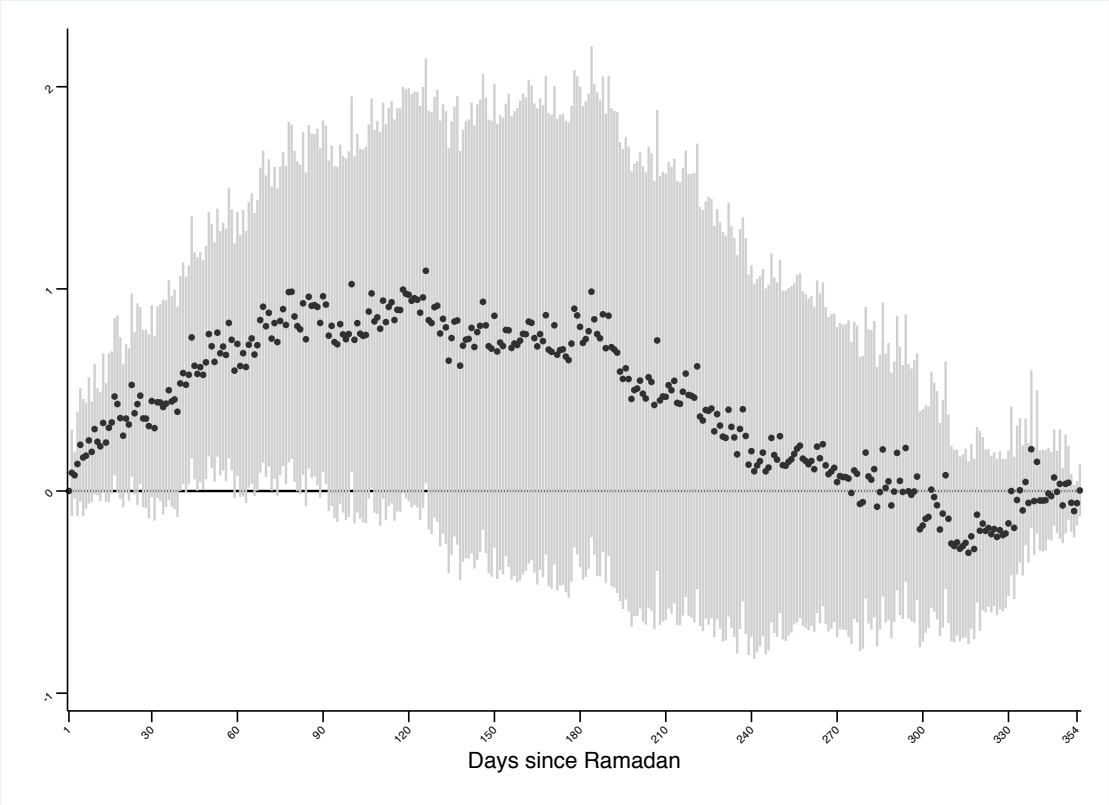
Notes: The figure plots estimated coefficients from separate regressions in which the definition of treated election varies from 2 months to 6 months since the start of Ramadan. The specification include fixed effects for the date of election and the interaction between the municipality and the type of election. Vertical lines are 95% confidence intervals. Standard errors are clustered at the municipality level.

Figure 9: Mosques and electoral districts in Berlin



Notes: The figure shows the distribution of mosques (red dots) across electoral districts in Berlin in 2016. Districts are shaded according to the distance towards the closest visible mosque. Yellow dashed lines indicate the 12 boroughs' borders.

Figure 10: Attacks on mosques and days since Ramadan begin date



Notes: The figure plots estimated coefficients of dummies for each day since the start of Ramadan on the attack on Mosque. The baseline is the first day of Ramadan. Vertical lines indicate 95% confidence intervals. Standard errors are clustered at the calendar week level.

Tables

Table 1: Descriptive statistics

	All		**with mosque**		**w/o mosque**	
	Mean	SD	Mean	SD	Mean	SD
Population ('000)	44.39	87.62	148.01	188.29	27.67	34.51
Pop density	500.81	550.6	1230.47	802.64	383.12	385.37
Female (%)	50.96	1.06	51.45	0.94	50.88	1.06
Foreigners (%)	6.96	3.7	10.57	3.29	6.38	3.42
Employed ('000)	14.63	37.42	55.95	84.52	7.96	12.47
Eligible voters ('000)	33.16	64.57	109.01	137.22	20.93	27.02
Turnout (%)	76.32	10.56	74.7	10.81	76.58	10.5
Established voters (%)	72.18	12.12	70.26	12.54	72.49	12.02
Far-left votes (%)	1.18	1.59	1.41	1.83	1.14	1.54
Far-right votes (%)	0.72	0.58	0.84	0.65	0.7	0.56
Observations	7,128		990		6,138	

Notes: The table reports averages of electoral results and municipalities' characteristics at each election over the time window analyzed across NRW municipalities. The table distinguishes between municipalities that ever had a Mosque (55) and those who had not (341).

Table 2: Mosques, Ramadan and electoral outcomes

	(1)	(2)	(3)	(4)
Panel A: Far-right (%)				
Mosque	0.0762**	0.0609*	0.0512	0.0356
	(0.0369)	(0.0342)	(0.0366)	(0.0341)
Mosque × *Ramadan*			0.0854***	0.0865***
			(0.0251)	(0.0251)
Panel B: Far-left (%)				
Mosque	0.3096***	0.2845***	0.1982***	0.1773***
	(0.0815)	(0.0740)	(0.0658)	(0.0606)
Mosque × *Ramadan*			0.3565***	0.3439***
			(0.0601)	(0.0572)
Panel C: Established parties (%)				
Mosque	-0.8166**	-0.5694	-0.5143	-0.2818
	(0.3830)	(0.3647)	(0.3710)	(0.3590)
Mosque × *Ramadan*			-1.0316***	-0.9817***
			(0.1642)	(0.1524)
Panel D: Turnout (%)				
Mosque	-0.3720	-0.1813	-0.2630	-0.0804
	(0.3356)	(0.3289)	(0.3289)	(0.3256)
Mosque × *Ramadan*			-0.3719***	-0.3442***
			(0.1271)	(0.1198)
Controls:				
Municipality*Election type	Y	Y	Y	Y
Election date	Y	Y	Y	Y
Municipality characteristics	N	Y	N	Y
Observations	7,128			

Notes: * p<0.10, **p<0.05, ***p<0.01. The dependent variables are expressed as percentage of the eligible voters (0-100). Standard errors are clustered at the municipality level. *Mosque* is a dummy indicating the presence of a mosque in the municipality. *Mosque* × *Ramadan* is a dummy switching on when the election date is within 3 months since the start of Ramadan and a mosque is located in the municipality. The share of *Mosque* × *Ramadan* treated observations is 1.94%. Characteristics of the municipalities included are: population density, share of women, share of foreigners, and the log number of private sector employees.

Table 3: Balancing tests

	ln(Employment)		ln(Foreigners)		Population Density		Share of Women	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mosque	-0.0013		-0.0055		-4.3543		-0.0075	
	(0.0161)		(0.0191)		(5.3301)		(0.0373)	
Mosque × *Ramadan*	0.0076		-0.0003		2.1605		-0.0093	
	(0.0053)		(0.0119)		(3.0783)		(0.0295)	
EverMosque × *Ramadan*		0.0074		0.0092		2.7627		-0.0078
		(0.0048)		(0.0073)		(2.2359)		(0.0190)
Controls:								
Municipality*Election type	Y	Y	Y	Y	Y	Y	Y	Y
Election date	Y	Y	Y	Y	Y	Y	Y	Y
Decade*Municipality	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,128		7,126		7,128		7,128	

Notes: * p<0.10, **p<0.05, ***p<0.01. *Mosque* × *Ramadan* is a dummy switching on when the election date is within 3 months since the start of Ramadan and a mosque is located in the municipality. *EverMosque* × *Ramadan* is a dummy indicating municipalities that ever had a mosque and the election is within 3 months since the start of Ramadan . Standard errors are clustered at the municipality level. The dependent variables are the log number of private sector employees (columns (1) and (2)), the log number of foreign residents (columns (3) and (4)), the population density (columns (5) and (6)), and the share of women (columns (7) and (8)).

Table 4: Robustness checks

	Time trends		$\sqrt{dep.var.}$			
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Far-right (%)						
Mosque	-0.0541	-0.0132	0.0078	-0.0414		
	(0.0365)	(0.0433)	(0.0176)	(0.0276)		
Mosque × *Ramadan*	0.0760***	0.0625***	0.0461***	0.0442***		
	(0.0222)	(0.0216)	(0.0140)	(0.0133)		
EverMosque × *Ramadan*					0.0750***	0.0634***
					(0.0240)	(0.0243)
Panel B: Far-left (%)						
Mosque	0.0725	-0.0219	0.0258	-0.0161		
	(0.0705)	(0.0883)	(0.0169)	(0.0212)		
Mosque × *Ramadan*	0.2984***	0.2522***	0.0329***	0.0197*		
	(0.0526)	(0.0445)	(0.0113)	(0.0107)		
EverMosque × *Ramadan*					0.2146***	0.1704***
					(0.0417)	(0.0368)
Panel C: Far-left (lower bound)						
Mosque					0.2020***	0.0754
					(0.0685)	(0.0710)
Mosque × *Ramadan*					0.2949***	0.2396***
					(0.0685)	(0.0496)
Controls:						
Municipality*Election type	Y	Y	Y	Y	Y	Y
Election date	Y	Y	Y	Y	Y	Y
Municipality characteristics	Y	Y	N	Y	N	Y
10 Year*Municipality	Y	N	N	Y	N	Y
5 Year interval*Municipality	N	Y	N	N	N	N
Observations	7,128					

Notes: * p<0.10, **p<0.05, ***p<0.01. Standard errors are clustered at the municipality level. Columns (1) and (2) reports regressions where a 8-year dummy and a 5-year dummy have been interacted with the municipality fixed effects. In columns (3) and (4) the dependent variable has been transformed by taking its square root. Panel C reports the estimated effects on far-left support, subtracting the number of Muslim voters; they have to be compared to the coefficients in columns(3) and (5) of Panel B of Table 2. In columns (5) and (6) *EverMosque* × *Ramadan* is a dummy indicating municipalities that ever had a mosque and the election is within 3 months since the start of Ramadan. Panel (C) finally reports lower bound estimates for the effect on far-left vote shares.

Table 5: Heterogeneous effects

	Municipality			Mosque			
	Pop (18-24)	Gender Ratio	Pop density	Residential	Km to TownHall	Size	Years
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Far-right (%)							
$Mosque \times Ramadan \times Median$	0.2320***	0.2053***	-0.0017	0.0254	-0.0004	0.0266	-0.0428
	(0.0607)	(0.0622)	(0.0433)	(0.0492)	(0.0463)	(0.0468)	(0.0546)
Panel B: Far-left (%)							
$Mosque \times Ramadan \times Median$	-0.1963	0.0007	0.4886**	0.2624**	0.1319	-0.0174	0.1153
	(0.1497)	(0.1354)	(0.2012)	(0.1075)	(0.1132)	(0.1159)	(0.1255)
Controls:							
Municipality*Election type				Y			
Election date				Y			
Observations				7,128			

Notes: * p<0.10, **p<0.05, ***p<0.01. Standard errors are clustered at the municipality level. The Table only reports coefficients of the triple interaction $Mosque \times Ramadan \times Median$, which is a dummy indicating municipalities' values above the median for each characteristic of the municipality or mosque. Pop (18-24) is the share of municipality's residents aged 18 to 24. Gender ratio is the ratio male to female residents aged 18-49. Pop density is the municipality's population density. Residential is a dummy indicating if the mosque is located in a residential area. Km to Town Hall is the distance in kilometers of the mosque to the Town Hall as a proportion of the surface of the municipality. Size refers to the mosque's size. Years refer to the median number of years since the mosque has been present in a municipality, i.e. 12 years.

Table 6: Ramadan and electoral outcomes in Berlin

	Distance (log)		**Radius** ≤1000m	≤1500m	≤2000m
	(1)	(2)	(3)	(4)	(5)
Panel A: Far-right (%)					
DistanceMosque × *Ramadan*	-0.7017**	-0.6962**	0.8183	0.7886*	0.7747*
	(0.3186)	(0.3166)	(0.5351)	(0.4463)	(0.4061)
Panel B: Far-left (%)					
DistanceMosque × *Ramadan*	0.6068	0.6092	-0.4228	-0.6098	-0.5278
	(0.3652)	(0.3676)	(0.6100)	(0.6574)	(0.5469)
Panel C: Established (%)					
DistanceMosque × *Ramadan*	0.6325	0.6794	-1.4179	-1.1579	-1.1572
	(0.5096)	(0.4611)	(1.3343)	(1.0713)	(0.8633)
Panel D: Turnout (%)					
DistanceMosque × *Ramadan*	-0.0117	0.0399	-0.0951	-0.1623	-0.1320
	(0.4474)	(0.4136)	(0.8968)	(0.7657)	(0.6795)
Controls:					
Election type	Y	Y	Y	Y	Y
Election date	Y	Y	Y	Y	Y
Borough	Y	Y	Y	Y	Y
Foreigners (%)	N	Y	Y	Y	Y
Observations			9,709		

Notes: * p<0.10, **p<0.05, ***p<0.01. The dependent variables are expressed as percentage of the eligible voters (0-100). Standard errors are clustered at the interaction between the borough and the election. In columns (1) and (2) *DistanceMosque* indicates the log distance to the closest visible mosque. In columns (3) to (5) *DistanceMosque* is equal to 1 in the presence of a visible mosque within a defined radius around the geographic centroid of an electoral district. *Ramadan* is a dummy switching on when the election date is within 3 months since the start of Ramadan.

Table 7: Ramadan and individual attitudes

	OLS		Probit	Obs.
	(1)	(2)	(3)	
Panel A: Political extremism				
Ramadan	0.0263***	0.0235**	0.0221***	
	(0.0098)	(0.0101)	(0.0071)	2,901
Panel B: Right-wing extremism				
Ramadan	0.0116**	0.0113**	0.0104***	
	(0.0044)	(0.0045)	(0.0034)	2,901
Panel C: Left-wing extremism				
Ramadan	0.0148*	0.0122	0.0125*	
	(0.0087)	(0.0087)	(0.0065)	2,901
Panel D: Anti-Muslims attitudes				
Ramadan	0.0409**	0.0294*	0.0422***	
	(0.0175)	(0.0159)	(0.0177)	2,962
Panel E: Anti-Jewish attitudes				
Ramadan	-0.0122	-0.0137	-0.0131	
	(0.0162)	(0.0155)	(0.0165)	2,965
Panel F: Foreign-born (perceived %)				
Ramadan	0.0797**	0.0897**	.	
	(0.0337)	(0.0349)	.	2,913
Panel G: Cultural dissimilarities attitudes				
Ramadan	0.0232**	0.0207**	0.0201***	
	(0.0092)	(0.0090)	(0.0067)	3,008
Qualification for immigrants				
Panel H1: Being white				
Ramadan	0.0063*	0.0061*	0.0062**	
	(0.0032)	(0.0033)	(0.0025)	3,009
Panel H2: Being Christian				
Ramadan	0.0080**	0.0068*	0.0071**	
	(0.0036)	(0.0037)	(0.0028)	3,008
Panel H3: Being educated				
Ramadan	0.0003	-0.0078	0.0015	
	(0.0136)	(0.0129)	(0.0133)	3,007
Controls				
Region FE	Y	Y	Y	
Individual characteristics	N	Y	N	

Notes: Data from the 7^{th} wave of the European Social Survey. Columns (1) and (2) report OLS regressions, while column (3) shows marginal effects from probit regressions. Standard errors are clustered at the level of the interaction between the region and the calendar month. Individual characteristics are age, gender, country of birth, education level and employment status. Dependent variables are dummy variables equal to one if the respondents place themselves at the extreme left (Panel C), right (Panel B), or both (Panel A) on the left right scale. The dependent variable is equal to one if the respondents think that "none" or "a few" Muslims (Panel D) or Jewish people should be allowed to live in the country. Panel F analyses the perceived (log) share of immigrants living in the country, while the dependent variable in Panel G is equal to one if respondents "strongly agree" with the statement "Better for a country if almost everyone shares customs and traditions". Panel H finally looks at respondents who think that "being white" (Panel H1), "being christian" (Panel H2), and "having good educational qualifications" are "extremely" important requirements for immigrants. Ramadan is a dummy equal to one if the interview took place within three months since the start of Ramadan.

Table 8: Ramadan and attacks on mosques

	(1)	(2)	(3)	(4)
Ramadan	0.0418**	0.0436**		
	(0.0188)	(0.0195)		
Ramadan			0.0117	-0.0264
(1-30 days)			(0.0210)	(0.0251)
Ramadan			0.0717***	
(31-90 days)			(0.0227)	
Ramadan before				-0.0018
(90 days before)				(0.0255)
Controls:				
Day of the week	Y	Y	Y	Y
Day of the year	Y	Y	Y	Y
Month*Year	Y	Y	Y	Y
Attacks t-1	N	Y	N	N
Observations	4,017	4,016	4,017	4,017
Mean dep. Var.		0.0533		
SD dep. Var.		0.2246		

Notes: * p<0.10, **p<0.05, ***p<0.01. Standard errors clustered at the calendar week level. The dependent variable is the probability of attack on a mosque in Germany. Data are daily and cover the period 1/1/2001-31/12/2011. *Ramadan* is a dummy switching on when the day is within 3 months since the start of Ramadan.

Appendix

Figure A1: Anecdotal evidence

(a) Pro Köln rally

(b) Anti Pro Köln

(c) *Iftar* at the Merkez-Moschee in Duisburg

(d) *Festiramazan* in Dortmund

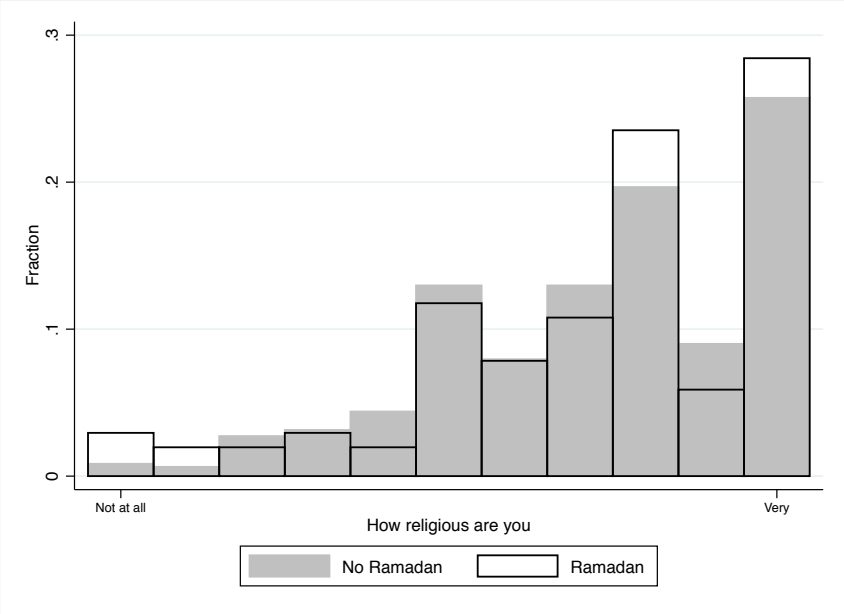
(e) Hochfeld Camii, 47053 Duisburg

(f) DITIB-Merkez-Moschee, 47169 Duisburg

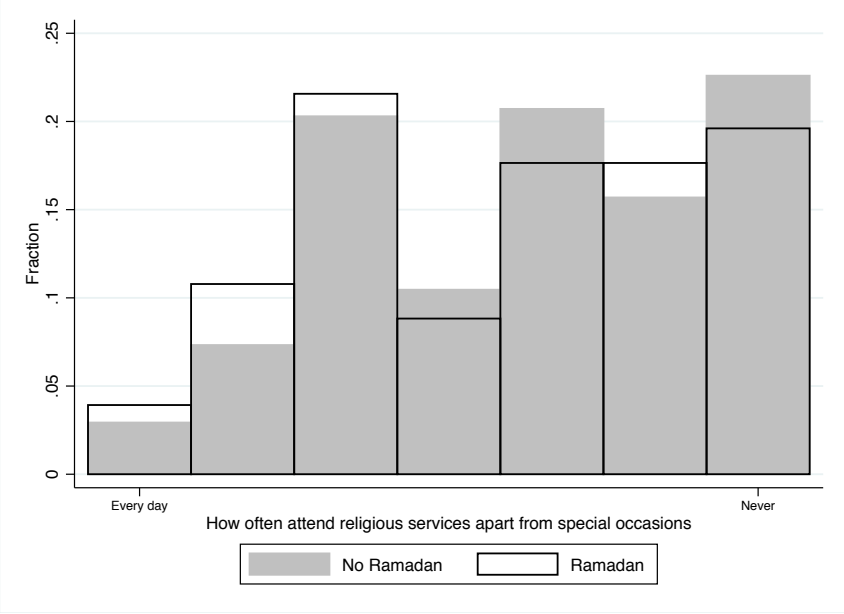
Sources: Figure (a) de.indymedia.org/2008/09/227906.shtml. Figure (b) www.nrhz.de/flyer/beitrag.php?id=16499. Figures (c) and (d) ruhrblogger.de/ramadan-im-ruhrgebiet. Figures (e) and (f) were taken from Google Street View.

Figure A2: Ramadan, mosque attendance and religiosity

(a) Ramadan and religiosity



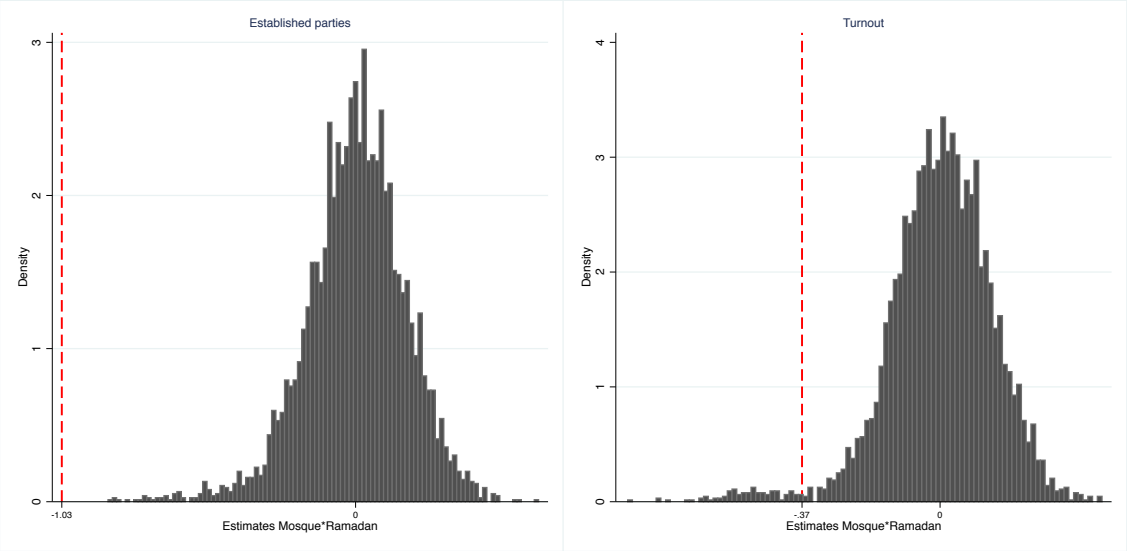
(b) Ramadan and mosque attendance



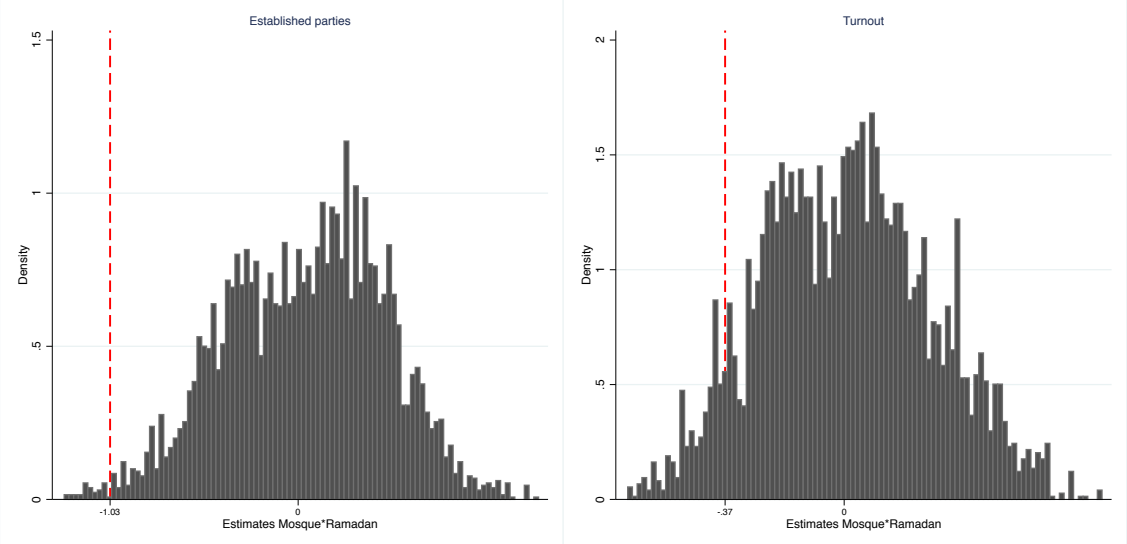
Notes: Authors' calculations on Data from the 7^{th} wave of the European Social Survey, covering years 2014 and 2015. The sample is composed by respondents that answered "Islam" at the survey question "Religion or denomination belonging to at present?". The dependent variable in the top figure is "How religious are you?" responses go from 0 (Not at all) - to 10 (Very). In the bottom figure the question is "How often attend religious services apart from special occasions?" 0 (Everyday) - 7 (Never).

Figure A3: Placebo Tests - established parties and turnout

(a) Randomly allocated mosques

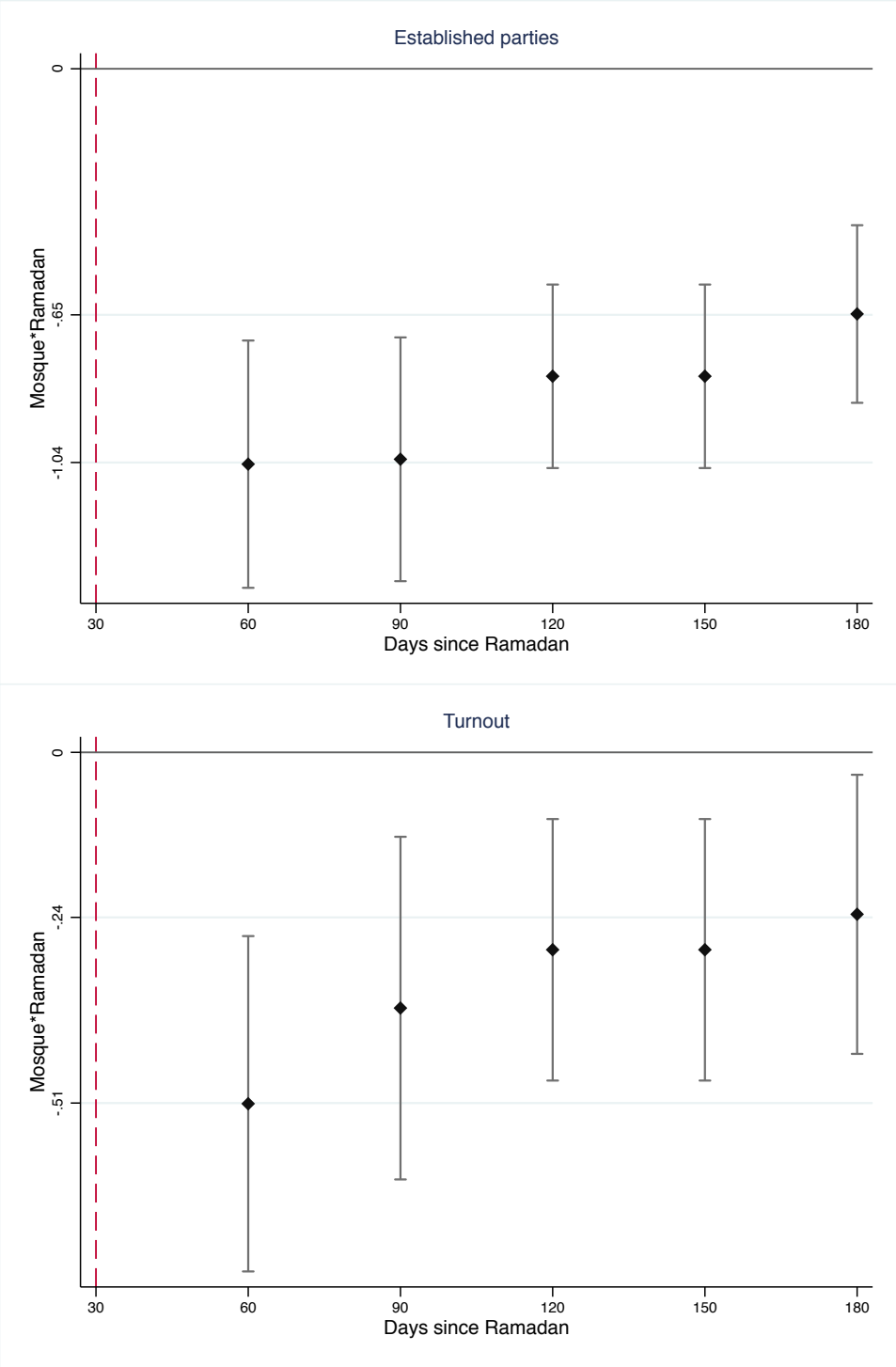


(b) Randomly allocated Ramadan Dates



Notes: The figures plot the distribution of placebo coefficients obtained by estimating regression (2) with the "placebo" mosque dummy (a) and the "placebo" Ramadan dates (b). Placebo mosques and dates have been obtained by randomly assigning mosques to municipalities and ramadan treatment to election dates. We repeated this procedure 5,000 times. Vertical dashed lines report the true coefficient, i.e. column (3) Table 2.

Figure A4: Electoral effect and distance to Ramadan - established parties and turnout



Notes: The figure plots estimated coefficients from separate regressions in which the definition of treated election varies from 2 months to 6 months since the start of Ramadan. The specification include fixed effects for the date of election and the interaction between the municipality and the type of election. Vertical lines are 95% confidence intervals. Standard errors are clustered at the municipality level.

Table A1: Religiosity, mosque-going and Ramadan

	(1)
Panel A: How religious are you?	
0: Not at all - 10: Very	
Ramadan	0.4183**
	(0.1724)
Panel B: How often pray apart from at religious services?	
0: Everyday - 7 Never	
Ramadan	-0.2503*
	(0.1487)
Panel C: How often attend religious services apart from special occasions?	
0: Everyday - 7 Never	
Ramadan	-0.5123***
	(0.1553)
Controls:	
Year*County	
Observations	577

Notes: * p<0.10, **p<0.05, ***p<0.01. Ordered probit regressions. All regressions include controls for the interaction between year and county of residence (NUTS-3). Data come from the 7^{th} wave of the European Social Survey, covering years 2014 and 2015. The sample is composed by respondents that answered "Islam" at the survey question "Religion or denomination belonging to at present?". Standard errors are clustered at the level of the interaction between year and country of residence.

Table A2: Google searches and Ramadan

	(1)	(2)	(3)
Panel A: Ramadan			
Ramadan	1.5377***	1.5445***	0.6821**
	(0.1151)	(0.1173)	(0.2640)
Panel B: Moschee			
Ramadan	0.3000***	0.3109***	0.1181*
	(0.0452)	(0.0445)	(0.0689)
Panel C: Islam			
Ramadan	0.1842***	0.1869***	0.0812**
	(0.0280)	(0.0328)	(0.0362)
Controls:			
Year	Y	Y	Y
Month of the year	Y	Y	Y
Week of the year	N	Y	Y
Month*Year	N	Y	Y
Observations		572	

Notes: * p<0.10, **p<0.05, ***p<0.01. Standard errors clustered at the calendar month level.

Table A3: Robustness checks - established parties and turnout

	Time trends		$\sqrt{dep.var.}$		Ever treated	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Established parties (%)						
Mosque	-0.0587	0.0046	-0.041*	-0.008		
	(0.1923)	(0.2299)	(0.024)	(0.012)		
Mosque × *Ramadan*	-0.9408***	-0.8071***	-0.068***	-0.059***		
	(0.1242)	(0.1196)	(0.011)	(0.008)		
EverMosque × *Ramadan*					-0.9357***	-0.8628***
					(0.2680)	(0.2823)
Panel B: Turnout (%)						
Mosque	0.006	-0.1056	-0.021	-0.002		
	(0.1544)	(0.2292)	(0.020)	(0.009)		
Mosque × *Ramadan*	-0.3875***	-0.2783***	-0.022***	-0.021***		
	(0.0973)	(0.0984)	(0.000)	(0.006)		
EverMosque × *Ramadan*					-0.5285**	-0.5439**
					(0.2571)	(0.2756)
Controls:						
Municipality*Election type	Y	Y	Y	Y	Y	Y
Election date	Y	Y	Y	Y	Y	Y
Municipality characteristics	Y	Y	N	Y	N	Y
10 Year*Municipality	Y	N	N	Y	N	Y
5 Year interval*Municipality	N	Y	N	N	N	N
Observations	7,128					

Notes: * p<0.10, **p<0.05, ***p<0.01. Standard errors are clustered at the municipality level. *EverMosque* × *Ramadan* is a dummy indicating municipalities that ever had a mosque. Columns (1) and (2) reports regressions where a 8-year dummy and a 5-year dummy have been interacted with the municipality fixed effects. In columns (3) and (4) the dependent variable has been transformed by taking its square root.

Table A4: NRW Elections, foreigners and days since Ramadan

	Far-right (%)		Far-left (%)		Established (%)		Turnout (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: % Foreigners								
Foreigners	0.0194	0.0324	-0.0672*	-0.0675*	-0.0655	-0.0174	-0.2196	-0.1380
	(0.0222)	(0.0215)	(0.0376)	(0.0355)	(0.2264)	(0.2294)	(0.1772)	(0.1863)
Foreigners × *Ramadan*	0.0299***	0.0310***	0.0994***	0.1009***	-0.3107***	-0.3191***	-0.1486***	-0.1519***
	(0.0083)	(0.0084)	(0.0190)	(0.0188)	(0.0644)	(0.0633)	(0.0449)	(0.0434)
Panel B: Days since Ramadan								
Mosque	0.1338***	0.1180***	0.5072***	0.4772***	-1.5714***	-1.2968***	-0.6753*	-0.4677
	(0.0423)	(0.0397)	(0.1101)	(0.1001)	(0.4153)	(0.3852)	(0.3593)	(0.3457)
Mosque × *Days*	-0.0003***	-0.0003***	-0.0010***	-0.0010***	0.0038***	0.0036***	0.0015***	0.0014***
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0006)	(0.0006)	(0.0005)	(0.0005)
Controls:								
Municipality*Election Type	Y	Y	Y	Y	Y	Y	Y	Y
Election Date	Y	Y	Y	Y	Y	Y	Y	Y
Municipality characteristics	N	Y	N	Y	N	Y	N	Y
Observations	7,128							

Notes: * p<0.10, **p<0.05, ***p<0.01. Standard errors are clustered at the municipality level. Foreigners is the (standardized) share of foreigners (by citizenship) living in each municipality. *Days* is a variable indicating the number of days since the last Ramadan.

Table A5: Descriptive statistics - Berlin

	All		**with mosque**		**w/o mosque**	
	Mean	SD	Mean	SD	Mean	SD
Population ('000)	1.77	0.57	1.85	0.63	1.76	0.56
Foreigners (%)	13.43	10.54	22.79	10.56	12.24	9.93
Eligible voters ('000)	1.27	0.39	1.17	0.33	1.29	0.40
Turnout (%)	47.46	7.16	47.42	5.67	47.46	7.33
Established voters (%)	31.9	9.31	33.03	6.57	31.75	9.59
Far-left votes (%)	7.83	5.42	7.14	4.34	7.92	5.54
Far-right votes (%)	3.03	2.91	2.08	2.07	3.14	2.98
Observations	9,709		1,093		8,616	

Notes: The table reports averages of electoral results and electoral districts' characteristics at each election over the time window analyzed in Berlin. The table distinguishes between blocks that are located within a 1500 radius from a mosque and those who were not.

Table A6: Muslims' interest in politics

	Interest in politics (1)	Party preference (2)	Intensity of party pref. (3)
Panel A: Religious denomination			
Muslim	-0.023*	-0.056***	-0.048
	(0.093)	(0.000)	(0.143)
Controls	Y	Y	Y
Year FE	Y	Y	Y
State FE	Y	Y	Y
Observations	80930	80741	35652
Adjusted R^2	0.167	0.115	0.032
Panel B: Nationality			
Turkish	-0.057***	-0.188***	-0.094***
	(0.000)	(0.000)	(0.000)
Controls	Y	Y	Y
Year FE	Y	Y	Y
State FE	Y	Y	Y
Observations	489642	500106	217878
Adjusted R^2	0.168	0.116	0.025

Notes: * p<0.10, **p<0.05, ***p<0.01. Robust standard errors in parentheses. Data source: Socio-Economic Panel (SOEP), data for years 1984–2014, version 31.1, SOEP, 2016, doi: 10.5684/soep.v31.1.

Table A7: Muslims' party preferences

	Christian Democrats (1)	Social Democrats (2)	Liberal Party (3)	Green Party (4)	Die Linke (5)	Right-wing parties (6)
Panel A: Religious denomination						
Muslim	-0.090***	0.229***	-0.013	-0.021	-0.057***	-0.029***
	(0.000)	(0.000)	(0.141)	(0.378)	(0.000)	(0.000)
Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y
Observations	37662	37662	37662	37662	37662	37662
Adjusted R^2	0.104	0.074	0.022	0.102	0.166	0.022
Panel B: Nationality						
Turkish	-0.283***	0.233***	0.001	0.076***	0.002	-0.020***
	(0.000)	(0.000)	(0.797)	(0.000)	(0.247)	(0.000)
Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y
Observations	231964	231964	231964	231964	231964	231964
Adjusted R^2	0.073	0.077	0.022	0.096	0.144	0.021

Notes: * p<0.10, **p<0.05, ***p<0.01. Robust standard errors in parentheses. Data source: Socio-Economic Panel (SOEP), data for years 1984–2014, version 31.1, SOEP, 2016, doi: 10.5684/soep.v31.1.

Table A8: European Social Survey - 7^{th} Wave

	Mean (1)	SD (2)	Obs. (3)
Extremism	0.051	0.219	2901
Far-right	0.013	0.115	2901
Far-left	0.037	0.189	2901
Anti-Muslims	0.312	0.463	2962
Anti-Jewish	0.136	0.342	2965
Foreign-Born (perceived %)	22.403	15.106	2913
Same traditions	0.28	0.449	3008
Immigration: White	0.005	0.07	3009
Immigration: Christian	0.013	0.112	3008
Immigration: Education	0.181	0.385	3007

Notes: Mean and standard deviation of dependent variables in Table 7.