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Tommaso Colussi, Ingo E. Isphording, Nico Pestel

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MINORITY SALIENCE AND POLITICAL EXTREMISM*

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Abstract

We investigate how changes in the salience of a minority group affect the majority group's voting behavior. Specifically, we focus on Muslim communities and their increased salience in daily life during Ramadan. To estimate a causal effect, we exploit exogenous variation in the distance of German federal and state elections to the month of Ramadan over the 1980–2013 period. Our findings reveal an increased polarization of the electorate: vote shares for both right- and left-wing extremist parties increase in municipalities where mosques are located when the election date is closer to Ramadan. We use individual-level survey data to provide evidence on potential mechanisms. During Ramadan respondents perceive the share of foreign-born people living in their country as larger and reveal more negative attitudes towards Muslims. We complement these findings with evidence on increased numbers of violent attacks against Muslim communities shortly after Ramadan.

JEL Codes: D72, D74, J15, D91

Keywords: Salience, Muslims, Behavioral Political Economy, Right-Wing Extremism.

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1 INTRODUCTION

What is the impact of increased ethnic diversity on social and economic outcomes? This question has been subject to an intensive debate, particularly in immigration-receiving countries (Alesina & La Ferrara, 2005; Putnam, 2007). While diversity may have positive effects on the economy in the long run (Alesina *et al.*, 2016), it might decrease trust and social capital (Alesina & La Ferrara, 2002; Putnam, 2007), reduce preferences for redistribution (Dahlberg *et al.*, 2012) and weaken social relationships (Algan *et al.*, 2016). Recent empirical studies show that these effects spill over into electoral outcomes, ultimately affecting the support for nationalist parties.¹

Against this background, this paper empirically investigates the impact of the visibility of religious minorities on the majority group’s political choices. Specifically, we focus on a setting where Muslim communities’ salience rather than their size changes over time. Salience theory (Bordalo *et al.*, 2012, 2013) predicts that due to limited attention individuals over-emphasize salient features of choices and underrate less prominent, but still important ones. The role of salience as a driver of individual decision-making has been recognized by economists in several contexts, such as consumers’ choices (Chetty *et al.*, 2009), tax rates (Finkelstein, 2009) or judicial and investment decisions (Barber & Odean, 2008; Bordalo *et al.*, 2015). Whether salience plays a role in shaping political choices and attitudes towards minorities still remains largely unexplored.

To establish a causal link between the salience of Muslim communities and electoral outcomes, we exploit variation in the distance of election dates to the festivity of Ramadan. During Ramadan – a month of religious observances, comprising fasting and extra prayers – Muslim communities become more visible due to increased mosque attendance, regular

¹ Increasing vote shares for right-wing parties due to higher immigrant shares 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 in Germany (Otto & Steinhardt, 2014). By contrast, Steinmayr (2016) finds that exposure to refugees in Austrian neighborhoods reduces the support for the far-right. Along similar lines, Dill (2013) shows a negative relationship between foreigners’ share and right-wing voting in Germany.

festivities and higher media attention, resulting in a plausibly exogenous increase in the salience of Muslim minorities during this period. The month of Ramadan rotates over the seasons according to the lunar calendar: its start date moves backwards by eleven days each year, thus creating an idiosyncratic variation in the distance to election dates.²

We use this over-time variation in salience in a difference-in-differences (DiD) framework by comparing differences in elections which are or are not affected by Ramadan, and between municipalities which have or have not a Muslim community. In absence of any administrative information on Muslim communities, we use locations of representative mosques as a proxy for religious Muslims' presence. The DiD framework allows us to separate the effect of a change in salience from unobserved confounding factors and reversed causality related to selective mosque location or Muslims' location choices.³

For our main analysis, we combine data on mosques' establishment with election results at the municipality level and focus on eighteen federal and state elections between 1980 and 2013 in the state of North Rhine-Westphalia (NRW). Germany displays a very relevant setting for our analysis. It is home to more than four million Muslims, the largest number among European countries, who make up about 5% of the total population, with the majority residing in the state of NRW. Germany has a long-running history of heated debates on topics of immigration and cultural identity, which only renewed in the wake of escalating acts of Islamic terrorism and the recent inflow of refugees from the Middle East.⁴

Our results paint a picture of increased polarization in response to a higher minority salience. The difference in the vote share for far-right parties between municipalities with

² Several studies have used the exogenous timing of Ramadan to estimate the effect of religious 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.

³ We acknowledge that salience of Muslim minorities might be affected by a number of different sources, e.g., media attention on crimes and terror attacks perpetrated by Muslim minority members or economic shocks attributed to Muslim immigration.

⁴ Anti-Muslim resentments can be traced back to the first Turkish guest-workers arriving in the 1960s. In its multi-party system covering the full political spectrum, both right- and left-fringe parties have successfully exploited this controversial issue by tailoring their messages and targeting potentially extremist voters in an attempt to increase their political support.

and without a mosque increases by about 14% of a standard deviation if an election takes place within three months after the start of Ramadan. The respective effect for left-fringe parties displays a similar effect of 22% of a standard deviation. This average effect is sensitive to local economic conditions and substantially increases during economic downturns. We provide a variety of robustness checks for the validity of our results. The estimated effects fade away with time: as the distance of the election date from Ramadan increases, the magnitude of the electoral effects decrease. We find a similar pattern of polarization in a larger sample of all West German municipalities. Analyzing smaller geographical units, i.e., electoral districts in the city of Berlin, we find heterogeneous effects on left- and right-wing parties *within* a city; right-wing parties gain support in districts nearby mosques, while the effect on far-left parties increases with the distance to a mosque.

We use individual-level survey data from the European Social Survey to shed light on the potential mechanisms driving our results. Respondents interviewed just after Ramadan reveal more extreme political standpoints than those surveyed later on. This group of respondents show more negative attitudes towards Muslims, they perceive a larger share of foreign-born persons living in the country and they are more concerned about cultural dissimilarities between natives and immigrants. Finally, we show that the increased negative attitudes against Muslims spill over into violent behavior. Using daily records of attacks on Muslim communities in Germany over the 2001–2011 period, we find a considerable increase in the probability of an attack during the two months after the end of Ramadan.

This paper provides first-time field evidence of the effect of salience on voters' political choices by showing the responsiveness of the electorate to the salience of information. Overall, our findings show a significant effect of minority salience on individuals' voting behavior. Voters cast their ballot for parties claiming that Muslims pose a serious threat to Germany when this minority group becomes salient. The increased right-wing consensus triggers the reaction of left-wing voters in an attempt to stop the far-right wave; we attribute the effect on the left to a “second-order” salience effect and document the responsiveness of the left to

right wing activities using data on left- and right-wing protests in Germany. As Muslims become more salient, right-wing movements gain momentum, with left-wing movements reacting through counter-rallies, ultimately increasing their consensus among German voters. As the shock in minority salience is arguably small and temporary, the responsiveness of the public is noteworthy. The political consequences of changes in minority salience may have further social repercussions: the estimated effects on vote shares are large enough to push fringe parties above the threshold to get public financing for their political activities. Given the German sensitivity to right-wing topics, even small increases in extremist vote shares draw disproportionate media attention, ultimately conveying information about the social acceptance of extremist opinions (Bursztyn *et al.* , 2017).

Our findings contribute to at least three strands of literature. First, our results fit the narrative of social identity theory that in-group favoritism and out-group discrimination increase with the salience of the out-group (Turner, 1981; Tajfel, 1982). Second, this paper relates to the growing number of studies applying the general insight of the intergroup interaction theory to the field of political interaction. Here, a number of studies demonstrates how coexistence of different ethnic groups has led to increased political polarization and support for extremist positions in response to economic or political shocks.⁵ Finally, by documenting behavioral responses to changes in the salience of a particular minority, we also connect to the empirical literature on the effects of limited attention and fallible memory on individual decision-making.⁶

⁵ Sakalli (2016) studies historical settlement patterns in Turkey, arguing that the 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 among 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).

⁶ Fouka & Voth (2016) show that the public disagreement between German and Greek politicians during the sovereign debt crisis of 2010–2014 reactivated past memories of World War II atrocities committed by German troops in Greece. For Austria, Ochsner (2017) find that right-wing voting increased in municipalities pillaged during the sieges of Vienna by Turkish troops in 1529 and 1683 compared to non-pillaged municipalities after Austrian right-wing populists started to campaign against Turks and Muslims explicitly referring to the Turkish sieges in 2005.

The remainder of this paper proceeds as follows. Section 2 provides a conceptual framework. Section 3 describes background and data sources on the political system and Muslim communities in Germany. We further provide empirical evidence on the higher salience of Muslims during Ramadan. We discuss the identification strategy in Section 4. Section 5 presents main empirical findings, robustness checks and additional analyses. We discuss several aspects of our results in Section 6. Section 7 concludes.

2 CONCEPTUAL FRAMEWORK

In this paper, we analyze how salience of a minority group might influence voting decisions. Similar to Bordalo *et al.* (2013), we define salience as the “*phenomenon that when one’s attention is differentially directed to one portion of the environment rather than to others, the information contained in that portion will receive disproportionate weighting in subsequent judgments*” (Taylor & Thompson, 1982, cited in Bordalo *et al.* (2013)).

In our setting, the part of the environment that receives disproportionate attention are religiously active Muslim communities. During Ramadan, Muslim communities are more salient through a stronger display of cultural traits, more religious activities and a rise in media coverage. In close proximity to a mosque, increased attendance, regular fast-breaking meals and festivities marking the beginning and end of Ramadan will draw voters’ attention. Outside a mosque’s immediate vicinity, voters are still exposed to increased local media attention.⁷

Salient minorities can affect voters’ decisions if they are mentally linked to topics and policy fields. In German elections, voters mainly choose between parties representing platforms summarizing opinions and attitudes with regard to a range of policy areas. When

⁷ In recent advances of salience theory (Bordalo *et al.* , 2013), decision makers’ attention is endogenously drawn to specific dimensions of alternatives in which these differentiate most. In contrast, in our empirical exercise, we exploit arguably exogenous changes in salience through the distance of elections to the beginning of Ramadan as a natural experiment. In this sense, our setting resembles other experimental settings of artificially raised salience (Chetty *et al.* , 2009).

casting their vote, voters weigh off expected net benefits from policy bundles which are associated with parties. The attention voters give to benefits and costs of different topics and policy fields varies across voters and may be affected by variation in salience.

We allege that an increase in Muslim minority salience may affect voting through at least two mechanisms. The first mechanism works through voters' weights on topics of immigration policy. As virtually all Muslims living in Germany have a migration background as first-, second- or third-generation migrants, a higher salience of this group increases voters' attention to heatedly debated immigration policies. This mechanism might be facilitated through highlighted cultural differences, raising the topic salience of cultural identity. With especially right-wing extremist parties traditionally taking strong stances on immigration and cultural identity, voters might be swayed to vote for nationalistic parties. This mechanism relates to the concept of *issue salience* in political science: voters cast their ballots for the party that "owns" a political issue when it becomes salient (Bélanger & Meguid, 2008).

A second mechanism works through increases in-group bias due to more salient group differences (Turner, 1981; Tajfel, 1982; Jenkins, 2014). By highlighting cultural dissimilarities between majority and minority, the higher salience of Muslim communities during Ramadan might trigger in-group favoritism among majority members. Such in-group bias as a function of out-group salience has been extensively tested in the lab (Chen & Li, 2009; McLeish & Oxoby, 2011). Expressing support for nationalist ideologies through voting for right-wing extremist parties can be seen as strong expression of in-group favoritism. Again, this mechanism of native in-group favoritism might be of specific importance in our field setting through the highlighting of cultural and religious differences during Ramadan.⁸

⁸ On similar lines, Adida *et al.* (2016) found that players with no recent immigrant background discriminated against Muslims in simple dictator games when the proportion of Muslims in their midst was increased. When interpreting the effects of the interaction of Ramadan and mosque exposure as the effect of a higher salience of Muslim minorities, we take into account the specific features of Muslim communities highlighted by Ramadan, i.e. cultural and religious differences. This sets our setting apart from situations in which migrants are primarily seen as a threat through competition on the labor market (e.g. Halla *et al.* (2016)).

3 BACKGROUND AND DATA

In this section, we first describe the German political system and the election data used in the main analysis where we focus on the West German federal state of North Rhine-Westphalia (NRW). We then provide a brief overview on the history of Muslims, mosques and anti-Muslim rhetoric in Germany and describe the data on mosques.⁹ We further provide empirical evidence on how public attention is drawn to Muslim communities in response to higher salience during Ramadan.

3.1 ELECTORAL AND PARTY SYSTEM

Germany is a federal parliamentary republic comprising sixteen constituent states (*Länder*). In elections for the federal and the states' parliaments, voters cast two different votes for candidate and party list. We focus on the second vote (*Zweitstimme*) cast for a party list as it expresses voters' party preferences and is unaffected by preferences for individual candidates on the local level. In general, the federal parliament (*Bundestag*) is elected for a four-year term, the state parliament (*Landtag*) for a five-year term. Election dates for the *Landtag* are in general in May, while most *Bundestag* elections are in September and October.

The multi-party system in Germany covers the entire spectrum of political preferences from extreme left to extreme right. Since World War II, either the center-right Christian Democrats (*CDU*) or the center-left Social Democrats (*SPD*) have exclusively led federal and state governments, occasionally in joint coalitions. The Liberal Party (*FDP*) and the Green Party (*GRÜNE*) have lent support to coalition governments.

Smaller parties, especially right-wing fringe parties, in general fail to surpass the required vote share of at least 5%. As an exception, the left-wing successor party of the former Communist Party of East Germany (currently *Die Linke*) has regularly won seats in the

⁹ Additional data on Berlin elections, individual attitudes and crimes against Muslims is described in the respective sections.

Bundestag and occasionally in the state parliaments of NRW and Berlin. Since 2014, though, the right-wing party *Alternative für Deutschland* (*AfD*) has increasingly gained seats in all state parliaments and is represented in the federal parliament since 2017. Regardless of entering the parliament, political parties in Germany 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.¹⁰

We aggregate votes for single parties to votes for established, far-right and far-left parties following Falck *et al.* (2014). Established parties include the Christian Democrats (*CDU*), the Social Democrats (*SPD*), the Liberal Party (*FDP*) and the Green Party (*GRÜNE*). Right-wing parties are movements following anti-immigration and nationalist ideologies. Left-wing parties are those characterized by communist ideologies, featuring anti-capitalist and anti-globalist opinions. The respective full party lists are described in Table 1.

DATA ON ELECTIONS IN NRW. In our main analysis, we focus on electoral outcomes over the period 1980–2013 in 396 municipalities (*Gemeinden*) in the state of North Rhine-Westphalia (NRW). The state of NRW has the largest population size among the German *Länder*, about 18 million or more than 20% of the total population of Germany. The period encompasses ten federal elections as well as eight elections for the state parliament. Overall, the estimation sample comprises **7,128** municipality-election observations.¹¹ For each election, we collect the number of eligible voters by municipality, the actual number of valid and invalid votes as well as the number of valid votes cast for each party. In addition, we obtain time-varying municipality characteristics from the Statistical Office: population

¹⁰ Each year, eligible parties receive 1 euro from the government budget for the first four million votes and 0.83 euros for each additional vote in state, federal and European elections, up to the maximum of self-raised revenues.

¹¹ We exclude data on municipal elections (*Kommunalwahlen*) from the main analysis for three reasons: first, non-German European Union citizens are eligible to vote in these elections; second, the data may mis-specify information on some local extremist parties; and finally, mosques' construction may directly influence the political campaign of extremist parties at the very local level.

size, population density, share of foreigners, share of women and number of employed.¹²

3.2 MUSLIMS AND MOSQUES IN GERMANY

Islam is the largest minority religion in Germany. Muslim religious affiliation is not recorded in any official register. Based on extrapolations of immigrant origin countries, the Federal Office for Migration and Refugees estimated that in 2008 Germany was home to about four million Muslims, accounting for roughly 5% of the total population. An estimated 45% of them naturalized between 1998 and 2005 (Haug *et al.*, 2009). Figure 1 plots the distribution of Muslims across German states as of 2008. Muslims are geographically concentrated in West Germany (98%), whereby more than 30% of them reside in the state of NRW.

About 70% of Germany's Muslims are of Turkish origin, most of them being descendants of Turkish guest-workers arriving in the 1960s (Stoop, 2016). Other large sending countries are Albania, Bosnia and Middle Eastern countries. The most numerous religious group are Sunnis, followed by Alevis and Shiites: these three groups alone account for about 94% of the total Muslim population in Germany (Haug *et al.*, 2009).

Anti-Muslim rhetoric is not a recent phenomenon. Resentments towards the Muslim population began to mount shortly after the first guest-workers from Turkey arriving in the early 1960s. A steady inflow of migrants throughout the 1980s and 1990s continuously fueled a heated public debate about the consequences of increasing cultural diversity in Germany. Nationalist right-wing magazines, like *Junge Freiheit* or *Nation und Europa*, portrayed the Muslim community as not willing to assimilate and warned of the infiltration of Germany by a Muslim majority.¹³ Right-wing parties tried to utilize the increasing public resentment by adding anti-Muslim statements to their political agendas.

Apart from verbal attacks against Muslims, far-right movements even called for an

¹² Table A.1 provides means of party vote shares for established, right- and left-wing fringe parties as well as municipality characteristics for the observation period.

¹³ See the 1994 Annual Report of the Federal Office for the Protection of the Constitution, Germany's internal secret service.

“armed fight against the Turks”.¹⁴ Reports of the German intelligence service provide evidence for recurrent assaults on Muslim minorities throughout the 1980s and 1990s, culminating in assassination attempts in the city of Mölln in 1992 and an arson attack in Solingen in 1993, targeting Turkish Muslim families.

More recently, following the increase in Islamist terror and the aftermath of the refugee crisis in 2015, mass movements, like the so-called *Pegida* protests, have brought anti-Muslim rhetoric back to the public focus.

MOSQUES IN GERMANY. Starting in the mid-1970s, mosque associations and Islamic centers were set up to build representative places of worship, relocating their members from backyard locations to proper mosques with minarets and domes (Kuppinger, 2014).¹⁵

This construction of mosques was and remains a highly-debated phenomenon in Germany (Schmitt, 2003). Local residents and anti-immigration movements express concerns related to Islamic fundamentalism, influence from foreign countries and ethnic segregation (Stoop, 2016). Far-right parties have used these concerns as propaganda vehicles to support anti-immigration ideologies. Constructions of mosques were regularly met with protests and demonstrations.¹⁶ Left-wing counter-rallies opposing the anti-Islam protesters resulted in increased social tension.¹⁷

DATA ON MOSQUES. German administrative data do not contain any information on ethnicity, race or religion apart from Christian affiliation. We therefore use the existence

¹⁴ See the 1983 Annual Report of the Federal Office for the Protection of the Constitution.

¹⁵ Mosque constructions were mainly driven by organizations like 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) and 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).

¹⁶ In Cologne, the largest municipality of the state of NRW, the anti-mosque movement (*Pro Köln*) spilled over into local politics by setting up a party running for the 2009 city council elections which has sparked related parties at the federal and state level (ProNRW and ProDeutschland).

¹⁷ As anecdotal evidence, Figures A.1(a) and A.1(b) show pictures taken at the Pro Köln rally in Cologne and the counter-protests organized by left-wing parties. Figures A.2(a) and A.2(b) show electoral posters of two far-right parties (Pro-NRW and REP) targeting Muslims and mosques' construction. Figures A.2(c) and A.2(d) show electoral posters of the PDS (far-left) against far-right parties.

of a mosque in a municipality or electoral district as a strong proxy for the existence of a sizable and active Muslim community.

We obtained mosque data from the online mosque register *www.moscheesuche.de* providing information for each mosque, including its year of opening (or closure), the postal code as well as the organization running the mosque. In addition, we have information on different characteristics of the mosque. For each prayer house, we know whether it is located in a residential area, the size in square meters and the height of the minaret(s). To ensure the validity of the information provided by the website, we ran extensive validation checks. 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 research, such as Schmitt (2003).

Figure 2 provides a map of mosques' presence across municipalities of NRW by decade. Prior to 1980, there were only eight municipalities where a mosque was established, whereas this number increased to 53 in the following three decades. We only have information on "visible" mosques, i.e., those with a minaret as well as a dome. So-called backyard mosques, which are accommodated in buildings previously used for different purposes, e.g., warehouses, factory halls or supermarkets, are not part of our data.¹⁸

3.3 RAMADAN AND MUSLIMS' SALIENCE

Ramadan is the ninth month of the Islamic lunar calendar, when according to the Islamic Faith the Quran was revealed to the prophet Muhammad. During the 30 days of Ramadan 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

¹⁸ Figures A.1(e) and A.1(f) in the Appendix illustrate the difference between a backyard mosque and a mosque with a minaret and dome.

least once in a Muslim’s lifetime. The individual lifestyles and social lives of Muslims across the world are thus strongly affected by Ramadan (Marshall Cavendish, 2010).

Ramadan is a time of socialization, during which Muslims come together and visit the mosque to share meals with relatives and acquaintances. Daily routine during Ramadan includes pre-dawn and fast-breaking meals taking place at the mosque. The end of Ramadan is celebrated with a three-day event.¹⁹ These celebrations and additional prayers result in increased mosque attendance and higher levels of displayed religiosity (Akay *et al.* , 2013; Campante & Yanagizawa-Drott, 2015).

TIMING OF RAMADAN AND ELECTIONS. In our empirical analysis, we exploit the fact that Ramadan moves backwards through the year by a mismatch of eleven days in the Gregorian and the Islamic calendar. Figure 3 depicts how Ramadan rotates over the seasons over the time period under investigation from 1980 to 2013. Each scatter point indicates the start date of a 30-day Ramadan period. Elections usually take place in May and September. Accordingly, the distance between election dates and Ramadan periods varies systematically with Ramadan moving backwards through the year. For the purpose of this study, we can plausibly assume that this distance is exogenous to fringe party success. Out of eighteen elections, four elections occur in close proximity to Ramadan, i.e., the national elections in 1980, 2009 and 2013 and state parliament elections in 1990.²⁰

SALIENCE OF MUSLIMS DURING RAMADAN. Our identification of electoral effects relies on Ramadan increasing the salience of Muslim communities. Here, we provide evidence on this relationship. We first use data on the contents of a national news program on German television, the *Tagesschau* and the related *Tagesthemen*, followed by about ten

¹⁹ Figures A.1(c) and A.1(d) in the Appendix portray typical Ramadan banquets at the mosque in Duisburg and Dortmund.

²⁰ We choose a time window of 90 days after the beginning date in our preferred specification and analyze later the sensitivity of our results to different definitions. Figure 4 visualizes the distance in days after the beginning of the last Ramadan cycle for each election as vertical bars. Additionally, the dashed line highlights the increased mosque dissemination during the time window of observation, increasing from eight to 53 municipalities with a mosque.

million viewers every day. Based on the daily content of each show since April 2013 as listed on the official web page *www.tagesschau.de*, Figure 5 plots the coverage of Ramadan by *Tagesschau* and *Tagesthemen* aggregated by week. The beginning and end dates of Ramadan are clearly covered by these national TV news shows, providing a first indication for news coverage.

The nationwide media coverage leads to a uniform availability across the entire country and raises the salience of Muslim minorities among German voters in general. However, the change in salience is arguably stronger in places where a sizable and visible Muslim community is based. We accordingly illustrate that Muslim minority salience changes differently during Ramadan periods between places with and without a mosque. To do so, we use city-level information on Google searches and Twitter use to examine whether the search for or the use of Muslim-related terms respond to Ramadan more strongly in cities with a mosque.

We accessed detailed data on the total number of Google searches by calendar month for 533 cities across Germany with a population size of at least 10,000. Among them, 141 cities have at least one mosque. The data cover a period of four years from September 2014 to August 2018, including four Ramadan cycles starting in May/June and ending in June/July respectively. We retrieved search words in German language related to Muslims: “*Muslim*”, “*Islam*”, “*Moschee*” (mosque) and “*Ramadan*”. Similarly, we retrieved the number of localized tweets on a weekly basis using these terms from the Twitter platform over the period from April 25th to August 24th 2018, i.e., from three weeks before the start and about ten weeks after the end of the 2018 Ramadan cycle. For tweets, we focused on the 396 municipalities of North Rhine-Westphalia.²¹

Figures 6(a) and 6(b) show averages of searches for and tweets using Muslim-related terms. Both graphs show a strong correlation between the use of Muslim-related terms and Ramadan cycles. This relationship is significantly more pronounced in cities where a visible

²¹ We describe the Google and Twitter data in more detail in Appendix B.

mosque is located.²² We interpret these differences in internet and social media behavior as evidence for a disproportional attention and salience gain of Muslim-related topics in vicinity to a mosque in response to Ramadan.²³

4 IDENTIFICATION

Our empirical strategy to estimate the causal effect of Muslims' salience on election results exploits idiosyncratic variation in the time passed between the beginning of Ramadan and election dates. During Ramadan, more religious activities and increased media coverage draw public attention to religiously active Muslim communities. As such, the distance between Ramadan and elections induces variation in the salience of Muslims in voters' decision-making process. This variation in salience is likely to be larger in municipalities where a sizable Muslim community is present than in municipalities where it is not.

We proxy the existence of an active religious Muslim community by the location of mosques. Mosque locations are not necessarily orthogonal to unobserved factors affecting election outcomes. To separate a causal effect of increased salience from potential confounders on the level of single elections and municipalities, we use a difference-in-differences strategy that compares differences between voting outcomes in elections affected by Ramadan and elections unaffected by Ramadan, between municipalities with and without a religiously active Muslim community. To interpret this difference-in-differences as the causal estimate of Muslim salience on outcomes, we have to assume strict exogeneity between the joint treatment of Ramadan and mosque existence – the interaction of mosque presence and Ramadan occurrence – and further determinants of political extremism in any period.

²² Plots of residuals of separate regressions on the total number of searches and tweets for any of these Muslim-related terms on city and year-by-month fixed effects (week fixed effects for Twitter) are displayed in Figures A.3(a) and A.3(b). Patterns are similar to the raw numbers in Figures 6.

²³ As the data do not provide us with information on the identity of the users who use these words, we do not know their religious affiliation. Hence, we cannot fully rule out that part of this picture is due to tweets and search queries by Muslims themselves looking for information about mosques and Ramadan. In an additional keyword-wise analysis we find that also single search terms with a clear anti-Islam connotation display the same pattern. Results are available on request.

The according regression model reads as follows:

$$\text{voting outcome}_{it} = \beta_0 + \beta_1 m_{it} + \beta_2 m_{it} \times r_t + \delta_i + \lambda_t + \varepsilon_{it}. \quad (1)$$

Voting outcomes in municipality i in election t – vote shares for extremist and established parties as well as voter turnout – are regressed on a binary indicator m_{it} , that switches to one when a mosque has been established in municipality i by election date t . We interact the presence of a mosque with a binary indicator r_t for election t happening in a specified time window after the start of Ramadan. This interaction is meant to capture the difference in voting outcomes that can be plausibly attributed to the increase of Muslim salience during Ramadan.

This effect of salience is identified through a two-way fixed effects model to control for unobserved factors that simultaneously affect anti-Muslim sentiments and electoral results. First, we include fixed effects at the level of municipalities (δ_i) that absorb unobserved time-invariant factors at the municipality level, such as remoteness, geographical endowments and historical determinants of political preferences. Second, we control for unobserved time-varying factors that are shared by all municipalities by adding election fixed effects (λ_t).²⁴ Such factors could be the set of parties that decide to run in a specific election, and factors driving the demand for extremist parties such as recent terrorist attacks or the state of the national economy. Relying on this specification, we can plausibly assume that the error term ε_{it} is orthogonal to changes in salience conditional on unit and time fixed effects, i.e., $E[m_{it} \times r_t, \varepsilon_{it} | \lambda_i, \delta_i] = 0$, and that β_2 provides us with a causal estimate of the effect of the increased salience of religious minorities through the presence of a mosque during Ramadan.

²⁴ Election and election date fixed effects are equivalent, as each one of the 18 elections that we observe takes place at a different date.

IDENTIFYING VARIATION. It is important to note that the identification of our key parameter does not rely on the diffusion of mosques over time. In regression model (1), only the parameter β_1 is entirely identified by mosque construction over time *within municipalities*. This source of variation is potentially endogenous and we therefore refrain from interpreting the coefficient as the causal effect of mosque construction. Our main parameter of interest though, β_2 , is identified by comparing Ramadan-affected elections between municipalities with or without a mosque. As such, β_2 is therefore identified even in the absence of time variation in mosques through the comparison of Ramadan-induced changes *across* municipalities. The Ramadan indicator r_t only enters the specification through the interaction with the mosque indicator, while its main level is absorbed when adding the election fixed effects. We therefore do not identify the average effect of increased salience during Ramadan, but the difference between cities with and without a mosque.

BALANCING TESTS. The identification of β_2 relies on the assumption that the residual variation of the main explanatory variable $Mosque \times Ramadan$ is independent of the error term ε_{it} . Although this assumption is essentially untestable, Table 2 provides results from a balancing test based on observable characteristics. Specifically, we test whether several municipal characteristics that may potentially influence electoral outcomes are correlated with our treatment $Mosque \times Ramadan$. The estimated coefficients in Table 2 do not reject the hypothesis of the treatment being orthogonal to observable characteristics. Point estimates are small in magnitude and insignificant and do not provide evidence of a systematic correlation with time-varying municipal characteristics.

To further ensure the idiosyncratic and unsystematic nature of our treatment and assess the potential influence of a lack of balancing on our results, we conduct an omnibus test in the spirit of Satyanath *et al.* (2017) by predicting right and left vote shares based on the full set of observed municipality characteristics – population density, share of women, share of foreigners and the log number of private sector employees – and regressing this

prediction on our main explanatory variables, mosque presence, Ramadan and their interaction. The results of this omnibus test are summarized in Table 3. The test does not reject our assumption of the as-good-as-random nature of elections after Ramadan and we do not find any significant correlation between joint municipality characteristics and the interaction between Ramadan and mosque presence. The coefficients are precisely estimated and very small. As expected, the results indicate a strong significant association between observable municipality characteristics and the presence of a mosque, a result that is already apparent from the descriptive statistics in Appendix Table A.1. Accordingly, we avoid interpreting coefficients of the mosque indicator as representing causal relationships.

5 RESULTS

5.1 MINORITY SALIENCE AND ELECTION RESULTS

First, we present results for the effect of salience of Muslim communities on NRW elections. The results are summarized in Table 4. The table is organized into four panels organized by dependent variable: vote shares for far-right, far-left and established parties as well as voter turnout. Vote shares are expressed as the percentage of eligible voters to condition on changes in the turnout.

Columns differ by the set of included controls. Column (1) of Table 4 reports the raw partial correlation of Ramadan and voting outcomes without controls and fixed effects. To capture the short-run change in salience during and shortly after Ramadan, we consider elections being potentially affected if they are taking place within three months (90 days) after the first day of Ramadan. The results indicate higher vote shares for both right- and left-fringe parties in elections occurring in close proximity of Ramadan. By contrast, we observe lower support for established parties and lower voter turnout.²⁵

²⁵ To take into account the range of municipality sizes in our sample, we ran regressions weighted by eligible voters (Panel D of Table A.2). The estimated coefficients are similar to those in Table 4 in terms of both magnitude and statistical significance.

In column (2), we include the mosque dummy and its interaction with the Ramadan variable. Using again the 90-days window after beginning of Ramadan, 1.8% of all municipality-election observations are affected by the interaction of Ramadan and mosque presence. While the coefficient of Ramadan remains largely unaffected, both mosque indicator and its interaction with Ramadan display a positive and significant correlation on the support for extremist parties, while they have a negative correlation with turnout and established parties. However, in the absence of controls for time-varying heterogeneity and unobservable factors at the municipality level, these results yet cannot be interpreted as a causal effect.

We include fixed effects for election date, municipality and election type in column (3), now representing the specification discussed in Section 4. Once we include election date fixed effects, the Ramadan coefficient is absorbed in these. The inclusion of election date fixed effects is crucial, though, as our dependent variables are vote shares to a defined group of parties. Some of these parties ran in some elections but they did not in others, whereby the election fixed effects takes into account this issue. Therefore, from here onwards we focus on the interaction term $\text{Ramadan} \times \text{Mosque}$, which picks up the causal effect of a change in Muslims' salience in municipalities where they are active on political extremism.²⁶ The inclusion of additional controls for municipalities' characteristics in column (4) leaves the estimated coefficients unaffected, suggesting that the distance of the election to Ramadan is indeed orthogonal to selected observable characteristics.²⁷

The results of this preferred specification indicate that far-right parties' vote share is increased by 14% of a standard deviation in municipalities where a mosque is present and when the election is within three months after the start of Ramadan. Similarly, far-left parties' support is increased in elections during Ramadan by about 22% of a standard deviation. As such, the occurrence of Ramadan appears to increase the attention to Muslim

²⁶ Appendix Table A.3 shows the sensitivity of our results to the inclusion of different sets of fixed effects.

²⁷ Our setting might be affected by spatial correlation in the error terms. We followed the suggestions by Dell *et al.* (2014) and explored the sensitivity of our results towards clustering on a larger geographical level (districts) or allowing for decreasing correlation in error terms following Conley (1999). The respective results are summarized in the appendix in Table A.4. Standard errors increase, though our main results remain significant for both right- and left-wing vote shares.

communities in German municipalities, ultimately polarizing the political preferences of voters.²⁸

In contrast to the effects on fringe parties, established parties experience a one percentage point reduction in treated municipalities and elections. The increased political extremism reduces voter turnout as shown by the negative coefficients. The effect is negligible in size, but 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; Guiso *et al.*, 2017).

5.2 ROBUSTNESS CHECKS

In this section, we undertake a number of analyses to test for the sensitivity of our main results and to rule out potential threats to the validity of our identification. For clarity of exposition, we focus on vote shares for far-right and far-left parties. Robustness tests on further outcome variables are presented in Appendix Table A.6.

TRENDS AND OUTLIERS. To allow for different latent trends across cities, we interact municipality fixed effects with linear time trends or with dummies for ten- and five-year sub-periods. The results are reported in columns (1) to (4) of Table 5. Estimated coefficients remain virtually unchanged for the far-right support when we include a linear time trend (column (1)). They become smaller for left-fringe parties, but remain statistically significant at the 1% level. Controlling for non-parametric trends, i.e., columns (2) and (3), slightly reduces the magnitude of the estimates, which remain statistically significant at conventional levels. Identification within sub-periods relies on differences in relatively close elections,

²⁸ A further plausible mechanism behind our results is an endogenous campaign rhetoric in response to a higher minority salience. We investigated this mechanism by relating the number of tweets from right-wing party-owned twitter accounts to our treatment of increased salience. The respective coefficient in Appendix Table A.5 is close to zero and precisely estimated. Though we cannot rule out that strategic campaigning took place at earlier times of our observational period, parties would have to anticipate moderate changes in attention resulting from higher minority salience and would have to engage in a costly regional adjustment of campaigning.

leading to less precise estimates. We additionally test for diverging time trends as a result of the increasing importance of Muslims in German politics. We do so by including a linear time trend interacted with the presence of a mosque. Results in column (4) remain largely unaffected.

We further investigate the robustness of our estimates towards outliers in voting outcomes. We transform the dependent variables by taking the square root of the vote shares for each party.²⁹ The estimated coefficients are reduced in magnitude, but remain positive and statistically significant for both left and right fringe parties. Outlier-robust median regressions (column (5)) arrive at similar conclusions. Estimates are slightly reduced in magnitude for both far-right and far-left vote shares.

TIMING OF MOSQUE CONSTRUCTION. Our empirical model is based on an assumption of strict exogeneity of regressors. Election results should therefore not affect the probability of being affected by salience changes in later periods. Such a violation of strict exogeneity could happen through increased polarization to affect later mosque construction. We can relax this assumption in an alternative specification in which we replace the contemporary mosque presence with a dummy that takes a value of one if the municipality has *ever* had a mosque, and the interaction between this indicator with the Ramadan dummy. This specification allows us further to have a larger proportion of treated observations and mitigates the problem of the uneven distribution of the mosques over the time window analyzed. The estimated coefficients (Table 5, column (7)) are slightly smaller but more precisely estimated than the main results in Table 4, and still statistically significant in terms of both far-right and far-left support.

A related concern is that our main specification implies that Muslim communities only become visible during Ramadan or after a mosque has been built. This specification does

²⁹ We prefer the square root to a logarithmic transformation as our dependent variables contain many zeros. Square root transformation treats numbers of one and above differently than non-negative numbers lower than one (Osborne, 2005). These 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.

not take into account the fact that these religious groups may have been active and thus visible before the official opening. Results are insensitive, though, to anticipating mosque construction by five years (Table 5, column (8)).³⁰

In Appendix Table A.2 we show similar results when we replace the mosque dummy with the share of foreign born individuals living in a municipality as an alternative proxy for the presence of Muslims (Panel A). Furthermore, we interact the Ramadan dummy with the share of Muslims living in a county in 1987, i.e., Panel B of Table A.2.³¹

MUSLIMS VOTE, TOO! A considerable share of Muslims are German citizens and thus are entitled to vote at state and federal elections. We therefore cannot rule out that a 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 far-left support is partially explained by changing voting patterns of Muslim voters.

To assess the effect of Ramadan on Muslim voters, we draw from the European Social Survey and construct a sample of about 10,000 Muslims in 35 countries over the period 2002 to 2017. This data contains information about the individual level of interest in politics and political orientation on a 0-10 left to right scale, as well as gender, age and ISCED-coded highest educational level. We use this information to assess the influence of being interviewed during Ramadan on political interest and orientation, while holding constant year of interview, month and country of interview, as well as gender, age and education.

Political interest is unrelated to the interview held during Ramadan, with a very small and insignificant partial correlation ($n = 13,733$, $\beta = -.017[.047]$). The correlation between political orientation and interview held during Ramadan is larger in magnitude, but insignificant, too ($n=10,841$, $\beta = -.05[.045]$). For the smaller set of observations ($n=$ from

³⁰ This specification allows us to further take into consideration the years between the beginning and the end of the construction works of mosques.

³¹ The information on the county-level population share of Muslims comes from the population census (*Volkszählung*) conducted in West Germany in 1987 (see Appendix B for details).

Germany (n=399), distributions for Muslims interviewed during or outside of Ramadan are virtually identical. We conclude from these results that Muslims' votes are unlikely to drive the results on extremist parties on the left and right.

TIMING OF RAMADAN AND ELECTIONS. Information that is further into the past is likely to be less salient than more recently conveyed information (DellaVigna, 2009). We therefore should expect the estimated effects to decline as the distance of the election to the first day of Ramadan increases. What is considered to be a long-enough period for features to lose their salience is an empirical question. We run separate regressions where the definition of treated elections varies from two to six months after the start of Ramadan. Figure 7 plots estimates of β_2 from five different regressions for both far-right and far-left parties. The specification is the same as in column (4) of Table 4, with standard errors clustered at the municipality level.

The estimated effect declines over time. The share of treated observations is .95% for elections within two months since the first day of Ramadan, 1.81% for elections within three months, 2.19% for elections within four and five months and 2.61% for elections within six months. It becomes statistically not significantly different from zero after the fifth month since the first day of the Islamic month for the far-right parties. For the far-left parties, the effect remains significant, although its magnitude reduced by half. Table A.2 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. The 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.

PERMUTATION TESTS. We perform a permutation exercise to assess the validity of the parametric standard errors of our main estimations and to ensure that our main results are not driven by a "bad random draw" of treated observations. To provide evidence that our results actually represent a meaningful effect exceeding random fluctuations in voting

outcomes, we randomly define elections to happen close to Ramadan, as well as artificially distributing mosques to municipalities on a random basis.

In particular, we artificially assign mosques and Ramadan to municipality-election observations according to the actual share of treated observations. Repeating the procedure 5,000 times yields the distribution of placebo estimates shown in Figure 8. In almost every case, the placebo coefficients are lower than the “true” one. The estimated coefficient exceeds about 99% and 100% of all simulated coefficients for the far-right and far-left dependent variables, respectively. The implied p-values for the hypothesis that $|\beta_2|^{Placebo} > |\beta_2|^{True}$ are close to zero for both far-right and far-left vote shares. The intuition is the following: if the treatment had a significant effect on extremist votes, we would expect the estimated coefficient to be in the upper tail of estimated placebo effects. These tests confirm that the occurrence of Ramadan in municipalities with a mosque led to an unusually high level of support for fringe political parties.

5.3 INDIVIDUAL ATTITUDES

We analyze individual attitudes 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 (ESS), which interviewed roughly 3,000 German residents between August 2014 and February 2015. The European Social Survey provides data on Europeans’ attitudes, beliefs and behavior patterns. It is conducted every two years in European countries. A more detailed description of the ESS data can be found in the supplementary appendix in Section B.

Do respondents differ in their expressed opinion about Muslims and their political orientation when they are interviewed during Ramadan? We answer this question by exploiting variations in the interview date with respect to Ramadan. We define individuals as exposed if they are interviewed within three months after the start of Ramadan. We estimate

$$y_i = \gamma_0 + \gamma_1 \text{Ramadan}_i + \epsilon_i, \quad (2)$$

where y_i is the outcome of respondent i and Ramadan is a dummy indicating whether the interview took place within three months after the start of Ramadan. The share of *treated* individuals is about 21%. Figure A.4 plots the share of respondents by date of interview. The equation further includes controls for the state 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, and is not correlated with unobservable characteristics also influencing attitudes towards minorities and political preferences.

The ESS provides information about respondents' opinions towards minorities and immigration, as well as political preferences and socio-economic characteristics.³² Table 6 reports regression results for a wide range of outcomes considered. For each outcome, we report three estimates: OLS with and without control variables as well as marginal effects from an ordered probit specification. As first set of outcomes, we consider indicators of political extremism constructed from the question on individuals' placement on a left-to-right scale, where 0 represents extreme left and 10 indicates far-right. Respondents interviewed during and just after Ramadan indeed display more extremist political preferences than others. When we distinguish between far-right (Panel B) and far-left (Panel C) extremism, both extremes of the political spectrum are affected. However, the effect on the far-left is only weakly significant.

Ramadan specifically influences attitudes towards Muslims compared to other ethnicities. This test acts as a kind of placebo test: there is no reason to believe that Ramadan should affect opinions against Jewish people. 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

³² Table A.7 reports descriptive statistics of all dependent variables analyzed.

treated individuals have less favorable attitudes towards Muslims than non-treated ones. Replicating the same exercise with Jewish communities instead does not provide statistically significant differences (Panel E).

The higher salience of Muslims during Ramadan may create misperceptions about the number of Muslim living in a municipality. We use answers to the question “*Of every 100 people in Germany how many born outside Germany*” to compute the log share of perceived foreigners as dependent variable in Panel F. The perceived share of foreigners increases by about 8% when the survey takes places within three months after the start of Ramadan. Adding the full set of individual characteristics slightly increases the magnitude of the estimated coefficient. We argue that this misperception is a likely mediator for the observed effects in aggregated voting data.

We further 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 (Panel G). This result is in line with the particular nature of the salience shock of Ramadan which specifically highlights cultural dissimilarities between minority and majority. During Ramadan, respondents also perceive “White” and “Christian” as more desirable attributes of immigrants (Panel H).

5.4 ADDITIONAL ANALYSES

We now turn to a series of additional analyses on the heterogeneity of our main results and the external validity in different settings – a broader sample of all-West German municipalities, smaller geographical scale units (voting districts) in Berlin, and on potential spill-overs of political extremism into violent behavior.

HETEROGENEITY BY MUNICIPALITY AND MOSQUE CHARACTERISTICS. The average effect of salience might mask heterogeneity if either voters are heterogeneous in their sensitivity towards raised salience or characteristics of mosques lead to differential increases

in visibility. In the following, we use information on the characteristics of mosques and municipalities of the state of NRW to uncover this potential heterogeneity and shed light on the type of voters of react the most.

Effects of salience potentially differ by the exposed population, which may differ in their potential for fringe parties' mobilization. Topics of immigration might have higher impact in municipalities with difficult labor market conditions. We examine such heterogeneity in columns (1) to (3) of Table 7. We interact the treatment variable with a dummy equal to one for values above the median for municipal characteristics: population density, share of 18–24 years old and the gender ratio. We observe stronger polarization in municipalities with a higher population density. Effects on the far-right are larger in areas with a younger population structure. These observations are in line with descriptive characterizations of far-right support being stronger among the young and in urbanized areas. The regression results in column (3) show no statistically significant differences in municipalities where there is a large male-to-female ratio.

Mosques differ strongly in their visibility, appearance and size. These differences might mediate the effect of higher salience during Ramadan. To test for this heterogeneity, we acquired additional data on the mosques in NRW: the height of the mosques' minaret in meters, the year of construction and whether they are located in a residential area. Results of interactions of our treatment with the respective mosque characteristics are summarized in columns (4) to (6) of Table 7. While both location in a residential area and minaret height are a priori expected to increase the salience effect, they seem to effect different parts of the electorate. Location in a residential area raises the effect of salience on extreme left support. The height of minarets raises the effect on support for right-wing parties. The latter is in line with the presence of minarets being an especially sensitive issue in the public debate, which even has triggered calls for a ban of minarets in Germany and Switzerland.³³ We do

³³ In 2009, the Swiss People's Party and the Federal Democratic Union proposed an initiative against the construction of minarets in Switzerland, which 57.5% of the Swiss electorate eventually approved. In 2016, the party AfD backed an election manifesto calling for a ban on minarets in Germany.

not observe heterogeneity with respect to the time since construction of a mosque. This suggests that the effect does not disappear over the years as the majority group becomes acquainted with the minority group.

ELECTIONS ACROSS ALL WEST GERMAN STATES. To test for the robustness of our observed pattern in a larger sample, we repeat the analysis at the municipality level on 78 federal and state elections that took place in West Germany between 1980 to 2013.³⁴ Due to limited availability and lack of harmonization of federal statistics, this sample does not include control variables on sociodemographic characteristics of cities. The number of treated elections, i.e., within three months after the start of Ramadan, increases from four to 20. However, the share of *Ramadan* \times *Mosque* treated observations decrease to 0.29%, as there are fewer mosques outside NRW. Mosques in other German states are located in 92 municipalities; these mosques are also more recent than the ones in NRW, as most of them had been built in the last 15 years of the observed period. Relative to NRW, municipalities in other German states are also much smaller in population size, as shown in Table A.8. Overall, the final sample includes ten federal elections and 68 state elections in 8,311 municipalities. In total, we have 149,253 election-municipality observations.

Results summarized in Table 8 yield a similar pattern of polarization in response to higher salience of Muslims as the NRW sample. In elections that happened within 90 days after the start of Ramadan right-wing fringe parties increase their vote share by 0.65 percentage points (p.p.), left-wing fringe parties by 1.03 p.p. (column (1)). Controlling for municipality and election date fixed effects, we again observe a substantially stronger polarization in municipalities with a mosque (column (2)). Far-left and far-right parties increase their vote share by 0.387 p.p. and 0.309 p.p. (corresponding to 23% and 18% of a standard deviation) respectively. Excluding observations from NRW, hence focusing on a distinct sample than the one used in the main analysis does not change the observed

³⁴ We are very thankful to Stephan Heblich and Robert Gold who provided us with their election data.

patterns (columns (4) to (5)). This makes us confident that the results of the main analysis are not driven by outlier characteristics of single municipalities or elections in NRW.

We observe some differences compared to the main analysis. The mosque coefficients turn out to be negative and statistical significant for far-right support; as we claimed before, we cannot interpret this coefficient as casual: for instance, mosques may be built in municipalities that are more friendly to Muslims than others, such as municipalities in which there is a decreasing support for far-right parties and increasing consensus for far-left parties. In Appendix Table A.9, we show that our treatment variable does not significantly affect the support for established parties, while there is a significant and positive effect on turnout.

ELECTIONS IN BERLIN. The results presented so far are based on municipalities differing strongly in size, with an average population size of 44,000 inhabitants in NRW. Hence, results on this aggregate geographical level might mask within-city dynamics and effect heterogeneity on a closer neighborhood level in the response to higher salience of Muslims. We use data for the electoral districts of Berlin over the 2006–2016 period to investigate such heterogeneities in the effect of increased salience on political extremism at a very detailed geographical level.³⁵

The city state of Berlin has a population of about 3.5 million people. It is sub-divided into twelve boroughs (*Bezirk*), comprising of about 160 smaller electoral districts (*Wahlkreis*) with an average population of 1,700 people. Our sample covers two federal and three state-level elections between 2006 and 2016: all elections aside from those in 2006 and 2016 happened within three months after the start of Ramadan.³⁶ Besides voting outcomes, we observe the number of foreigners and population size in any election for each electoral district. The number of observed districts ranges from 1,709 to 2,501 over the period con-

³⁵ The statistical office of Berlin does not provide information on previous elections at such geographical level. Data on Berlin elections at the municipality level are available since 1990.

³⁶ 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.

sidered. Our final sample comprises 9,709 electoral district-election observations. A more detailed description of the Berlin data can be found in Section B in the appendix.

We merge the election data with the location and dates of construction of all mosques in Berlin. Using the exact address of each mosque we construct the distance from the centroid of each electoral district. Figure 9 depicts the borders of electoral districts and boroughs in Berlin: the color intensity of each electoral district varies depending on its distance to the closest mosque. There are seven visible mosques in Berlin, all of which were established prior to 2006. About 11% of all electoral district-election observations have a mosque within 1,500m of their geographical centroid. Voter turnout is virtually the same for electoral districts within or outside this 1,500m radius circle (47%), while vote shares of right-wing parties are lower on average in proximity to mosque (2.0% vs 3.1%) (Table A.10). Electoral districts in close proximity to mosques display a significantly higher share of foreigners (23%) than those outside the 1,500m radius (12%).

We estimate a version of equation (1) where β_2 estimates the interaction effect of the exact (log) distance between each district and the closest mosque. Borders of electoral districts change across elections. We therefore consider the dataset as a repeated cross-section. Within each borough, the smaller geographical units of observations change over time. In our main specification we include fixed effects for boroughs, the election date and the election type.

Table 9 summarizes the regression results. Doubling the distance between a mosque and the geographic centroid of an electoral district reduces the share of right-wing votes by 0.7 percentage points in elections that happen within three months after the start of Ramadan (column (1)).³⁷ The inclusion of population controls in column (2) does not affect our results. Columns (3) to (5) report results for specifications where the continuously measured distance is replaced with a dummy equal to one when a mosque is within a 1,000, 1,500, or 2,000 meter radius, respectively. Blocks within a distance of 1,500 meters from

³⁷ Using the linear distance instead of the logarithm provides similar results: each additional 100m distance between a district and a mosque reduces the far-right vote shares by 0.16 percentage points.

a mosque experience an increase of about 0.78 percentage points in far-right vote shares during elections that happen during or just after Ramadan.

At this small geographical level, we do not find evidence of political polarization: if anything, vote shares for the extreme left are reduced, although the coefficients remain insignificant at any conventional confidence level. One plausible interpretation for this result 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, although 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, but rather could be driven by exposure to far-right rallies and propaganda, i.e., second-order salience. We discuss this second-order salience mechanism in more detail in Section 6. An alternative explanation relates to the political history of Berlin, where far-left parties have been seen as established parties in contrast to West Germany. In East Berlin, the predecessor of the party *Die Linke* held the incumbent position in the German Democratic Republic (GDR) for about 40 years, and as such follows a more centered program.

To investigate potential non-linear effects, we use more flexible specification using different distance categories in the relationship between distance and increased salience during Ramadan. Figure 10(a) plots estimated effects on the far-left of the interaction between the Ramadan variable and a set of dummies indicating the distance (grouped in 1,500 meter intervals) of each electoral district to the nearest mosque. Blocks between 0 and 1,500 meters are used as comparison category. The figure reports coefficients from two separate regressions: in the first one, the dependent variable is the vote shares for far-left parties (dark-gray triangles), while in the second one (light-gray crosses) we excluded the party *Die Linke* from the group of far-left parties. Using this non-linear specification, the effect on the far-left increases with the distance to the nearest mosque. This suggests that the polarization of the electorate does not happen in the same areas of the municipality. This effect

for far-left parties is stronger when we exclude the *Die Linke* party. The same regression coefficients on the support for the far-right are shown in Figure 10(b): the effect becomes smaller with the distance to the nearest mosque. The estimated effects at different distances for each dependent variables are statistically different from each other.³⁸

Taken together, the results of the estimations based on the Berlin sample are useful to disentangle the aggregated polarization observed in the municipality-level data of NRW: The results show that effects on the left and right appear to be driven by different neighborhoods. Left-wing support in peripheral neighborhoods in response to a higher mosque salience are consistent with a NIMBY (“Not in My Backyard”) explanation: close proximity to Muslim communities generates negative attitudes of the majority group towards them; as the distance increases, negative attitudes become attenuated, while support for left-wing parties increases. This pattern is further at odds with a contact hypothesis as argued for by Steinmayr (2016) who finds increased pro-immigration attitudes in response to direct within-neighborhood contact with refugees.

POLITICALLY-MOTIVATED CRIMES. Thus far, our empirical findings have shown that a change in the salience of a religious minority significantly affects the political preferences of natives. We now investigate whether the increase in political extremism translates into actions beyond voting, e.g., violent behavior against minorities. This section specifically addresses this point by examining whether the change in Muslims’ salience during Ramadan also affects the probability that a mosque is attacked.

We 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 across Germany. This list comprises 219 offenses against mosques, including vandalism

³⁸ We reject the hypothesis of equality of coefficient in the three regressions as the F-statistics are highly significant; in particular, the F-statistics for the far-left, far-left (w/o *Die Linke*), and far-right are 32.99, 9.34, and 11.31, respectively.

(e.g., swastika graffiti), death threats and arsons.³⁹ The final sample used in this analysis is a time series comprising 4,017 observations, i.e., each day from January 1, 2001 to December 31, 2011. We estimate the following linear probability model:

$$y_t = \theta_0 + \theta_1 \text{Ramadan}_t + \epsilon_t \quad (3)$$

where y is a dummy indicating whether an attack occurred on day t . *Ramadan* is a dummy that switches on when day t is within 90 days after 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 by interactions 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.⁴⁰

Table 10 shows the 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 due to an increase in police displacement around mosques. The estimated coefficient is almost unchanged. In column (3), we split our explanatory variable into two different variables: a dummy for days during Ramadan and another dummy indicating days in the second and third month after the beginning of Ramadan. We expect 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. The results show that the estimated effect turns to be positive but statistically not significant

³⁹ The complete list can be found at the following website: <http://dip21.bundestag.de/dip21/btd/17/095/1709523.pdf>. This list may be incomplete, with several Muslim organizations having complained that there is a large number of unreported offenses. Still, it displays the most comprehensive data available on violent attacks against Muslims. The dataset contains information on crimes' calendar date and type. The state of NRW experienced the largest number of attacks (79), followed by Baden-Württemberg, the second most populated state by Muslims.

⁴⁰ These results are robust to a more conservative clustering of standard errors, e.g. clustering at the calendar month level or the week level.

for days during Ramadan and positive and statistically significant for the days in the two months after the end of Ramadan. We eventually run placebo regressions including a dummy for days in the three months before, i.e., column (4): the estimated coefficient is smaller than the ones in column (1) and not significant, thus confirming our intuition. In column (5) we include dummies for 90–61 days and 60 days before Ramadan, analogous to column (3). Since an attack on a mosque is more difficult to perform during Ramadan than during other periods, 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 Ramadan.⁴¹

Figure 11 plots estimated coefficients of days since the start of Ramadan on the attack probability. In practice, we modify model (3) 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.

6 DISCUSSION

6.1 POLARIZATION

While it is straightforward to argue for an immediate reaction on the far-right of the political spectrum to higher Muslim salience, the equivalent effects on the left appears counter-intuitive at first. In the following, we provide a rationale for the political polarization that we observe in both the NRW and Berlin results based on observed protest patterns of the German left and right.

⁴¹ In order to prevent fixed effects creating an incidental parameters problem, we also run Poisson regressions (Cameron & Trivedi, 1998), which provide very similar estimates.

Where does the observed effect on the left stems from? While the German extreme left occasionally served marginalized social groups with anti-globalization, anti-immigration positions, extreme left platforms rather support open borders and “melting pot” policies. Therefore, there is no obvious direct effect to be expected. Instead, we attribute the strong equivalent response on the left to a counter-reaction of left-wing groups and increased support for left-wing parties *triggered* by increased right-wing support. This mechanism of a “second-order salience” effect on the left is an artifact of the responsiveness of the left to right wing activities. In Germany, the mobilization against the radical right is considered as a huge identifying element of the radical left dating back to the 1960s (Backes, 2007; Jesse, 2013).⁴²

We support this view by employing data on German protests from PRODAT, a comprehensive dataset on protest events in Germany between 1950 and 2002. We use information on political background of protests (left vs right), whether a protest was considered a counter-protest or triggered a counter-protest. The data reveal a robust pattern of differences in the ability of the left and right in terms of topics and counter-protest culture. Figure 12 reveals a clear pattern. Almost 90% of left-wing protests with the relevant information in the data are classified as being triggered by a right-wing protest, while only about a third of right-wing protests are considered a counter-protest. Vice versa, while only a third of left-wing protests triggered a right-wing counter-protest, almost 90% of right-wing protests were accompanied by a left-wing counter-protest.

This pattern is mirrored in the political claims and topics, which are coded for a larger number of protests: while about 10% of left-wing protests explicitly state to be a counter-protest against right-wing activities, only about 2% of right-wing protests address explicitly left-wing activities. Instead, responses to other fields of politics (foreigners, inner security

⁴² For example, a key goal of the left-wing German student movements (“movement of 1968”) was to deal with the National Socialist past of their parents’ generation, in particular among the political elites of post-war West Germany (“*Vergangenheitsbewältigung*”). Further, increasing right-wing radicalism after Germany’s reunification in 1990 gave rise to a massive counter-movement by the extreme political left (Rucht, 2013).

etc.) are much more prevalent. These numbers highlight the responsiveness of the left to increased right-wing support and support the rationale of marginal left-wing supporters being pushed to more extreme positions when experiencing higher levels of right-wing support which again was triggered by the higher salience of minorities, ultimately leading to a polarization of the electorate.

6.2 ECONOMIC SIGNIFICANCE

Increased Muslim salience affects voting, individual attitudes and hate crimes. Overall, our findings confirm anecdotal evidence that the growth and thus the increased visibility of Muslim communities have polarized the German electorate. Given that the increase in Muslim salience through Ramadan will only temporarily affect a very small portion of the environment, this robust effect on different outcomes points to a high level of responsiveness to minority salience. The effects on individual attitudes even point to a malleability of preferences through the salience of topics; these findings have not been demonstrated in field settings before.

Besides this conceptual contribution, we see at least three further reasons for the economic significance of our results. First, while the actual size of the estimates is moderate and not sufficiently large to allow any representative of these extremist parties to win a seat in parliament, even small changes in right-wing voting outcomes receive disproportionate public attention and media coverage due to Germany's history of National Socialism between 1933 and 1945. In response, moderate political parties may marginally adjust their party agenda on the supply side to accommodate more extreme opinions. Hence, minority salience may have a more pronounced impact on the equilibrium of political competition in a given election than actual voting outcomes suggest. Second, in the light of recent experimental results by Bursztyn *et al.* (2017), increased aggregate voting shares expressing extremist opinions convey information about the public acceptance of extremist positions. Facilitated by disproportionate media attention, a perceived higher acceptance of extremist

positions makes public expression of these positions less costly. Third, increased vote shares for extremist parties may have longer-run effects if they tip them across the threshold for making parties eligible for Germany’s system of public funding of political parties. These additional resources can be used for subsequent election campaigns.⁴³

Finally, the question arises how our estimates of a minority salience effect relate to the far-right surge in the 2017 elections in Germany, resulting in a right-wing party winning 94 seats in the national parliament. Previous studies (Dippel *et al.* , 2015; Autor *et al.* , 2016) have shown that local economic conditions are behind the rise of right-wing populism throughout Europe and the increasing polarization of US politics (Autor *et al.* , 2016); we therefore test how the electoral effects of a shock to minority salience change with economic downturns. Table A.11 shows regression results for a triple interaction between the presence of a mosque, the occurrence of Ramadan and employment growth in the municipality. Indeed, the salience effect appears to interact with local economic conditions. A one-standard deviation decrease in the employment growth rate more than doubles the salience effect on far-right parties. This result is in line with previous results on the idea that the coexistence of different ethnic groups increases political polarization and support for extremist parties when coupled with some economic or political shocks (Grosfeld *et al.* , 2013; Dippel, 2014; Sakalli, 2016). Hence, our findings show that changes in Muslims’ visibility only affect small shares of the electorate, but this is significantly amplified when these changes coincide with bad economic conditions.

⁴³ In the 2012 NRW State elections, the total number of votes that a party should have received to become eligible for public funding was roughly 80,000 votes, i.e. 1% of the valid votes, or about 200 votes on average in each of the 396 municipalities. The average increase in the vote share of far-right parties estimated in Panel A of Table 4 translates into about 110 votes in municipalities with a mosque and elections just after Ramadan. The right-wing party Pro-NRW became eligible for public funding of about 120,000 euros each year until the next state elections (source: “*Festsetzung der staatlichen Mittel für das Jahr 2014*”).

7 CONCLUSION

In this paper, we show a causal link between the exposure of natives to Muslim communities and political extremism. We use the increased salience of Muslim communities during Ramadan as a natural experiment to estimate the causal effect of Muslim salience on German election results as well as individual attitudes and hate crimes in a difference-in-differences framework. We thus examine how elections happening closely after Ramadan have differential vote shares for extremist parties in municipalities with and without the presence of a mosque.

Both right- and left-fringe parties gain substantial support in response to higher salience of Muslims. Effects on right-wing party support are amplified during economic downturns. Individual level attitudes reveal that people interviewed during Ramadan have less favorable attitudes towards Muslims and they also perceive a larger share of foreign-born living in the country. In addition, immigration concerns play a bigger role in determining individual political orientation during Ramadan. Finally, in addition to the effect on voters' behavior, we also find a considerable effect on politically-motivated crime: the likelihood that a mosque is attacked or damaged significantly increases in the two months after Ramadan.

While previous studies have primarily focused on the (relative) size of the immigrant population, this paper investigates the role of visibility of minorities. The effect on the right may be explained to two different mechanisms: a higher issue salience of immigration- and cultural identity-related topics, and a higher in-group bias through more salient cultural differences. We explain the equivalent effect on the left through a "second-order" salience effect in which the left gains support only through counter-rallies and protest behavior against increased right support.

These results add to the evidence of negative implications of ethnic diversity in the short run, such as increased social unrest and political polarization. Social conflicts, hostility and prejudice against particular ethnic or religious minorities ultimately increase their costs of assimilation and hence their integration in the host country (Gould & Klor, 2015;

Charles *et al.* , 2017). In order to address these undesirable ramifications, policy-makers should ensure the 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. Finally, we argue that our results contribute to our understanding of the determinants of voting behavior by illustrating how increased salience of religious minorities may nudge marginal voters towards more extremist positions.

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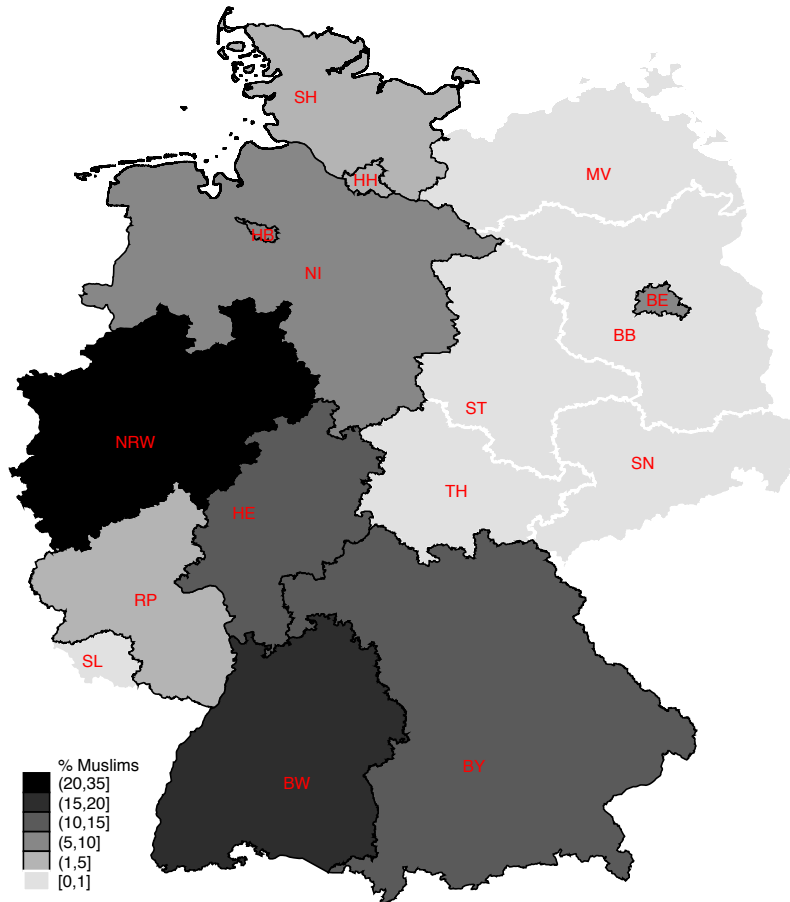
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FIGURES AND TABLES

Figure 1: The geographical distribution of Muslims across German states



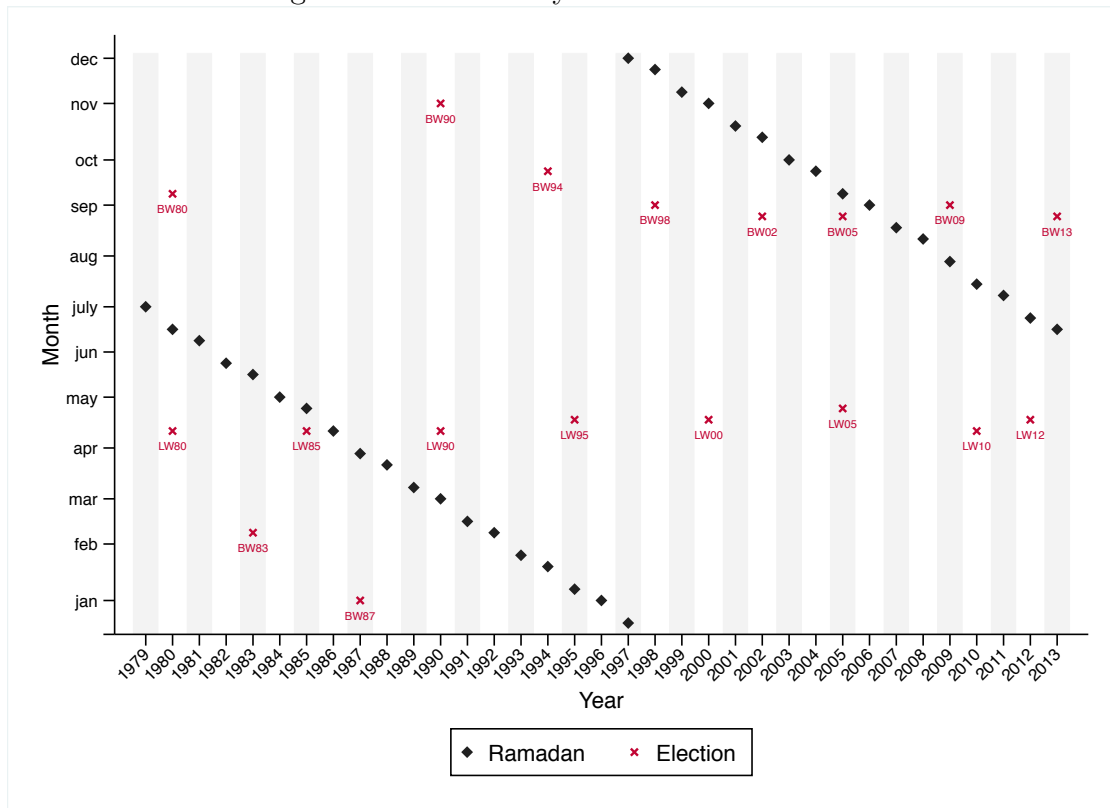
Notes: Authors' calculations on data provided by the report "Muslim Life in Germany" (2009). The figure plots the estimated number of Muslims residing in each German state as a proportion of the total Muslim population in 2008.

Figure 2: Mosques' diffusion in North Rhine-Westphalia



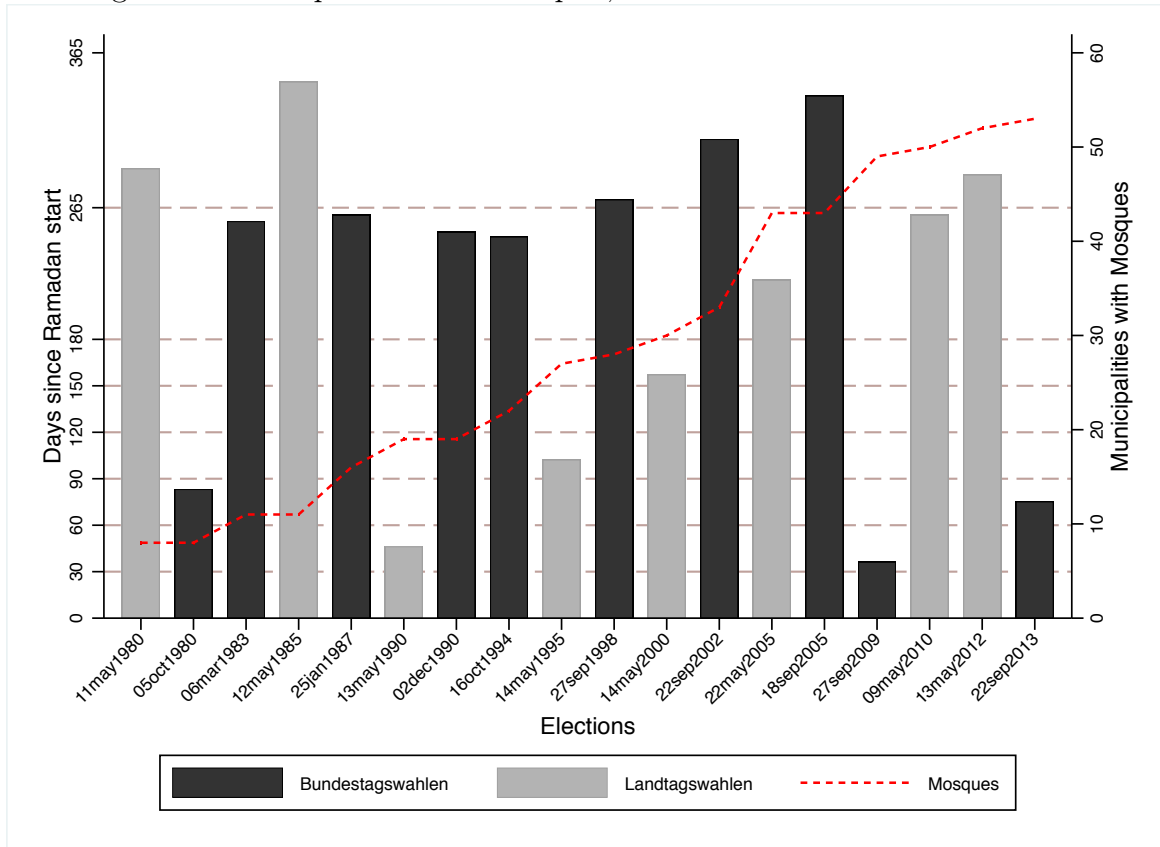
Notes: The figure shows the diffusion of mosques across municipalities in the state of NRW by decade from 1980 to 2010. Black-colored areas indicate municipalities where at least one mosque is present.

Figure 3: Ramadan cycle and election dates



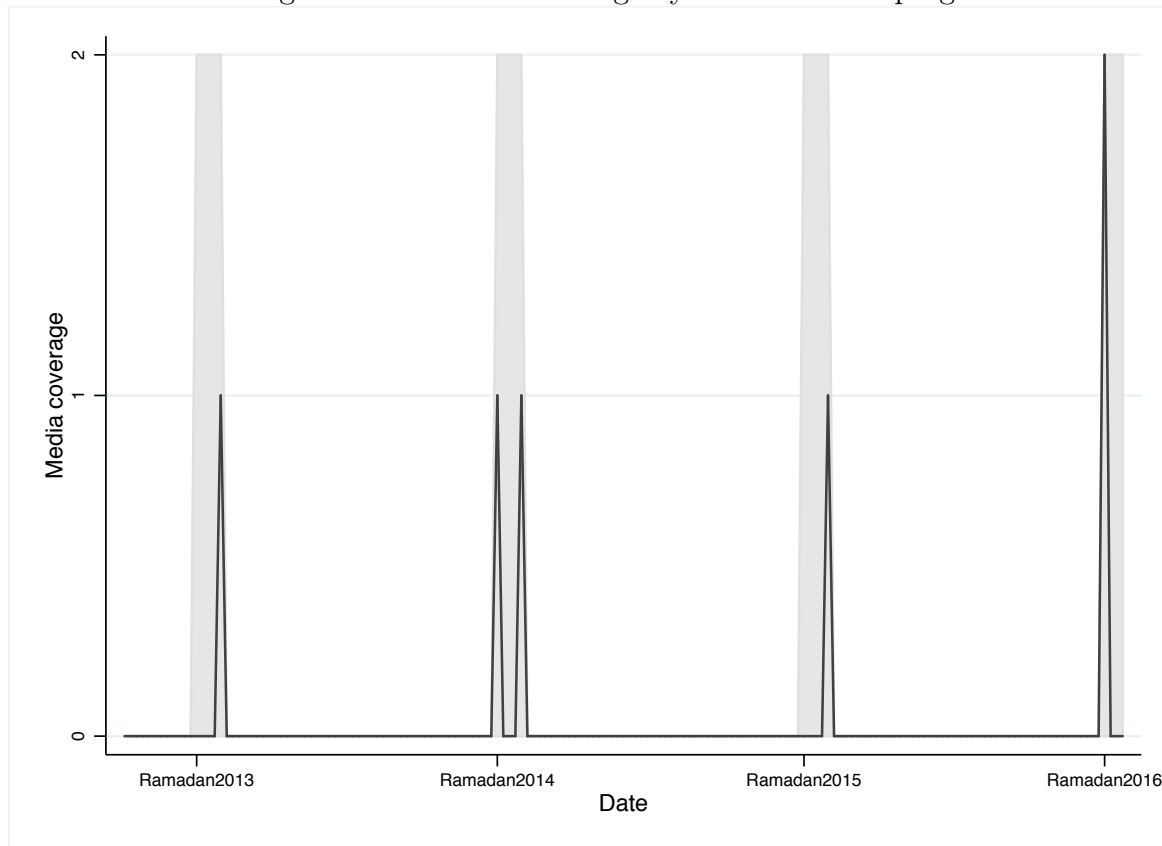
Notes: Black squares indicate the week of the year in which Ramadan started; year 1997 is the leap year. Red x-symbols represent the week of the year in which the election took place. The labels *BW* and *LW* refer to federal (*Bundestagswahlen*) and state elections (*Landtagswahlen*), respectively.

Figure 4: 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 the beginning date of the last Ramadan; dark-gray 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.

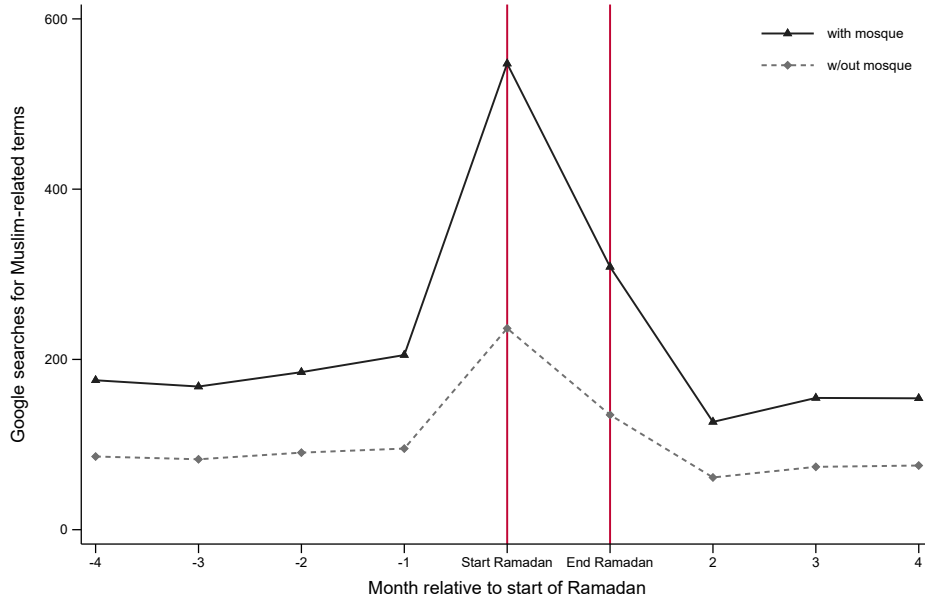
Figure 5: Ramadan coverage by national news program



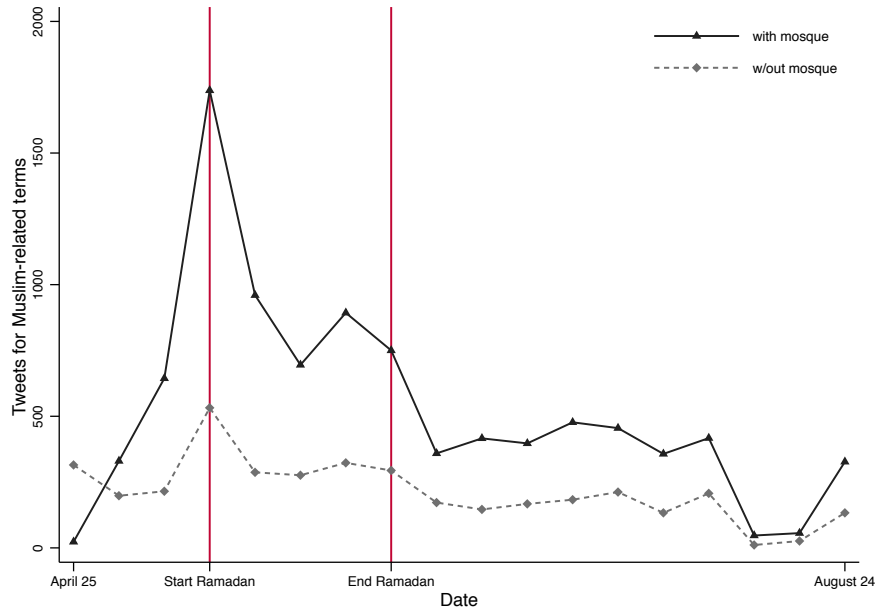
Notes: The figure plots weekly data on coverage by German national news programs *Tagesschau* and *Tagesthemen* of the term *Ramadan* over the period 2013–2016. Highlighted areas indicate weeks during Ramadan. Coverage indicates the number of times in a week the term *Ramadan* has been reported in these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

Figure 6: Muslim-related Google searches and tweets

(a) Google searches by cities 2014–2018

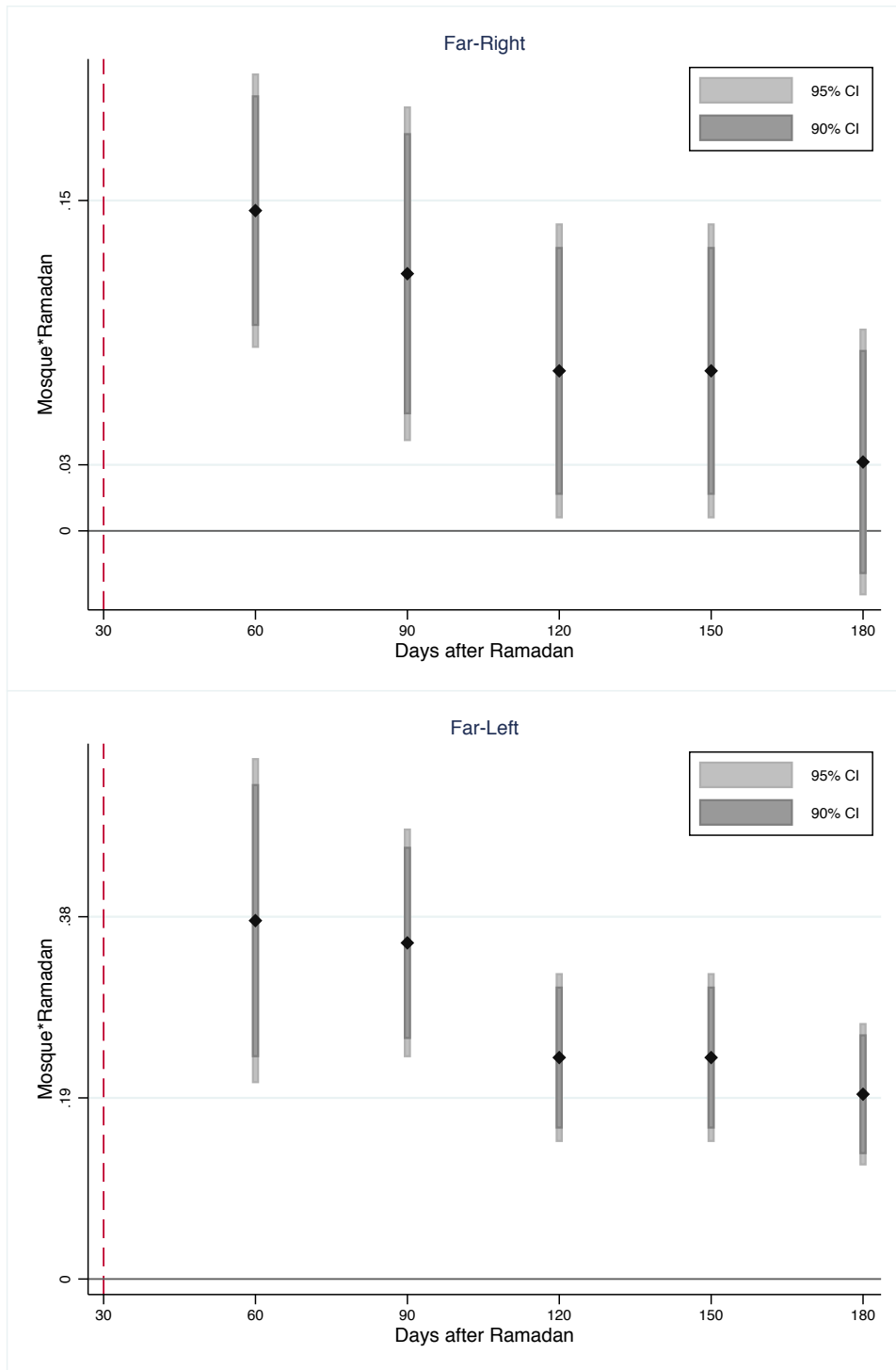


(b) Tweets by cities from April to August 2018



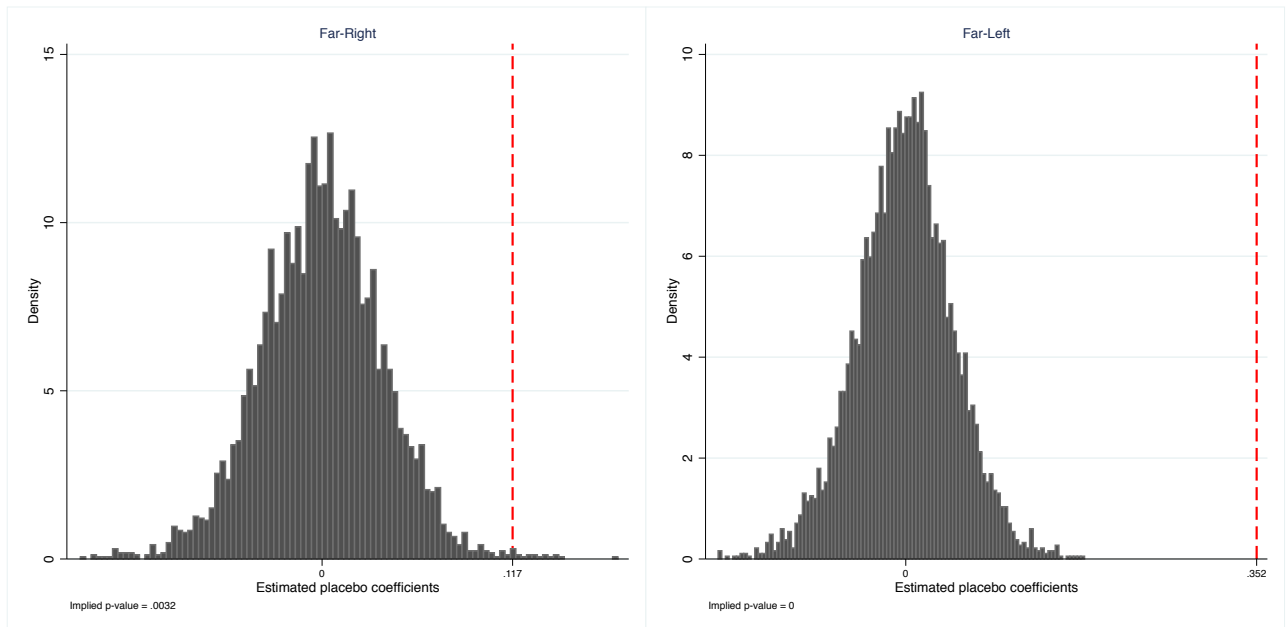
Notes: Panel (a) draws averages of monthly city-level Google searches for *Muslim*, *Ramadan*, *Mosque*, and *Islam* in German cities with (N=141) and without mosques (N=392). The sample covers cities with a population of at least 10,000 and covers the period September 2014 to August 2018. Panel (b) plots averages of weekly city-level Tweets for *Muslim*, *Ramadan*, *Mosque*, and *Islam* in cities with (N=53) and without mosques (N=343) in the State of NRW. The sample covers the period April 23rd to August 24th 2018.

Figure 7: Electoral effect and distance to Ramadan



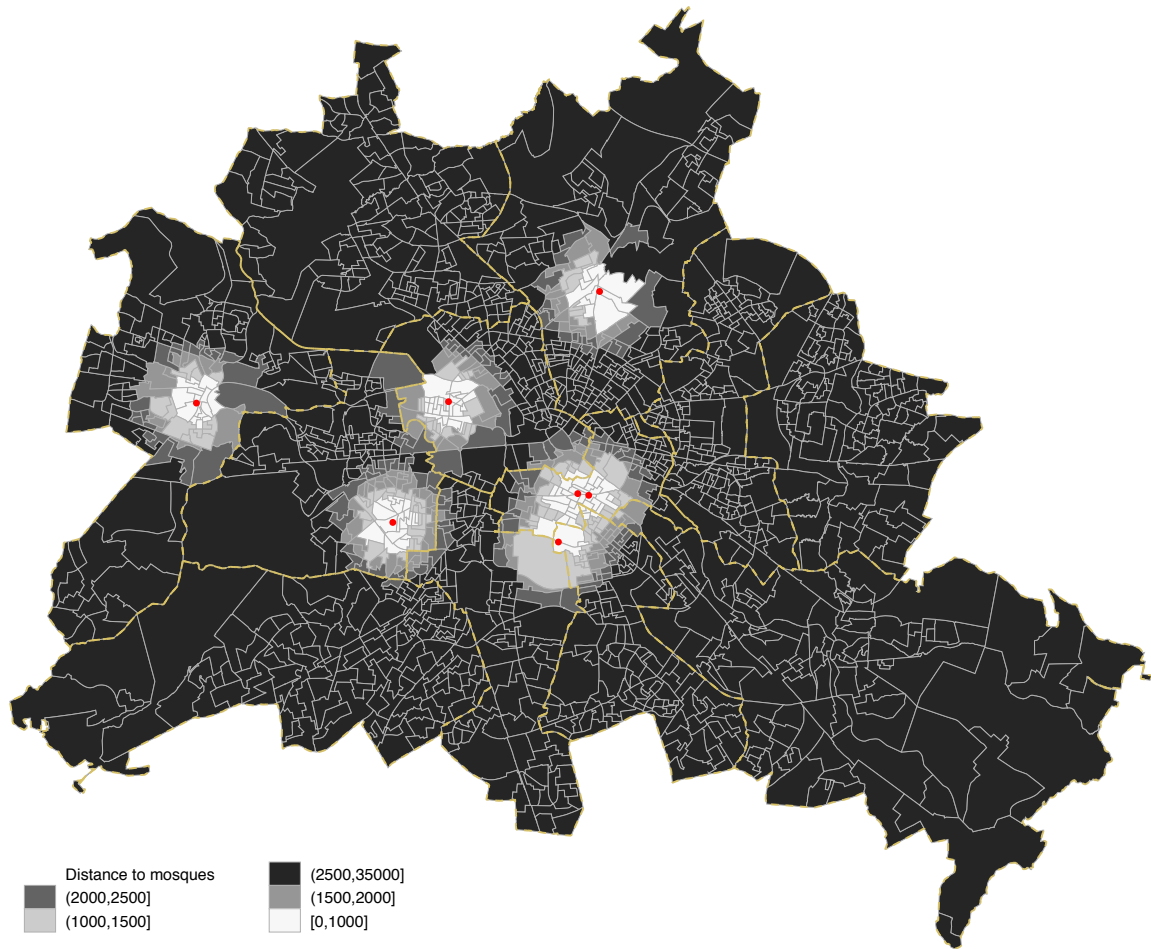
Notes: The figure plots estimated coefficients from separate regressions in which the definition of treated election varies from 2 months to 6 months since the start of Ramadan. All regressions include the same set of controls as in Table 4, Column (4). The vertical lines denote 95% and 90% confidence intervals based on standard errors clustered at the municipality level.

Figure 8: Permutation Tests



Notes: The figure plot the distribution of placebo coefficients obtained by estimating regression (2) with a joint “placebo” mosque dummy and Ramadan dates. All regressions include the same set of controls as in Table 4, Column (4). 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 (4) Table 4. The implied p-values are computed as the number of placebo parameters above the true coefficient over the number of repetitions, i.e. 5,000.

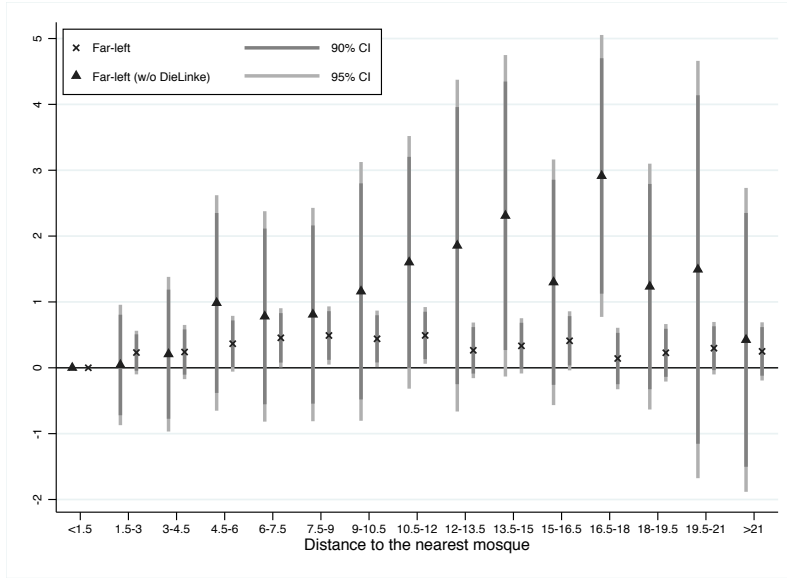
Figure 9: Mosques and electoral districts in Berlin



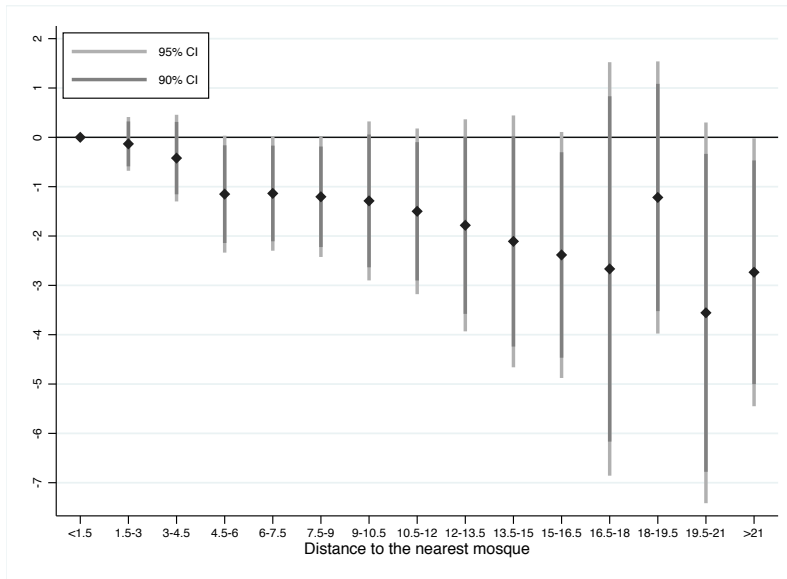
Notes: The figure shows the distribution of mosques (red dots) across electoral districts in Berlin in 2016. Districts are shaded according to the distance towards the closest mosque. Yellow dashed lines indicate the twelve boroughs' borders.

Figure 10: Electoral effect and distance to the mosque - Berlin

(a) Far-left parties

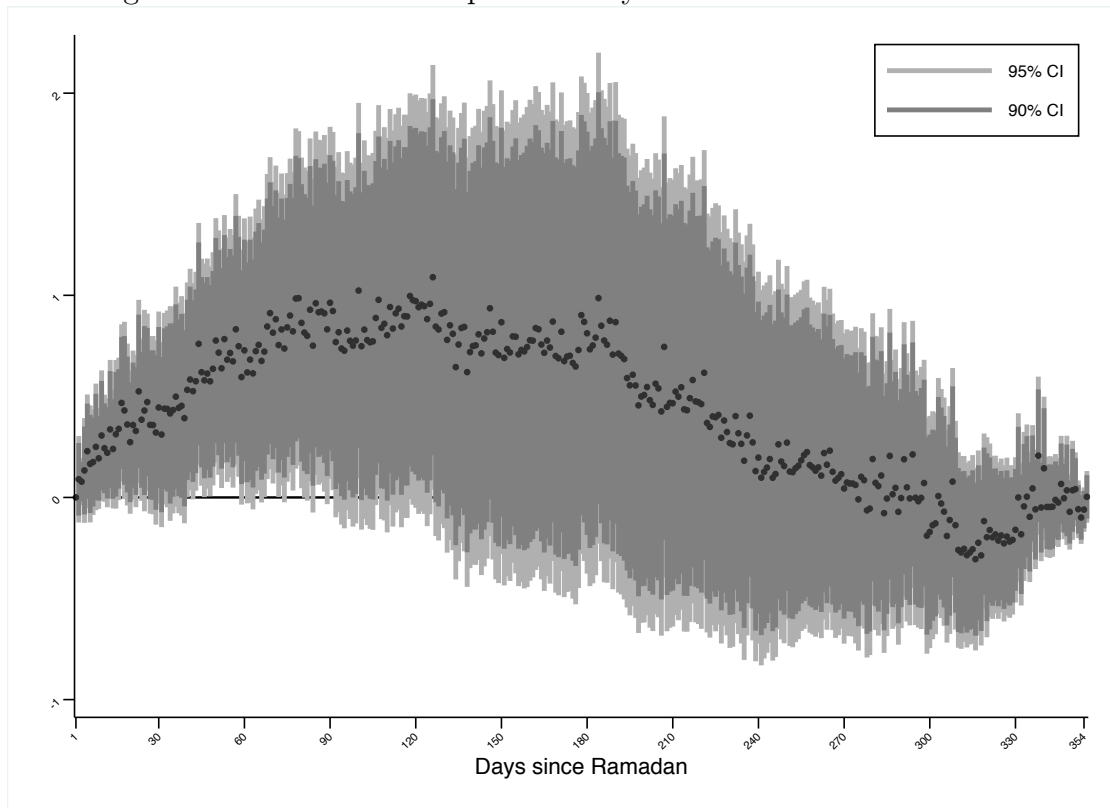


(b) Far-right parties



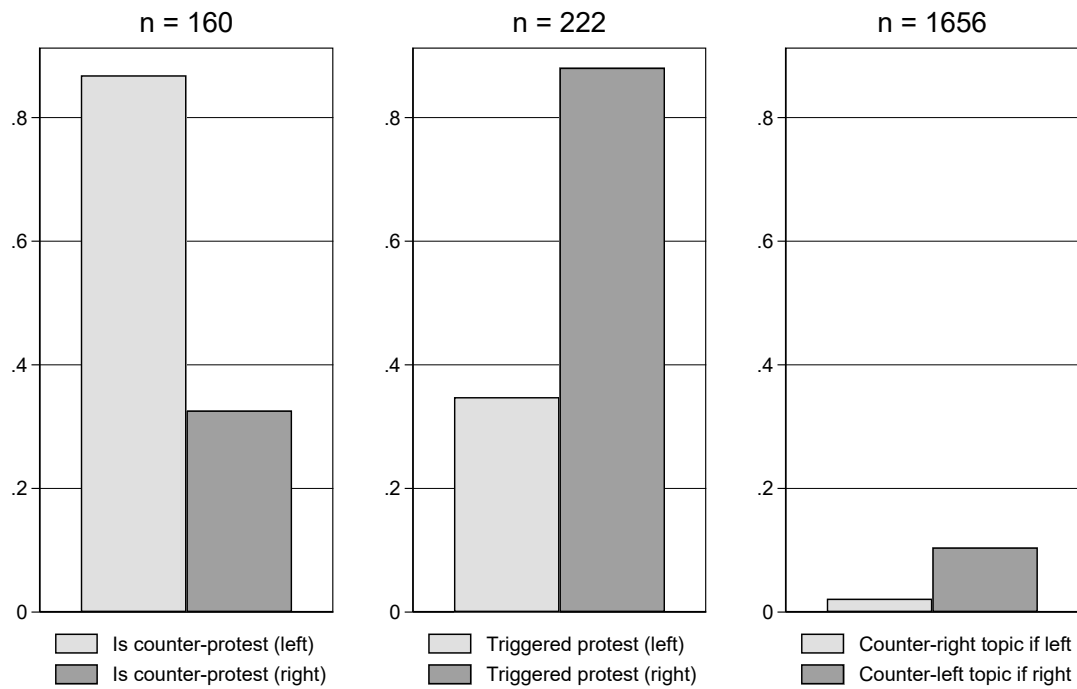
Notes: The figure shows regression coefficients of the interaction between the Ramadan variable and a set of dummies indicating the distance of each electoral district to the closest mosque. In Panel (a), the dark-gray triangles report the estimated effects on the vote share for far-left parties; the light-gray crosses indicate the estimated effects on the vote shares for the far-left parties excluding the party Die Linke. The average vote share for far-left parties without Die Linke is .44. The dependent variable in Panel (b) is the vote share for far-right parties. The distance-to-mosque dummies group electoral districts in intervals of 1,500 meters. The coefficient for electoral districts within 1500-meter away from the mosque has been normalized to zero, estimates of this coefficient are shown in Table 9. The vertical lines denote 95% and 90% confidence intervals based on standard errors clustered at the level of the interaction between the year and the borough. The test for joint significance of the coefficients at different distances for the Far-left, Far-left (without Die Linke), and Far-right regressions produces F-Stats equal to: 11.31 (p-value=0.000), 32.99 (p-value=0.000), and 9.34 (p-value=0.000) respectively.

Figure 11: Attacks on mosques and days after the start of Ramadan



Notes: The figure plots estimated coefficients of dummies for each day since the start of Ramadan on the attack on a mosque. The baseline is the first day of Ramadan. Vertical lines indicate 95% and 90% confidence intervals. Standard errors are clustered at the calendar week level.

Figure 12: Left and right protests by topic and trigger



Notes: The left panel displays shares of left and right protests which can be clearly assigned as addressing the political opponent instead of contentual topics. The middle panel displays shares of left and right topics which are characterized as counter-protests. The right panel displays shares of left and right protests which have triggered a direct counter-protest. Numbers of observations with relevant information. Own calculations using PRODAT database.

Table 1: Established, right- and left-wing parties

Established	Right-Wing	Left-Wing
<i>CDU</i>	<i>NPD</i>	<i>DKP</i>
<i>SPD</i>	<i>REP</i>	<i>KPD</i>
<i>GRÜNE</i>	<i>DVU</i>	<i>KBW</i>
<i>FDP</i>	<i>DIE RECHTE</i>	<i>MLPD</i>
	<i>ProDEU/ProNRW</i>	<i>PSG</i>
		<i>OKOLI</i>
		<i>Die Linke</i>
		<i>PDS</i>
		<i>WASG</i>

Notes: Party lists include further minor fringe parties who only ran in single elections. The exclusion of these minor parties does not affect results in magnitude or significance. Abbreviations are Christian Democrats (*CDU*), Social Democrats (*SPD*), Liberal Party (*FDP*), Green Party (*GRÜNE*), National Democratic Party of Germany (*NPD*), Republicans (*REP*), German People's Union (*DVU*), Die Rechte (*DIE RECHTE*), Alternative for Germany (*AfD*) Pro Germany Citizens' Movement (*Pro-NRW*, German Communist Party (*DKP*), Communist Party of Germany (*KPD*), Kommunistischer Bund Westdeutschland (*KBW*), Marxist-Leninist Party of Germany (*MLPD*), Social Equality Party (*PSG*), Eco-Social Left (*OKOLI*) Left Party (*Die Linke*), Party of Democratic Socialism (*PDS*) Electoral Alternative for Labour and Social Justice (*WASG*).

Table 2: Balancing tests

	Eligible Voters (1)	Employed (2)	Foreigners (3)	Pop Density (4)	Female (5)
Mosque	-0.0589*** (0.0189)	-0.0437* (0.0254)	-0.0861*** (0.0274)	12.7077 (13.4324)	-0.1366 (0.0886)
Mosque × Ramadan	0.0002 (0.0042)	-0.0206 (0.0133)	-0.0119 (0.0073)	-1.9048 (4.0443)	-0.0416 (0.0374)
Controls:					
Municipality*Election type			Y		
Election date			Y		
Observations			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. Standard errors are clustered at the municipality level. The dependent variables are the log number of eligible voters, private sector employees, foreign residents, the population density and the share of women.

Table 3: Omnibus tests

	(1)	(2)	(3)
Panel A: Far-right (%)			
Mosque	0.3069*** (0.0104)		0.3054*** (0.0120)
Ramadan		0.0009 (0.0069)	-0.0028 (0.0068)
Ramadan \times Mosque			0.0064 (0.0242)
Panel B: Far-left (%)			
Mosque	0.4982*** (0.0152)		0.4952*** (0.0175)
Ramadan		0.0070 (0.0102)	0.0008 (0.0099)
Ramadan \times Mosque			0.0119 (0.0353)
Observations		7,128	

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The omnibus test uses the set of controls used in Table 4 (foreigners (%), female (%), population density, the log number of private sector employees) to predict the vote share of fringe parties. The predicted values are then regressed on the explanatory variables (Mosque, Ramadan, Mosque \times Ramadan).

Table 4: Mosques, Ramadan and election outcomes

	(1)	(2)	(3)	(4)
Panel A: Far-right (%)				
Ramadan	0.7044*** (0.0114)	0.6584*** (0.0130)		
Mosque		0.3545*** (0.0492)	0.0388 (0.0406)	0.0230 (0.0383)
Ramadan × Mosque		0.5253*** (0.0541)	0.1172*** (0.0391)	0.1167*** (0.0385)
Control group mean		0.6801		
Panel B: Far-left (%)				
Ramadan	1.2654*** (0.0137)	1.1597*** (0.0179)		
Mosque		0.7637*** (0.0811)	0.1910*** (0.0689)	0.1677*** (0.0631)
Ramadan × Mosque		1.2125*** (0.1154)	0.3647*** (0.0641)	0.3525*** (0.0606)
Control group mean		0.8222		
Panel C: Established parties (%)				
Ramadan	-3.4665*** (0.0523)	-3.0326*** (0.0780)		
Mosque		-6.6046*** (0.6643)	-0.6547* (0.3885)	-0.4161 (0.3769)
Ramadan × Mosque		-4.4447*** (0.4427)	-1.0707*** (0.1694)	-1.0294*** (0.1589)
Control group mean		72.7037		
Panel D: Turnout (%)				
Ramadan	-1.5358*** (0.0462)	-1.2860*** (0.0626)		
Mosque		-5.0441*** (0.5255)	-0.4289 (0.3505)	-0.2452 (0.3484)
Ramadan × Mosque		-2.3667*** (0.3086)	-0.3979*** (0.1299)	-0.3756*** (0.1242)
Control group mean		76.2607		
Controls:				
Municipality*Election type	N	N	Y	Y
Election date	N	N	Y	Y
Municipality characteristics	N	N	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. *Ramadan × Mosque* is a dummy switching on when the election date is within 3 months after the start of Ramadan and a mosque is located in the municipality. The share of *Ramadan × Mosque* treated observations is 1.80%. Column (1) only includes a fixed effect for the type of the election, i.e. Federal or State election. Election date fixed effects are collinear to election fixed effects. Characteristics of the municipalities included are: population density, share of women, share of foreigners and the log number of private sector employees. Control group means refer to the mean of the dependent variables when the Ramadan and the mosque dummies are both equal to zero.

Table 5: Robustness checks

	(1)	Time trends		(4)	Outliers		Mosque opening
	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Far-right (%)							
Mosque	0.0095 (0.0511)	-0.0701* (0.0386)	-0.0417 (0.0468)	-0.0059 (0.0179)	0.0232 (0.0385)		
Ramadan × Mosque	0.1105*** (0.0358)	0.0963*** (0.0316)	0.0822** (0.0334)	0.1081*** (0.0341)	0.0452*** (0.0146)	0.1088** (0.0501)	
Ramadan × Ever Mosque						0.0909*** (0.0308)	
Ramadan × Mosque (t-5)							0.1207*** (0.0380)
Panel B: Far-left (%)							
Mosque	-0.0301 (0.0588)	0.0787 (0.0756)	-0.0208 (0.0960)	0.0168 (0.0168)	0.1255*** (0.0487)		
Ramadan × Mosque	0.2745*** (0.0532)	0.3004*** (0.0559)	0.2558*** (0.0471)	0.2495*** (0.0484)	0.0342*** (0.0116)	0.2346* (0.1329)	
Ramadan × Ever Mosque						0.2098*** (0.0427)	
Ramadan × Mosque (t-5)							0.3199*** (0.0581)
Controls:							
Municipality*Election type	Y	Y	Y	Y	Y	Y	Y
Election date	Y	Y	Y	Y	Y	Y	Y
Municipality Linear Trend	Y	N	N	N	N	N	N
10 Year*Municipality	N	Y	N	N	N	N	N
5 Year*Municipality	N	N	Y	N	N	N	N
Linear Time Trend*Mosque	N	N	N	Y	N	N	N
Observations				7,128			

Notes: * p<0.10, **p<0.05, ***p<0.01. Standard errors are clustered at the municipality level. In Column (1), we added a linear time trend interacted with municipality fixed effects. Columns (2) and (3) include ten- and five-year dummies interacted with municipality fixed effects. Column (4) introduces a linear time trend interacted with the dummy for the presence of a mosque. In Column (5), the dependent variable has been transformed by taking its square root, while Column (6) reports coefficients from median regressions. The variable *EverMosque* indicates municipalities that ever had a mosque; *Mosque(t - 5)* is a dummy for the presence of a mosque in which we anticipated the year of openings by five years.

Table 6: Ramadan and individual attitudes

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

Notes: Data from the 7th 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 7: Heterogeneous effects

	Municipality			Mosque		
	Pop density (1)	Pop (18-24) (2)	Gender Ratio (3)	Residential (4)	Minaret (5)	Years (6)
Panel A: Far-right (%)						
<i>Ramadan</i> × <i>Mosque</i> × <i>Median</i>	0.4025*** (0.0759)	0.2227*** (0.0822)	0.0777 (0.0926)	0.0880 (0.0699)	0.1859*** (0.0714)	0.1383 (0.0869)
Panel B: Far-left (%)						
<i>Ramadan</i> × <i>Mosque</i> × <i>Median</i>	0.4633* (0.2423)	-0.1696 (0.1581)	-0.0133 (0.1383)	0.2432** (0.1096)	0.0752 (0.1323)	0.1219 (0.1348)
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* × *Ramadan* × *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 of 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. Minaret indicates the height of the mosque's minaret. Years refer to the median number of years since the mosque was established in a municipality, i.e. 12 years.

Table 8: Ramadan and electoral outcomes in West Germany

	West Germany			w/out NRW	
	(1)	(2)	(3)	(4)	(5)
Panel A: Far-right (%)					
Ramadan	0.6591*** (0.0597)				
Mosque	-0.0592 (0.0741)	-0.1819*** (0.0529)		-0.2599*** (0.0789)	
Ramadan × Mosque	0.8035*** (0.1040)	0.3102*** (0.0616)		0.3398*** (0.0882)	
Ramadan × Ever Mosque			0.2225*** (0.0468)		0.2014*** (0.0632)
Control group mean		1.3236		1.3585	
Panel B: Far-left (%)					
Ramadan	1.0338*** (0.0385)				
Mosque	0.8856*** (0.0684)	0.2050*** (0.0497)		0.1690*** (0.0620)	
Ramadan × Mosque	0.8091*** (0.0930)	0.3879*** (0.0666)		0.3239*** (0.0756)	
Ramadan × Ever Mosque			0.2542*** (0.0422)		0.2226*** (0.0483)
Control group mean		0.6779		0.6701	
Controls:					
Municipality*Election type	N	Y	Y	Y	Y
Election date	N	Y	Y	Y	Y
Observations	152,418	152,123	152,123	144,995	144,995

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the county level. Columns (1) to (3) include elections in Western Germany from 1980 to 2013. Columns (4) to (5) exclude from the sample elections in NRW. Column (1) only includes a fixed effect for the type of the election, i.e. Federal or State election. Columns (2) and (4) include the full set of fixed effects as in Table 4, Column (3). Columns (3) and (5) report estimates of a regression in which the Mosque dummy has been replaced by an Ever Mosque dummy, as in Table 5, Column (7).

Table 9: Ramadan and electoral outcomes in Berlin

	<u>Distance</u>		<u>Radius</u>		
	(log)		$\leq 1000\text{m}$	$\leq 1500\text{m}$	$\leq 2000\text{m}$
	(1)	(2)	(3)	(4)	(5)
Panel A: Far-right (%)					
<i>DistanceMosque</i> \times <i>Ramadan</i>	-0.7017** (0.3186)	-0.6962** (0.3166)	0.8183 (0.5351)	0.7886* (0.4463)	0.7747* (0.4061)
Control group mean			4.1080		
Panel B: Far-left (%)					
<i>DistanceMosque</i> \times <i>Ramadan</i>	0.6068 (0.3652)	0.6092 (0.3676)	-0.4228 (0.6100)	-0.6098 (0.6574)	-0.5278 (0.5469)
Control group mean			7.1379		
Panel C: Established (%)					
<i>DistanceMosque</i> \times <i>Ramadan</i>	0.6325 (0.5096)	0.6794 (0.4611)	-1.4179 (1.3343)	-1.1579 (1.0713)	-1.1572 (0.8633)
Control group mean			29.5636		
Panel D: Turnout (%)					
<i>DistanceMosque</i> \times <i>Ramadan</i>	-0.0117 (0.4474)	0.0399 (0.4136)	-0.0951 (0.8968)	-0.1623 (0.7657)	-0.1320 (0.6795)
Control group mean			45.2107		
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 mosque. In Columns (3) to (5) *DistanceMosque* is equal to 1 in the presence of a 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 after the start of Ramadan.

Table 10: Ramadan and attacks on mosques

	(1)	(2)	(3)	(4)	(5)
<i>Ramadan</i>	0.0418** (0.0188)	0.0436** (0.0195)			
<i>Ramadan</i> (1-30 days)			0.0117 (0.0210)		
<i>Ramadan</i> (31-90 days)			0.0717*** (0.0227)		
<i>Ramadan before</i> (90 days before)				0.0124 (0.0201)	
<i>Ramadan before</i> (90-61 days before)					0.0250 (0.0223)
<i>Ramadan before</i> (60 days before)					-0.0025 (0.0220)
Controls:					
Day of the week	Y	Y	Y	Y	Y
Day of the year	Y	Y	Y	Y	Y
Month*Year	Y	Y	Y	Y	Y
Attacks t-1	N	Y	N	N	N
Observations			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 after the start of Ramadan.

A APPENDIX TABLES AND FIGURES

Figure A.1: 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 A.2: Electoral Posters

(a) Pro NRW - 2009



(b) Republikaner- 2008



(c) PDS - 2002



(d) PDS - 2002

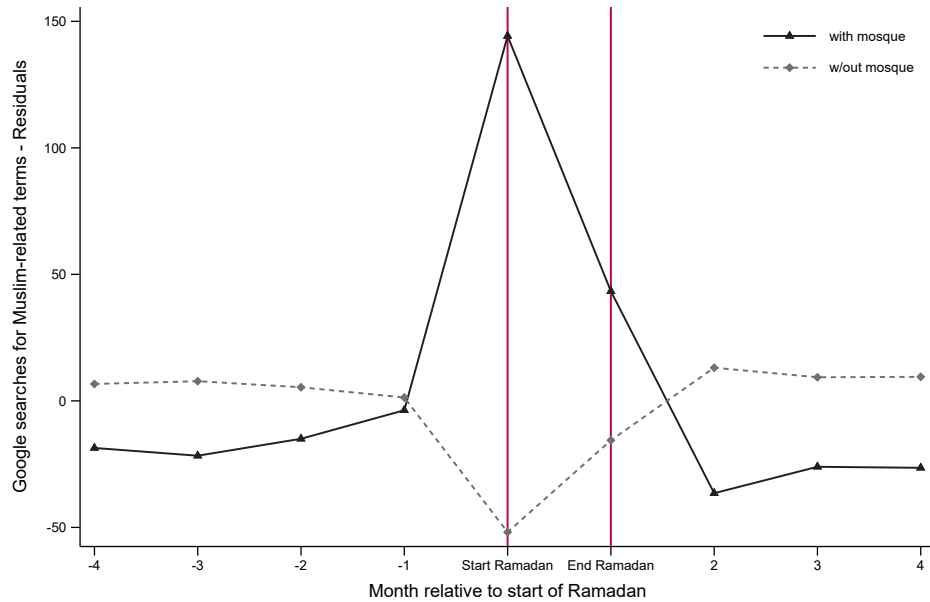


Sources: Figure (a) <https://pro-nrw.net>.
<http://archiv2007.sozialisten.de>.

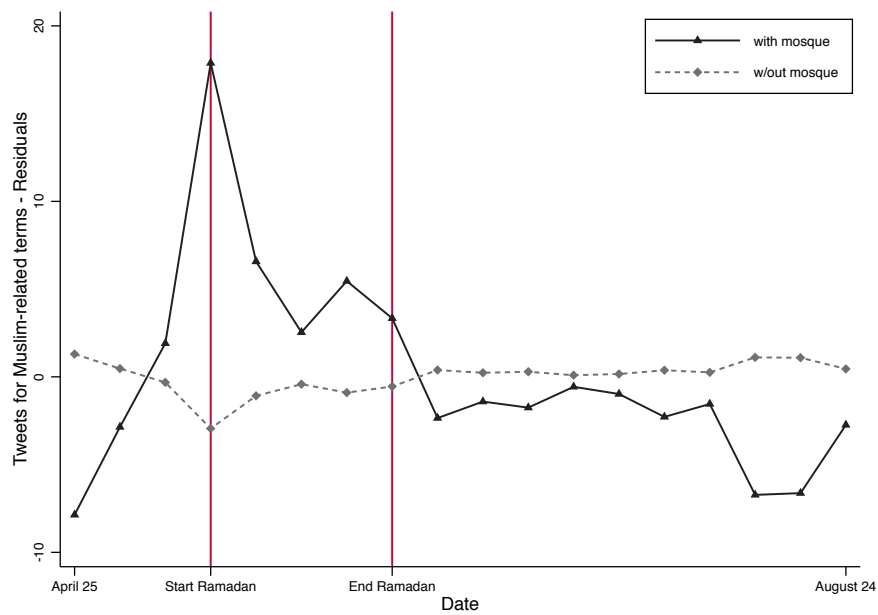
Figure (b) www.rep.de. Figures (c) and (d)

Figure A.3: Muslim-related Google searches and Tweets - Residuals

(a) Google searches by cities 2014–2018

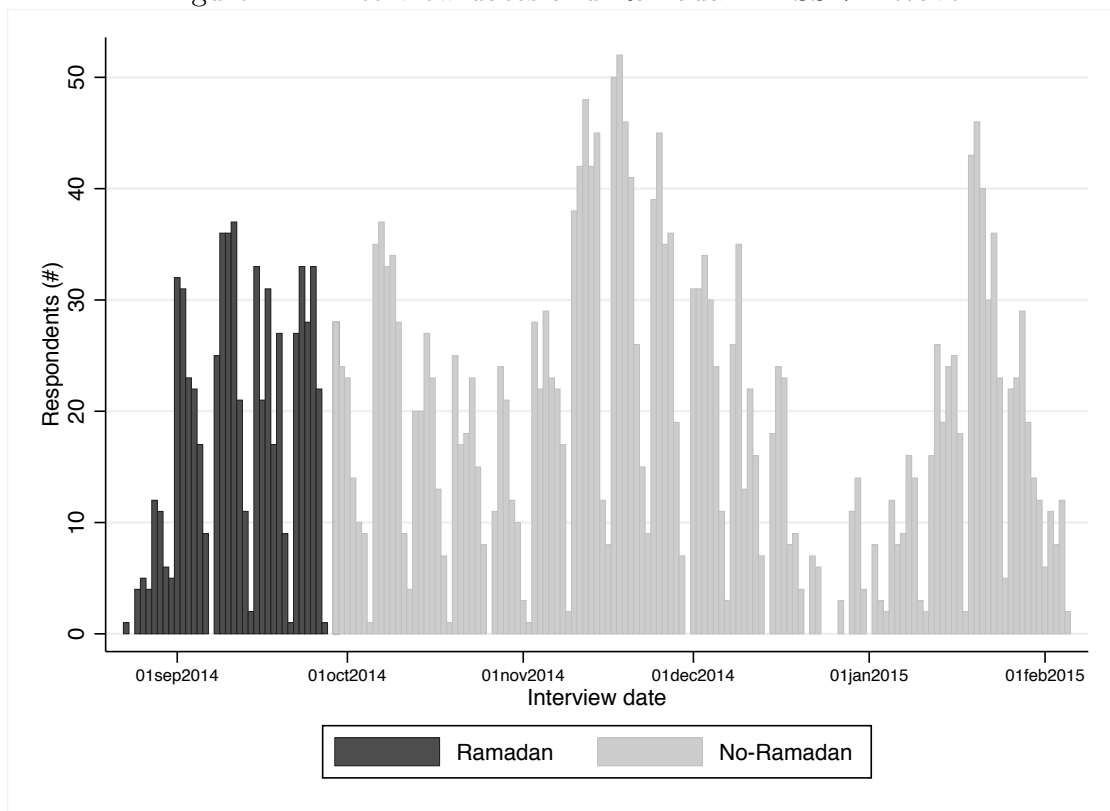


(b) Tweets by cities from April to August 2018



Notes: Panel (a) draws residuals from a regression of monthly city-level Google searches for *Muslim*, *Ramadan*, *Mosque*, and *Islam* on city and year-by-month fixed effects for cities with (N=141) and without a mosque (N=392). The sample covers cities with a population of at least 10,000 and covers the period September 2014 to August 2018. Panel (b) plots residuals from a regression of weekly city-level Tweets for *Muslim*, *Ramadan*, *Mosque*, and *Islam* on city and week fixed effects for cities with (N=53) and without a mosque (N=343). The sample covers the period April 25th to August 24th 2018.

Figure A.4: Interview dates and Ramadan - ESS 7th Wave



Notes: The figure plots the number of respondents by date of the interview. Dark grey bars indicate dates within 90 days after the start of Ramadan.

Table A.1: Descriptive statistics

	<u>All</u>		<u>with mosque</u>		<u>w/o mosque</u>	
	Mean	SD	Mean	SD	Mean	SD
Population ('000)	44.39	87.62	142.15	181.63	29.28	45.45
Pop density	500.81	550.6	1207.11	792.71	391.67	404.97
Female (%)	50.96	1.06	51.42	0.93	50.89	1.06
Foreigners (%)	6.96	3.7	10.43	3.23	6.43	3.47
Employed ('000)	14.63	37.42	51.29	75.75	8.97	22.17
Eligible voters ('000)	33.16	64.57	104.77	132.34	22.1	34.57
Turnout (%)	76.32	10.56	74.71	10.86	76.57	10.49
Established parties (%)	72.18	12.12	70.27	12.6	72.48	12.01
Far-left parties (%)	1.18	1.59	1.41	1.83	1.15	1.54
Far-right parties (%)	0.87	0.92	1.00	0.98	0.86	0.91
Observations	7,128		954		6,174	

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 have ever had a mosque (53) and those that have not (343).

Table A.2: NRW Elections, foreigners and days since Ramadan

	Far-right (%) (1)	Far-left (%) (2)	Far-left (%) (3)	Far-left (%) (4)	Established (%) (5)	Established (%) (6)	Turnout (%) (7)	Turnout (%) (8)
Panel A: % Foreigners								
Foreigners	-0.0098 (0.0229)	0.0057 (0.0222)	-0.0670* (0.0376)	-0.0673* (0.0355)	-0.0655 (0.2264)	-0.0174 (0.2294)	-0.2196 (0.1772)	-0.1380 (0.1863)
Foreigners × Ramadan	0.0419*** (0.0116)	0.0433*** (0.0117)	0.0995*** (0.0190)	0.1010*** (0.0188)	-0.3107*** (0.0644)	-0.3191*** (0.0633)	-0.1486*** (0.0449)	-0.1519*** (0.0434)
Panel B: Share of Muslims in 1987								
Muslims 1987 × Ramadan	0.0623*** (0.0092)	0.0625*** (0.0092)	0.1486*** (0.0116)	0.1446*** (0.0112)	-0.3719*** (0.0678)	-0.3643*** (0.0676)	-0.1320** (0.0640)	-0.1304** (0.0638)
Panel C: Days after Ramadan								
Mosque	0.1480** (0.0598)	0.1310** (0.0571)	0.5009*** (0.1019)	0.4694*** (0.1019)	-1.7339*** (0.4326)	-1.4614*** (0.4027)	-0.8562** (0.3793)	-0.6535* (0.3674)
Mosque × Days	-0.0004*** (0.0001)	-0.0004*** (0.0001)	-0.0010*** (0.0002)	-0.0010*** (0.0002)	0.0037*** (0.0006)	0.0037*** (0.0006)	0.0015*** (0.0005)	0.0015*** (0.0005)
Panel D: Weighted Regressions								
Mosque	0.0539 (0.0739)	0.0078 (0.0538)	0.2289*** (0.0755)	0.1374 (0.0851)	-0.0111 (0.4610)	0.3530 (0.4437)	0.2803 (0.4167)	0.4870 (0.4239)
Ramadan × Mosque	0.1006* (0.0566)	0.1060** (0.0521)	0.3739*** (0.0670)	0.3698*** (0.0617)	-0.8887*** (0.2086)	-0.8509*** (0.1564)	-0.2461 (0.1604)	-0.2097 (0.1318)
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. Muslims 1987 is the (standardized) share of Muslims living in each county in 1987. *Days* is a variable indicating the number of days since the last Ramadan. Panel D reports regressions weighted by the number of eligible voters.

Table A.3: Sensitivity to alternative specifications

	(1)	(2)	(3)	(4)
Panel A: Far-right (%)				
Ramadan	0.6542*** (0.0133)	0.6369*** (0.0152)		
Mosque	0.8208*** (0.0539)	0.4207*** (0.0833)	0.1721*** (0.0461)	0.0071 (0.0420)
Ramadan × Mosque	0.5056*** (0.0523)	0.5069*** (0.0594)	0.0872** (0.0425)	0.0938** (0.0419)
Panel B: Far-left (%)				
Ramadan	1.1569*** (0.0183)	1.1326*** (0.0222)		
Mosque	2.0415*** (0.0962)	1.3728*** (0.1585)	0.2973*** (0.0475)	0.0523 (0.0375)
Ramadan × Mosque	1.0504*** (0.1116)	1.0355*** (0.1266)	0.3945*** (0.0758)	0.4025*** (0.0739)
Controls:				
Municipality*Election Type	Y	Y	N	N
Election Date	N	N	Y	Y
Municipality characteristics	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.

Table A.4: Adjusting for spatial correlation

	Without adjustment (1)	Clustered at district (2)	Conley (1999) (3)
Panel A: Far-right			
Ramadan \times Mosque	0.1172*** (0.0391)	0.1172** (0.0506)	0.1172** (0.0473)
Panel B: Far-left			
Ramadan \times Mosque	0.3647*** (0.0640)	0.3647*** (0.0540)	0.3647*** (0.0874)
Controls:			
Municipality*Election type	Y	Y	Y
Election date	Y	Y	Y
Municipality characteristics	Y	Y	Y
Observations	7,128	7,128	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).

Table A.5: Targeted campaign - Tweets by AfD users

	AfD		Muslims	
	(1)	(2)	(3)	(4)
Ramadan = 1	0.0022 (0.0050)		-0.0000 (0.0004)	
Ramadan \times Mosque = 1	-0.0291 (0.0778)	-0.0291 (0.0779)	0.0062 (0.0048)	0.0062 (0.0048)
Controls:				
Municipality FE	Y	Y	Y	Y
Date FE	N	Y	N	Y
Observations	48,312			

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the number of tweets from *AfD* twitter accounts, which mention the term *AfD* (Columns 1 and 2) and Muslim-related words (Columns 3 and 4). Standard errors are clustered at the municipality level.

Table A.6: Robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Time trends							
	Outliers							
	Mosque opening							
Panel A: Established parties (%)								
Mosque	-0.0665 (0.2294)	-0.1525 (0.2111)	-0.0383 (0.2499)	-0.0342 (0.0245)	-0.4144 (0.4232)			
Mosque × Ramadan	-0.9235*** (0.1216)	-0.9767*** (0.1305)	-0.8388*** (0.1224)	-0.9533*** (0.1462)	-1.0852*** (0.1944)			
Ever Mosque × Ramadan							-0.9493*** (0.2753)	
Mosque (t-5) × Ramadan								-0.8625*** (0.1690)
Panel B: Turnout (%)								
Mosque	-0.1035 (0.2238)	-0.1057 (0.1770)	-0.1830 (0.2427)	-0.0194 (0.0213)	-0.3824 (0.3079)			
Mosque × Ramadan	-0.3568*** (0.0983)	-0.4203*** (0.1024)	-0.3072*** (0.1001)	-0.4487*** (0.1202)	-0.6674*** (0.2120)			
Ever Mosque × Mosque (t-5) × Ramadan							-0.5522*** (0.2645)	-0.2735* (0.1510)
Controls:								
Municipality*Election type	Y	Y	Y	Y	Y	Y	Y	Y
Election date	Y	Y	Y	Y	Y	Y	Y	Y
Municipality Linear Trend	Y	N	N	N	N	N	N	N
10 Year*Municipality	N	Y	N	N	N	N	N	N
5 Year*Municipality	N	N	Y	N	N	N	N	N
Linear Time Trend*Mosque	N	N	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. In Column (1), we added a linear time trend interacted with municipality fixed effects. Columns (2) and (3) include ten- and five-year dummies interacted with municipality fixed effects. Column (4) introduces a linear time trend interacted with the dummy for the presence of a mosque. In Column (5), the dependent variable has been transformed by taking its square root, while Column (6) reports coefficients from median regressions. The variable *EverMosque* indicates municipalities that ever had a mosque; *Mosque(t - 5)* is a dummy for the presence of a mosque in which we anticipated the year of openings by five years.

Table A.7: European Social Survey - 7th Wave

	Mean	SD	Obs.
	(1)	(2)	(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 6.

Table A.8: Descriptive statistics - German municipalities

	<u>All</u>		<u>with mosque</u>		<u>w/o mosque</u>	
	Mean	SD	Mean	SD	Mean	SD
Eligible voters ('000)	5.58	26.6	84.14	158.52	4.15	12.33
Turnout (%)	74.24	9.95	71.78	10.96	74.28	9.92
Established parties (%)	69.62	12.19	67.25	12.65	69.67	12.18
Far-left parties (%)	1.01	1.70	1.29	1.86	1.00	1.69
Far-right parties (%)	1.56	1.71	1.52	1.64	1.56	1.71
Observations	149,253		2,653		146,600	

Notes: The table reports averages of electoral results and municipalities' characteristics at each election over the time window analyzed across Western German municipalities, excluding the state of NRW. The table distinguishes between municipalities that have ever had a mosque (92) and those that have not (8219).

Table A.9: Ramadan and electoral outcomes in Germany

	Whole Germany			w/out NRW	
	(1)	(2)	(3)	(4)	(5)
Panel A: Established (%)					
Ramadan	-4.2245*** (0.2540)				
Mosque	-6.9262*** (0.6346)	-0.0577 (0.3312)		0.0412 (0.4477)	
Ramadan × Mosque	-1.5160*** (0.5099)	0.4565 (0.2900)		0.8388** (0.3778)	
Ramadan × Ever			-0.0333 (0.1989)		0.2554 (0.2069)
Control group mean		71.3979		71.3270	
Panel B: Turnout (%)					
Ramadan	-1.5366*** (0.2211)				
Mosque	-5.9459*** (0.6413)	-0.2395 (0.3211)		-0.3841 (0.4455)	
Ramadan × Mosque	0.3561 (0.4656)	0.9537*** (0.3085)		1.4505*** (0.3997)	
Ramadan × Ever			0.3147 (0.2076)		0.6191*** (0.2161)
Control group mean		75.0579		74.9926	
Controls:					
Election type FE	Y	Y	Y	Y	Y
Election type X Municipality	N	Y	Y	Y	Y
Election Date FE	N	Y	Y	Y	Y
Observations	152,418	152,123	152,123	144,995	144,995

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the county level. Columns (1) to (3) include elections in Western Germany from 1980 to 2013. Columns (4) to (5) exclude from the sample elections in NRW. Column (1) only includes a fixed effect for the type of the election, i.e. Federal or State election. Columns (2) and (4) include the full set of fixed effects as in Table 4, Column (3). Columns (3) and (5) report estimates of a regression in which the Mosque dummy has been replaced by an Ever Mosque dummy, as in Table 5, Column (7).

Table A.10: Descriptive statistics - Berlin

	<u>All</u>		<u>with mosque</u>		<u>w/o mosque</u>	
	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 A.11: Salience effects on far-right support by employment and foreigners growth rate

	(1)	(2)
Ramadan \times Mosque	0.1469*** (0.0406)	0.1537*** (0.0386)
Ramadan \times Mosque \times $\Delta Empl_{t-1}$	-0.1254* (0.0718)	
Ramadan \times Mosque \times $\overline{\Delta Empl}_{t-1,t-2}$		-0.1948*** (0.0680)
Controls:		
Election type FE	Y	Y
Election type X Municipality	Y	Y
Election Date FE	Y	Y
Observations	7,128	

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the municipality level. The dependent variable is the vote share for far-right parties. The table reports coefficients from four different regressions in which the treatment variable (Ramadan \times Mosque) has been interacted with the (standardized) employment growth rate in the year before the election (Column 1), the (standardized) average employment growth rate in the two years before the election (Column 2).

B DATA APPENDIX

In this section we provide a description of the ancillary datasets used in the paper *Minority Salience and Political Extremism*.

GOOGLE SEARCHES. We collected geo-coded information on Google searches in Germany at the monthly level over the years 2014–2018.⁴⁴ The sample includes municipalities with a population size of at least 10,000, i.e., 533 cities. Among them, 141 cities have at least one mosque. The data focus is on searches for Muslim-related words, such as *Muslim*, *Islam*, *Mosque* and *Ramadan* (in German). On average, the monthly number of searches for any of these words is around 130 per month. The two most searched words are Islam (on average 57 searches) and Ramadan (39 searches). The strong increase in Muslim-related searches during the calendar month of Ramadan start (almost 320 searches on average) are mainly driven by substantially more searches for the word Ramadan (213), but also the number of searches for the other Muslim-related terms spikes during Ramadan periods (105).

TWITTER DATA. We developed a python code that retrieves tweets by keyword and location. We first defined a set of words that should capture Muslims’ salience, these are: *Ramadan*, *Muslim*, *Mosque*, *Islam*. We then looked for anti-Muslim tweets, e.g., containing words such as *stop islam* and *islamization*, anti-racist tweets, i.e., including the term *anti-racism*. We finally searched for tweets containing the name of the main far-right and far-left parties, i.e., *AfD* and *Die Linke*, respectively. For each tweet that includes one of these keyword, we know the user name of the Twitter user, its location (at the city level), the text of the tweet and the number of re-tweets. The code only retrieves tweets back by ten days.⁴⁵ For this reason, we only focus on last Ramadan over a time window that goes from 21 days before and 100 days after the start of Ramadan (May 16th 2018). Additionally, we focused on the 396 municipalities of North-Rhine Westphalia. Overall, the sample is composed of 48,312 observations (396 municipalities \times 122 days). We are able to identify more than 5,000 twitter users in the data that produced more than 69,000 tweets (and 120,000

⁴⁴ We purchased these data from a consultancy specialized in social media marketing based in Germany.

⁴⁵ This is a limit imposed by the Twitter platform. We thus ran the code every ten days over the period May 5th to August 25th 2018, thus allowing to cover the period April 25th to August 25th.

re-tweets) over the period observed.

BERLIN ELECTIONS. We use data for the electoral districts (*Wahlkreis*) of Berlin over the period 2006–2016. These data are publicly available online.⁴⁶ The sample covers two federal (2009, 2013) and three state-level (2006, 2011, 2013) elections. The statistical office of Berlin does not provide information on previous elections at such finely grained geographical level. However, data on Berlin elections at the (aggregate) municipality level are available since 1990. The data provide information on votes to each party and a set of population characteristics at the *Wahlkreis* level.⁴⁷ Table A.10 provides a description of the data, distinguishing between districts within a 1,500 meter radius from a mosque and those outside. The city of Berlin is divided into twelve boroughs (*Bezirk*), comprising a number of smaller neighborhoods (approx. 160), roughly coinciding with electoral districts (*Wahlkreis*) whose average population is about 1,700 people. One disadvantage of the data is that the number and the definition of electoral districts within a borough vary across elections due to changes in population; however, the definition of any borough does not change: the number of observed districts ranges from 1,709 to 2,501 depending on the election considered.

EUROPEAN SOCIAL SURVEY. The European Social Survey provides data on European citizens' attitudes, beliefs and behavior patterns. It is conducted every two years in European countries. The survey consists of a core module and two or more rotating modules, repeated at intervals. Core topics each year include: political engagement and trust, social and political values, national, ethnic and religious identify. We use the seventh wave of the European Social Survey, which interviewed roughly 3,000 German residents between August 2014 and February 2015. This survey wave is particularly suitable for our purposes as they ask specific questions eliciting individual attitudes towards minority groups, including Muslims.⁴⁸ The data also provide information on demographic

⁴⁶ See <https://www.wahlen-berlin.de/>.

⁴⁷ The set of variables reported changes in each election. The only variables that are always present are the total population and the foreign born population.

⁴⁸ Respondents are asked a variety of questions aimed at measuring opinions towards minorities and immigration, as well as political preferences and socio-economic characteristics (Card *et al.*, 2012; d'Hombres & Nunziata, 2016). 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.

and economic characteristics of the respondents that we use as controls. As the municipality of residence is not disclosed, we only exploit variation in the interview date, defining as *treated* all individuals interviewed within three months after the start of Ramadan. The share of *treated* respondents is about 21%. Figure A.4 plots the share of respondents by date of interview. Table A.7 reports main demographic, economic, political outcomes of respondents.

ATTACKS ON MOSQUES. We collected information on attacks against mosques from a list released by the Federal Ministry of the Interior in May 2012. The list is part of the response by the Federal Government to an inquiry from the party *Die Linke*. The list contains all recorded offenses against Muslim communities in Germany from January 2001 to December 2011. The data provide information on each attack's date, municipality, and type. We counted 219 offenses against mosques, including vandalism (e.g., swastika graffiti), death threats and arsons.⁴⁹

PRODAT. The PRODAT project collected data on protests in (West) Germany over the period 1950 until 2002 based on newspaper articles in national newspapers. Out of 16,000 recorded protest events, 1,656 protests can be identified as either left- or right-oriented. The information covers a broad range of attributes to each recorded protests: exact place and time, and precise information on topic, size, and the interest groups/supporters, including their political orientation, and whether these protests triggered or displayed a counter-protest.⁵⁰

CENSUS 1987. The information on the county-level population share of Muslims comes from the population census (*Volkszählung*) conducted in West Germany in 1987. We use county-level census tabulations provided by Schmitt *et al.* (1994).

⁴⁹ The complete list can be found at the following website: <http://dip21.bundestag.de/dip21/btd/17/095/1709523.pdf>

⁵⁰ A public use version of the data is available at <https://www.wzb.eu/de/forschung/beendete-forschungsprogramme/zivilgesellschaft-und-politische-mobilisierung/projekte/prodat-dokumentation-und-analyse-von-protestereignissen-in-der-bundesrepublik>.

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