Minority salience and political extremism

Minority Salience and Political Extremism[†]

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We investigate how the salience of an ethnic minority affects the majority group's voting behavior. We use the increased salience of Muslim communities during Ramadan as a natural experiment. Exploiting exogenous variation in the distance of election dates to Ramadan over the 1980–2013 period in Germany, our findings reveal an increased polarization. Vote shares for both right- and left-wing extremist parties increase in municipalities with mosques when an election takes place shortly after Ramadan. We use survey data to provide evidence on mechanisms: Ramadan increases respondents' perceived share of the foreign-born population and emphasizes cultural dissimilarities, ultimately worsening attitudes toward Muslims. (*JEL* D72, D91, J15, Z12, Z13)

Whether and how the presence of ethnic minorities affects social and economic outcomes is subject to an intensive debate (Alesina and La Ferrara 2005, Putnam 2007). While diversity may have positive effects on the economy in the long run (Alesina, Harnoss, and Rapoport 2016), it reduces trust and social capital (Alesina and La Ferrara 2002), lowers preferences for redistribution (Dahlberg, Edmark, and Lundqvist 2012), and weakens social relationships (Algan, Hémet, and Laitin 2016). Recent empirical studies show that these effects spill over to electoral results. While nationalist parties mainly benefit from immigration shocks (Barone et al. 2016; Becker and Fetzer 2016; Brunner and Kuhn 2018; Halla, Wagner, and Zweimüller 2017), other studies point to a more nuanced polarization of the

electorate including potential gains for left fringe parties (Dill 2013; Dustmann, Vasiljeva, and Damm 2019; Gerdes and Wadensjö 2008; Steinmayr 2020).

We complement this debate by empirically investigating the extent to which the salience of religious minorities affects political outcomes. There are at least two reasons why we expect such a relationship. First, salient minorities increase in-group favoritism among the majority group's voters when they are perceived as out-groups. Second, salient minorities draw voters' attention to topics associated with them, such as immigration, cultural identity, and redistribution; while these topics are predominantly served by right-wing nationalist parties, salience might affect the whole political spectrum through parties' counterreactions.

We exploit quasi-experimental shocks to Muslim communities' salience in Germany while holding their relative size constant. During the holy month of Ramadan, Muslim communities become more visible due to increased mosque attendance, communal celebrations, and larger media coverage. Ramadan moves backward by 10–11 days every year relative to the Gregorian calendar, thus generating idiosyncratic variation in the distance of election dates to the festivity of Ramadan.[1]

For our main analysis, we combine data on election results at the municipality level in 18 federal and state elections between 1980 and 2013 in the state of North Rhine-Westphalia (NRW), which is Germany's most populous state and home to around one-third of all Muslims living in Germany. We corroborate the main analysis by employing finer-grained election results at the precinct level of the city of Berlin. Germany provides a compelling setting for the analysis, given that it has a long-running history of heated debates on topics of immigration and cultural identity. These debates have recently renewed in the wake of escalating acts of Islamic terrorism and inflows of Middle Eastern refugees.

Our results show a robust pattern of increased political polarization in elections when local Muslim communities become salient just before the election date. The difference in the vote share for right-wing parties between municipalities in NRW with and without a mosque is about 13 percent of a standard deviation if an election takes place within 3 months after the start of Ramadan. The respective effect for left-wing parties displays a similar effect of 22 percent of a standard deviation. These average effects are sensitive to local economic conditions and increase substantially during economic downturns. Results are not driven by a lower voter turnout among Muslim voters during Ramadan. Within-municipality results based on the city of Berlin show that right-wing parties gain support in districts nearby mosques, while the effect on left-wing parties increases with the distance to a mosque. This result suggests that the observed polarization of the electorate does not happen in the same areas of a municipality.

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 and more negative

attitudes toward Muslims than those surveyed later on. The change in salience creates misperceptions about the share of foreign-born persons living in the country and emphasizes cultural dissimilarities between minority and majority groups.[2] While these differences in individual attitudes explain the shift on the Right, we attribute the effect on the Left to a "second-order" salience effect, whereby stronger right-wing support triggers a reaction of left-wing voters in an attempt to stop the far-right wave. To support this argument, we document a particular sensitivity of the German Left to right-wing mobilization using data on motivations behind left- and right-wing protests.

Our findings provide the first field evidence on the effect of salience on voters' political choices. We contribute to at least four strands of literature. First, by focusing on the salience of a minority group while keeping its size constant, we add a new complementary perspective to the effect of ethnic minorities on election outcomes.[3] Our estimates of a salience effect on both right- and left-wing success provide complementary evidence to this literature and help to understand the mechanism behind the electoral effects of immigration. The uncovered polarization in response to salient minorities mirrors evidence on a polarized electorate in response to different economic shocks, such as import penetration (Autor et al. 2019) and financial crises (Mian, Sufi, and Trebbi 2014).

Second, by documenting behavioral responses to changes in the salience of a particular minority, we connect to the empirical literature analyzing effects of limited attention and fallible memory in the field. Due to limited attention, individuals overemphasize salient features of choices and underrate less prominent ones.[4] Related to the mechanisms that we discuss, Alesina, Miano, and Stantcheva (2018) show that making respondents think about immigration reduces their support for redistribution.

Third, our paper contributes to the political science literature on how the salience of policy issues affects voting behavior.[5] This literature views person-specific

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[2] In online Appendix C, based on daily records of attacks on Muslim communities in Germany, we further show that a shock to salience even affects violent behavior against Muslims.

[3] Increasing vote shares for right-wing parties due to higher immigrant shares have been found for Italy (Barone et al. 2016), Austria (Halla, Wagner, and Zweimüller 2017), Denmark (Dustmann, Vasiljeva, and Damm 2019), Switzerland (Brunner and Kuhn 2018), the United Kingdom (Becker and Fetzer 2016), and the city of Hamburg in Germany (Otto and Steinhardt 2014). Other papers have found support for the contact theory by Allport (1954), pointing to lower support for right-wing parties through direct contact to foreigners (Dill 2013, Steinmayr 2020). Studies focusing on effects across the full political spectrum find differential effects on left-wing parties. Gerdes and Wadensjö (2008) find gains for both anti- and pro-immigration parties after random increases of municipal immigration shares in Denmark. Dustmann, Vasiljeva, and Damm (2019) show a rural-urban divide in vote share responses to refugee allocation: in urban areas, pro-immigration parties gain from refugee allocation, while in rural areas, right-wing anti-immigration parties benefit.

[4] The specific role of salience has been examined by economists in several contexts, such as consumer choices and tax rates (Chetty, Looney, and Kroft 2009; Finkelstein 2009) and judicial and investment decisions (Barber and Odean 2008; Bordalo, Gennaioli, and Shleifer 2015). Other forms of limited attention have been analyzed in the realm of political decision-making as well. Fouka and Voth (2013) 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) finds that right-wing voting increased in municipalities pillaged during the sieges of Vienna by Turkish troops in 1529 and 1683 compared with nonpillaged municipalities after Austrian right-wing populists started to campaign against Turks and Muslims, explicitly referring to the Turkish sieges in 2005.

[5] Voters cast their vote for the party or candidate considered most closely associated with salient issues (see Dennison 2019 for a recent overview). Voters attach greater weight to salient issues that "activate and engage a person's emotions systems" (Miller, Krosnick, and Fabrigar 2017, 131).

issue salience as a stable trait formed early in life (Krosnick 1990). We add to this by showing how short-term variation in issue salience can affect voter decisions. From a methodological point of view, we contribute by using a quasi-experimental change in issue salience through the salience of an ethnic minority instead of using between-person variation in survey measures of issue salience (such as *Most Important Problem* questions). These survey measures make it difficult to distinguish between the actual importance of a problem and its salience (Niemi and Bartels 1985, Wlezien 2005). An issue might be salient without being necessarily important for how people vote (Kiousis, Strömback, and McDevitt 2015), especially when parties or candidates do not offer sufficiently distinct positions on the salient issue (Ansolabehere and Puy 2018).

Fourth and finally, this paper relates to the growing number of studies applying experimental ideas on out-group discrimination and out-group salience (Tajfel 1982, Tajfel and Turner 1986) to the field. A number of studies demonstrate how the coexistence of different ethnic groups has led to increased political polarization and support for extremist positions in response to economic or political shocks.[6]

I. Conceptual Framework

In this paper, we analyze how the salience of a minority group might influence voting decisions. Similar to Bordalo, Gennaioli, and Shleifer (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 and Thompson 1982, cited in Bordalo, Gennaioli, and Shleifer 2013).

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

In German elections, voters mainly choose between parties representing platforms summarizing opinions and attitudes regarding a range of policy areas. When casting their vote, voters weigh the expected net benefits from policy bundles associated with parties. The attention that voters devote to the benefits and costs of

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[6] 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, Rodnyansky, and Zhuravskaya 2013). Other studies have also found increased ethnic hatred among Croatians being exposed to Serbian radio (DellaVigna et al. 2014) and negative externalities of the forced coexistence of different Native American tribes in the US reservation system (Dippel 2014).

[7] In recent advances of salience theory (Bordalo, Gennaioli, and Shleifer 2013), decision-makers' attention is endogenously drawn to specific dimensions of alternatives in which these most strongly differentiate. By 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 experimental settings of artificially raised salience (Chetty, Looney, and Kroft 2009).

different topics and policy fields varies across voters and may be affected by variation in salience.

An increase in Muslim minority salience may affect voting through at least two mechanisms. First, and arguably the most relevant mechanism at play in our setting, is that natives attach a greater weight on their own group when their attention is drawn to more salient group differences. Such a mechanism working through increased in-group bias due to more salient group differences has received ample attention in social psychology (Jenkins 2014, Tajfel 1982, Tajfel and Turner 1986). In-group bias as a function of out-group salience has been confirmed in the lab (Chen and Li 2009, McLeish and Oxoby 2011). This mechanism of native in-group favoritism might be of specific importance in our field setting. Ramadan highlights cultural dissimilarities between the majority and the minority. A higher salience of these differences triggers marginal voters on the Right to express their support for nationalist ideologies. Thus, voting for right-wing parties acts as a strong expression of in-group favoritism.[8]

Second, salient minorities can affect voters' decisions if they are mentally linked to topics and policy fields. This mechanism of issue salience is commonly debated in the political science literature (see Dennison 2019 for a recent overview). In our setting, as virtually all Muslims living in Germany have a migration background as first-, second-, or third-generation migrants, their salience is naturally linked to heatedly debated immigration issues. With especially right-wing parties traditionally taking strong stances on immigration and cultural identity, voters might be swayed to vote for nationalistic parties that "own" this particular, now salient political issue (Bélanger and Meguid 2008).

II. Background and Data

In this section, we first provide a brief overview of the history of Muslims, mosques, and anti-Muslim rhetoric in Germany and describe the data on mosques. We provide empirical evidence on the extent to which public attention is drawn to Muslim communities during Ramadan. We then describe the German party system and the election data used in the main analysis, where we focus on the federal state of North Rhine-Westphalia, which hosts more than 20 percent of the German population and more than 30 percent of Muslims living in Germany.

A. *Muslims and Mosques in Germany*

Islam is the largest minority religion in Germany. Based on extrapolations of immigrant origin countries, the Federal Office for Migration and Refugees estimated that Germany was home to about 4 million Muslims in 2008, accounting

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[8] On similar lines, Adida, Laitin, and Valfort (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, Wagner, and Zweimüller 2017).

for roughly 5 percent of the total population (Haug, Müssig, and Stichs 2009; Stichs 2016). About 70 percent of Germany's Muslims are of Turkish origin (Stoop 2016).

Attitudes to Muslims in Germany.—Anti-Muslim rhetoric has a long-standing history in Germany. Resentments toward the Muslim population began to mount shortly after the first guest workers from Turkey had arrived 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. Right-wing parties tried to utilize the increasing public resentment by adding anti-Muslim statements to their political agendas. The German domestic intelligence service reports recurrent assaults on Muslim minorities throughout the 1980s and 1990s. More recently, following the increase in Islamist terror and the large refugee inflow of 2015, mass movements 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 from backyard locations to visible mosques with minarets and domes (Kuppinger 2014). The construction of mosques has ever since been controversially debated 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). Right-wing parties have used these concerns as propaganda vehicles to support anti-immigration ideologies. Constructions of mosques were regularly met with protests. Left-wing counterrallies opposing the anti-Islam protesters resulted in increased social tension.[9]

As German administrative data do not contain any information on religion apart from Christian affiliation, we use the existence of a mosque as a strong proxy for a sizable and active Muslim community. We obtained mosque data from the online register Moscheesuche (2014) 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. We know whether it is located in a residential area, the size in square meters, and the height of the minaret(s).[10] Figure 1 shows a map of mosques' presence across municipalities of North Rhine-Westphalia by decade. Prior to 1980, there were only 8 municipalities where a mosque was established, whereas this number increased to 53 in the following 3 decades. We only use information on "visible" mosques, i.e., those with a minaret as well as a dome.

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[9]See https://tinyurl.com/right-wing-rally and https://tinyurl.com/left-wing-counterprotest for pictures taken at a right-wing rally in Cologne and the counterprotests organized by left-wing parties. See https://tinyurl.com/right-wing-electoral-poster1 and https://tinyurl.com/right-wing-electoral-poster2 for electoral posters of two right-wing parties targeting Muslims and the construction of mosques. See https://tinyurl.com/left-wing-electoral-poster1 and https://tinyurl.com/left-wing-electoral-poster2 for electoral posters of the PDS (far-left) against far-right parties.

[10]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 prayerhouses, including the year of establishment and the address. We then used Google Earth and Street View to check whether the prayerhouses were present at the indicated address. The total number of mosques in our data is in line with other studies conducting similar research, such as Schmitt (2003).
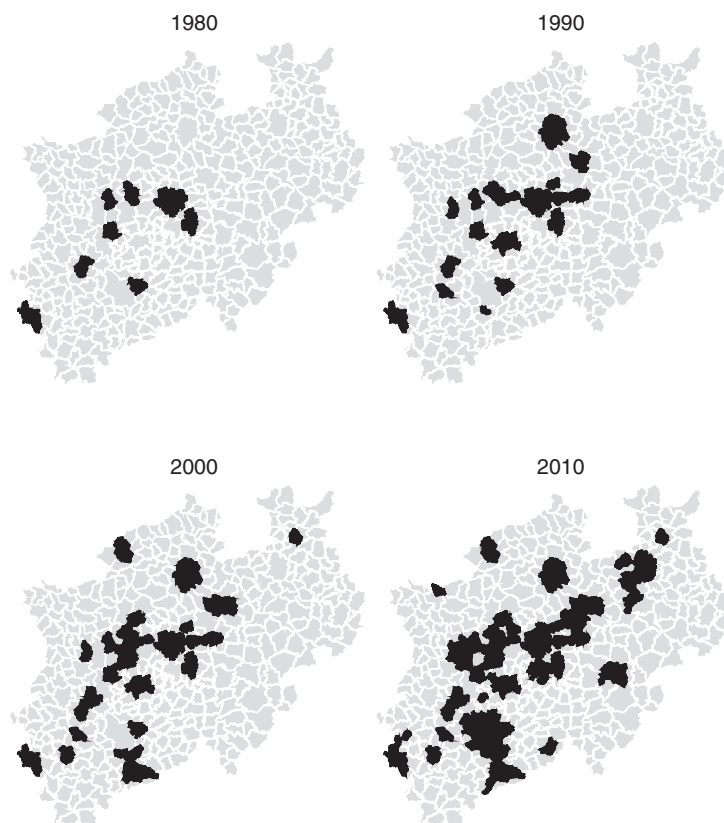
FIGURE 1. MOSQUES' DIFFUSION IN NORTH RHINE-WESTPHALIA

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.

"Backyard mosques," accommodated in buildings previously used for different purposes, are not part of our data.[11]

B. *Ramadan and Muslims' Salience*

Ramadan is the ninth month of the Islamic lunar calendar, when according to the Islamic faith the Koran was revealed to the prophet Muhammad. During the 30 days of Ramadan, Muslims are called upon to reevaluate their lives in light of Islamic guidance, which includes fasting from sunrise to sunset along with daily prayers, charity, and a pilgrimage to Mecca at least once in a lifetime. The individual lifestyles and social lives of Muslims across the world are thus strongly affected by Ramadan (Marshall Cavendish Corporation 2010). Ramadan is a time of socialization, during

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[11] See https://tinyurl.com/backyard-mosque and https://tinyurl.com/mosque-minaret-dome for pictures illustrating the difference between a backyard mosque and a mosque with a minaret and dome. In a robustness check, we also take into account backyard mosques.

which Muslims come together and visit the mosque to share meals with relatives and acquaintances. Daily routine includes predawn and fast-breaking meals taking place at the mosque. The end of Ramadan is celebrated with a three-day event. These celebrations and additional prayers result in increased mosque attendance and higher levels of displayed religiosity (Akay, Karabulut, and Martinsson 2013; Campante and Yanagizawa-Drott 2015).[12]

Salience of Muslims during Ramadan.—Our identification of electoral effects relies on Ramadan increasing the salience of Muslim communities. In this section, we provide evidence of this relationship. In Germany, the beginning of Ramadan generally receives significant media coverage, which raises the salience of Muslim minorities among German voters across the entire country. However, the change in Muslims' salience is arguably stronger in places where a sizable and visible Muslim community is based. Using city-level information on internet and social media behavior, we show that the change in Muslims' visibility during Ramadan differs across places with and without 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 1 mosque. The data cover the period from September 2014 to August 2018. 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 Twitter over the period from three weeks before the start to about ten weeks after the end of the 2018 Ramadan cycle (see online Appendix B for a detailed description).

Figure 2 displays correlations between the occurrence of Ramadan and the average number of Muslim-related Google searches (panel A) and tweets (panel B) in municipalities with and without mosques. This relationship is significantly more pronounced in cities where a visible mosque is located. We interpret these differences in internet and social media behavior as evidence of a disproportional attention to Muslim-related topics in the vicinity of a mosque during Ramadan. Regressions of the log number of searches and tweets on the interaction of Ramadan and mosque presence controlling for month and municipality fixed effects indicate that the number of Muslim-related searches increases by 14.1 percent for searches and by 49.4 percent for tweets, respectively (Table A.1 in the online Appendix). The data do not provide information on the religious affiliation of users; to disentangle between Muslim and non-Muslim users, we analyze tweets referencing anti-Muslim sentiments (panel C of Table A.1); these tweets increase during Ramadan in municipalities with mosques by 7 percentage points. This confirms that the overall pattern that we observe in Figure 2 cannot be solely explained by internet and social media behavior of Muslims.

Timing of Ramadan and Elections.—In our empirical analysis, we exploit the fact that the beginning of Ramadan moves backward by 11 days each year

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[12] See https://tinyurl.com/ramadan-banquet1 and https://tinyurl.com/ramadan-banquet2 for pictures portraying typical Ramadan banquets at a mosque.

Panel A. Google searches by cities 2014–2018

Month relative to start of Ramadan

Panel B. Tweets by cities from April to August 2018

Date
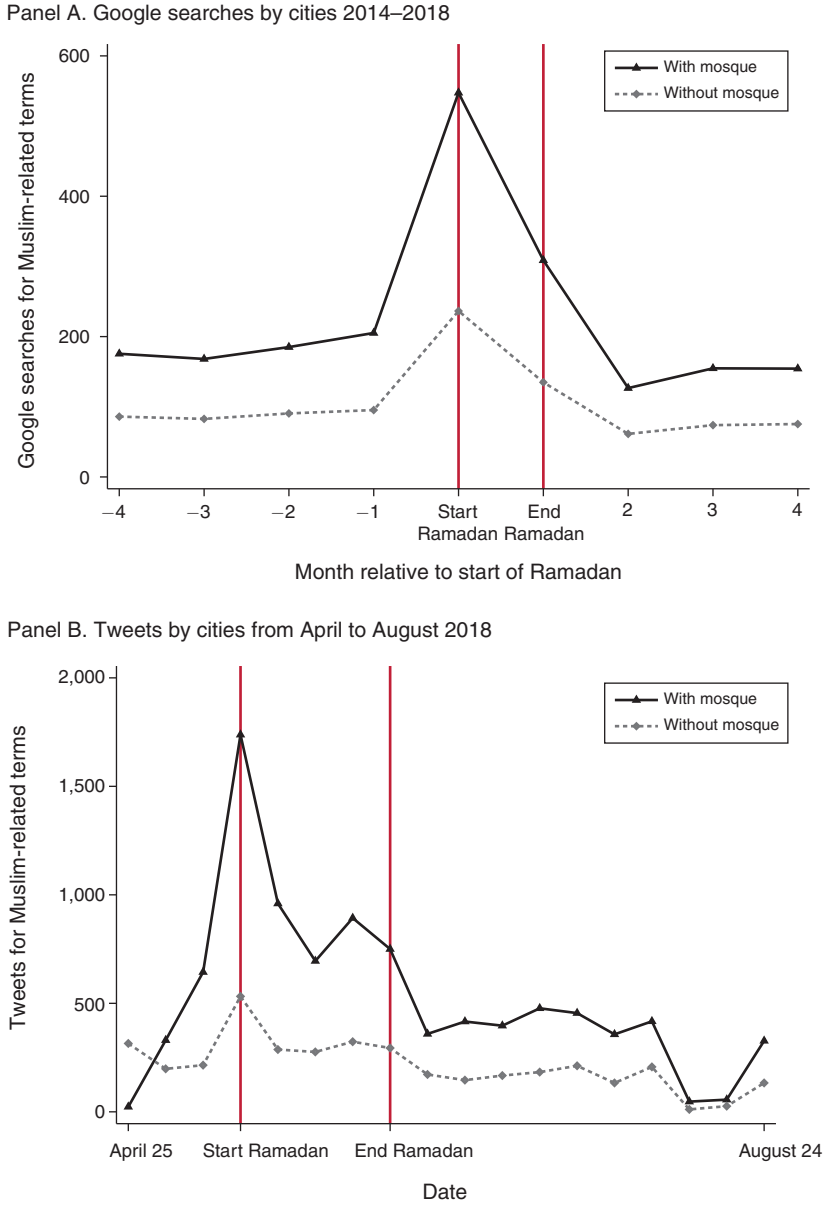
FIGURE 2. MUSLIM-RELATED GOOGLE SEARCHES AND TWEETS

Notes: Panel A draws averages of monthly city-level Google searches for *Muslim*, *Ramadan*, *Mosque*, or *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 comprises the period from September 2014 to August 2018. Panel B plots averages of weekly city-level tweets that include the terms *Muslim*, *Ramadan*, *Mosque*, or *Islam* in cities with ($N = 53$) and without mosques ($N = 343$) in the state of NRW. The sample covers the period from April 25 to August 24, 2018.

(IslamicFinder 2020). Figure 3 depicts how Ramadan rotates over the seasons across the time period under investigation from 1980 to 2013. Each scatter point indicates the start date of a 30-day Ramadan period. State elections are typically held in
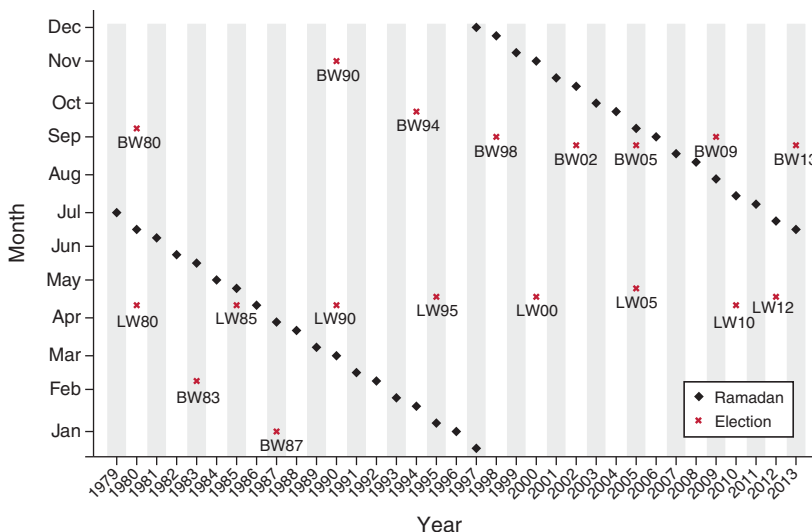
FIGURE 3. RAMADAN CYCLE AND ELECTION DATES

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.

May, while most federal elections are in September and October. Accordingly, the distance between election dates and Ramadan periods varies systematically, with Ramadan moving backward through the year. For the purpose of this study, we can plausibly assume that this distance is exogenous to fringe party success. Out of 18 elections, 4 elections occur within a time window of 90 days since the first day of Ramadan: the national elections in 1980, 2009, and 2013, and state parliament elections in 1990.

C. *Election Data*

In our main analysis, we focus on electoral outcomes over the 1980–2013 period in 396 municipalities (*Gemeinden*) in the state of North Rhine-Westphalia in West Germany, covering 10 federal elections as well as 8 elections for the state parliament (Statistisches Landesamt NRW 2020b). Overall, the estimation sample comprises 7,128 municipality-election observations. We focus on the so-called "second vote" (*Zweitstimme*), which expresses voters' party preferences.

We construct several indicators describing established and extremist party support. We aggregate votes for single parties into votes for established, right- and left-wing parties following Falck, Gold, and Heblich (2014a). Each indicator is defined as the share of *eligible* voters voting for certain groups of parties. By focusing on the share of eligible voters instead of shares of the actual turnout, we ensure that effects are not driven by potential turnout effects, e.g., by lower turnout of Muslim voters after Ramadan. The multiparty system in Germany covers the entire spectrum of political preferences from the extreme Left to extreme Right. Until very recently, and since

the end of 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. We label these four parties as established parties. Right-wing parties follow anti-immigration and nationalist ideologies. Left-wing parties are characterized by communist ideologies, featuring anti-capitalist and antiglobalist opinions.[13]

III. 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. 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.

To identify a causal effect of increased salience during Ramadan, we have to separate it from potential confounding factors due to the small number of treated elections. For this purpose, we use a difference-in-difference strategy that compares differences between voting outcomes in elections affected by Ramadan and those unaffected by Ramadan, as well as between municipalities with and without a religiously active Muslim community proxied by the presence of a mosque. The intuitive idea is that omitted factors that affect voting outcomes and are coincidentally correlated with Ramadan are expected to be orthogonal to the presence of a mosque. The according regression model reads as follows:

$$(1) \qquad voting\ outcome_{it} = \beta_0 + \beta_1 m_{it} + \beta_2 m_{it} \times r_t + \delta_i + \lambda_t + \varepsilon_{it}.$$

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}, which 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

captures the difference in voting outcomes that can be plausibly attributed to the increase of Muslim salience during Ramadan in municipalities with a mosque.

The 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 date fixed effects (λ_t). 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. Note that election date fixed effects and the Ramadan dummy, r_t, are collinear. 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. 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., $E[m_{it} \times r_t, \varepsilon_{it} \mid \lambda_i, \delta_t] = 0$, 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.

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. However, our main parameter of interest, β_2, is identified by comparing Ramadan-affected elections between municipalities with or without a mosque. The parameter β_2 is identified even in the absence of time variation in mosques through comparing 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 rather 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 × Ramadan* is independent of the error term ε_{it}. Although this assumption is essentially untestable, online Appendix Table A.4 provides results from a balancing test based on observable characteristics (Statistisches Landesamt NRW 2020a). Specifically, we test whether several municipal characteristics that may potentially influence electoral outcomes are correlated with our treatment *Mosque × Ramadan*. The estimated coefficients in online Appendix Table A.4 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 in order to assess the potential influence of a lack of balancing on our results, we conduct an omnibus test in the spirit of Satyanath, Voigtländer, and Voth (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 A.5 in the online Appendix. 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, which is already apparent from the descriptive statistics in online Appendix Table A.3. Accordingly, we avoid interpreting coefficients of the mosque indicator as representing causal relationships.

IV. Results

A. *Minority Salience and Election Results*

We present results for the effect of salience of Muslim communities on election outcomes in North Rhine-Westphalia. The results are summarized in Table 1, which is organized into four panels by dependent variable: vote shares for left- and right-wing and established parties as well as voter turnout.

Column 1 of Table 1 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 as being potentially affected if they take place within 90 days after the first day of Ramadan. The results indicate higher vote shares for both right- and left-wing parties in elections occurring in close proximity to Ramadan. By contrast, we observe weaker support for established parties and lower voter turnout.[14]

In column 2, we include the mosque dummy and its interaction with the Ramadan variable. Using again the 90-day window after the beginning of Ramadan, 1.8 percent 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

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[14] To take into account the range of municipality sizes in our sample, we ran regressions weighted by eligible voters (panel D of online Appendix Table A.6). The estimated coefficients are similar to those in Table 1 in terms of both magnitude and statistical significance.

TABLE 1—MOSQUES, RAMADAN, AND ELECTION OUTCOMES

	(1)	(2)	(3)	(4)	(5)
Panel A. Right-wing parties (*percent*)					
Ramadan	0.7044	0.6584	0.6542		
	(0.0114)	(0.0130)	(0.0133)		
Mosque		0.3545	0.8208	0.0388	0.0230
		(0.0492)	(0.0539)	(0.0406)	(0.0383)
Ramadan × Mosque		0.5253	0.5056	0.1172	0.1167
		(0.0541)	(0.0523)	(0.0391)	(0.0385)
Control group mean			0.6801		
Panel B. Left-wing parties (*percent*)					
Ramadan	1.2654	1.1597	1.1569		
	(0.0137)	(0.0179)	(0.0183)		
Mosque		0.7637	2.0415	0.1910	0.1677
		(0.0811)	(0.0962)	(0.0689)	(0.0631)
Ramadan × Mosque		1.2125	1.0504	0.3647	0.3525
		(0.1154)	(0.1117)	(0.0641)	(0.0606)
Control group mean			0.8222		
Panel C. Established parties (*percent*)					
Ramadan	−3.4665	−3.0326	−3.0109		
	(0.0523)	(0.0780)	(0.0844)		
Mosque		−6.6046	−15.2768	−0.6547	−0.4161
		(0.6643)	(0.4429)	(0.3885)	(0.3769)
Ramadan × Mosque		−4.4447	−3.3830	−1.0707	−1.0294
		(0.4427)	(0.4404)	(0.1694)	(0.1589)
Control group mean			72.7037		
Panel D. Turnout (*percent*)					
Ramadan	−1.5358	−1.2860	−1.2739		
	(0.0462)	(0.0626)	(0.0669)		
Mosque		−5.0441	−10.6372	−0.4289	−0.2452
		(0.5255)	(0.4229)	(0.3505)	(0.3484)
Ramadan × Mosque		−2.3667	−1.6594	−0.3979	−0.3756
		(0.3086)	(0.3014)	(0.1300)	(0.1242)
Control group mean			76.2607		
Controls:					
Municipality × Election type	N	N	Y	Y	Y
Election date	N	N	N	Y	Y
Municipality characteristics	N	N	N	N	Y
Observations			7,128		

Notes: The dependent variables are expressed as the 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 three months after the start of Ramadan and a mosque is located in the municipality. The share of Ramadan × Mosque treated observations is 1.80 percent. Columns 1 and 2 only include 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.

municipality level, these results cannot be interpreted as a causal effect. In column 3, we add municipality fixed effects interacted with election type dummies, thus comparing same type elections within the same municipality. The effect of

Ramadan on right- and left-wing vote shares and its interaction with the mosque presence are only slightly affected by the inclusion of this new set of fixed effects; on the contrary, the mosque coefficient increases in magnitude. These results corroborate our assumption that mosques are not randomly distributed but the residual variation of the main explanatory variable *Mosque × Ramadan* is independent of unobservable city-specific characteristics.

We include fixed effects for election date in column 4, now representing the specification discussed in Section III. The inclusion of election date fixed effects fully absorbs the Ramadan coefficient. However, the inclusion of election date fixed effects is crucial 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 take into account this issue. From here onward, we focus on the interaction term *Ramadan × Mosque*, which picks up the causal effect of a change in Muslims' salience in municipalities where they are active on political extremism.[15] The inclusion of additional controls for municipalities' characteristics in column 5 leaves the estimated coefficients unaffected, suggesting that the distance of the election to Ramadan is indeed orthogonal to the observable characteristics. These estimates are robust to different clustering of standard errors.[16]

Our preferred specification estimates significant effects on both right-wing and left-wing support in municipalities where a mosque is present and when the election is within three months after the start of Ramadan. Taking into account the higher volatility of left-wing vote shares by focusing on standardized effect sizes reveals that both right- and left-wing vote shares increase by a comparable magnitude of 13 percent and 22 percent of a standard deviation, respectively. The occurrence of Ramadan increases the attention to Muslim communities in German municipalities, ultimately polarizing the political choices of voters. In contrast to the effects on fringe parties, established parties experience a 1 percentage point reduction in treated municipalities and elections.

The increased political extremism reduces voter turnout. The effect is negligible in size but 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 (Guiso et al. 2017, Rogowski 2014). It is important to note, though, that the reduced turnout cannot explain the observed polarization, as we focus on the share of *eligible* instead of actual voters casting their vote for far-right and far-left parties. These results describe a pattern of polarization within treated municipalities instead of across municipalities: a municipality being treated by the joint occurrence of Ramadan and mosque presence experiences increases in vote shares both on the Left and the Right.

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[15] Online Appendix Table A.7 shows the sensitivity of our results to the inclusion of different sets of fixed effects.

[16] Our setting might be affected by spatial correlation in the error terms. We followed the suggestions by Dell, Jones, and Olken (2014) and explored the sensitivity of our results toward clustering on a larger geographical level (districts) or allowing for decreasing correlation in error terms following Conley (1999). In order to produce these results, we used the Stata codes developed by Fetzer (2020) and Hsiang (2010). The respective results are summarized in the online Appendix in Table A.8. Standard errors increase, although our main results remain significant for both right- and left-wing vote shares. In addition, we confirm significance patterns with permutation-based empirical *p*-values in online Appendix C.

B. *Robustness Checks*

In this section, we test the sensitivity of our main results and 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. Additional heterogeneity analysis by municipality and mosque characteristics is presented in online Appendix C.

Trends, Outliers, and Demographic Endogeneity.—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 subperiods. The results are reported in columns 1 to 4 of Table 2A. Estimated coefficients remain virtually unchanged for the far-right support when we include a linear time trend in column 1. They become smaller for left fringe parties but remain statistically significant at the 1 percent level. Controlling for nonparametric trends, i.e., columns 2 and 3, slightly reduces the magnitude of the estimates, which remain statistically significant at conventional levels. Identification within subperiods relies on differences in relatively close elections, 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; in the same regressions, we additionally include municipality characteristics interacted with the mosque variable. The results in column 4 remain largely unaffected.[17]

We further investigate the robustness of our estimates toward outliers in voting outcomes. We transform the dependent variables by taking the square root of the vote shares for each party.[18] The estimated coefficients in column 5 are reduced in magnitude but remain positive and statistically significant for both left and right fringe parties. Outlier-robust median regressions shown in column 6 arrive at similar conclusions. Estimates are slightly reduced in magnitude for both far-right and far-left vote shares.

Additionally, we acknowledge that the small number of elections happening after Ramadan increases the probability of correlated demographic variables spuriously driving the observed effects. To test for such demographic endogeneity, we provide additional evidence in Table A.10 in the online Appendix, where we add interactions of single demographic variables with the Ramadan dummy to the main specification. Result patterns remain robust to this exercise and appear not to be artifacts of spurious correlations of demographic trends with the occurrence of Ramadan. Estimated coefficients of the interaction between mosque presence and Ramadan are reduced by on average 9 percent for right-wing vote shares and by on average 7 percent for left-wing vote shares.

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[17]Results are qualitatively similar when both the linear time trend and municipality controls are interacted with a time-invariant mosque measure. Online Appendix Table A.9 shows regressions on right-wing vote shares by splitting the sample in two subperiods, 1980–1998 and 1999–2013.

[18]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 nonnegative 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.

TABLE 2A—ROBUSTNESS CHECKS

	Time trends				Outliers	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Right-wing parties (*percent*)						
Mosque	0.0095	−0.0701	−0.0417		−0.0059	0.0232
	(0.0511)	(0.0386)	(0.0468)		(0.0179)	(0.0385)
Ramadan × Mosque	0.1105	0.0963	0.0822	0.1156	0.0452	0.1088
	(0.0359)	(0.0316)	(0.0334)	(0.0355)	(0.0146)	(0.0501)
Panel B. Left-wing parties (*percent*)						
Mosque	−0.0301	0.0787	−0.0208		0.0168	0.1255
	(0.0588)	(0.0756)	(0.0960)		(0.0168)	(0.0487)
Ramadan × Mosque	0.2745	0.3004	0.2558	0.2750	0.0342	0.2346
	(0.0532)	(0.0559)	(0.0471)	(0.0464)	(0.0116)	(0.1329)
Controls:						
Municipality × Election type	Y	Y	Y	Y	Y	Y
Election date	Y	Y	Y	Y	Y	Y
Municipality linear trend	Y	N	N	N	N	N
10 year × Municipality	N	Y	N	N	N	N
5 year × Municipality	N	N	Y	N	N	N
Linear time trend × Mosque	N	N	N	Y	N	N
Municipality characteristics × Mosque	N	N	N	Y	N	N
Observations			7,128			

Notes: 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 and municipality characteristics 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.

Timing of Mosque Construction and Cohort Heterogeneity.—Our empirical model is based on the 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 the value of one if the municipality has *ever* had a mosque, and the interaction between this indicator with the Ramadan dummy. This specification leads to a larger and over time more evenly distributed proportion of treated observations. The estimated coefficients presented in column 7 of Table 2B are slightly smaller but more precisely estimated than the main results in Table 1 and still statistically significant in terms of both far-right and far-left support. Similarly, we replaced the *Ever Mosque* dummy with the distribution of mosques in the first year of our observation period, 1980. The results in column 9 show positive and statistically significant effects.

The robustness of the estimates toward the usage of an invariant measure of mosque presence is reassuring in light of recent concerns about two-way fixed effect estimators in long panels with staggered adoption, when early adopters (i.e., cities with early mosque construction) are used as controls for late adopters (Abraham and Sun 2020, Athey and Imbens 2018). If early adopters would experience a smaller effect due to smaller shares of Muslims, there could be a concern of upward bias

TABLE 2B—ROBUSTNESS CHECKS

	Mosque opening		
	(7)	(8)	(9)
Panel A. Right-wing parties (*percent*)			
Ramadan × Ever Mosque	0.0909		
	(0.0308)		
Ramadan × Mosque ($t - 5$)		0.1207	
		(0.0380)	
Ramadan × Mosque 1980			0.2423
			(0.0374)
Panel B. Left-wing parties (*percent*)			
Ramadan × Ever Mosque	0.2098		
	(0.0427)		
Ramadan × Mosque ($t - 5$)		0.3199	
		(0.0581)	
Ramadan × Mosque 1980			0.2322
			(0.1110)
Controls:			
Municipality × Election type	Y	Y	Y
Election date	Y	Y	Y
Observations		7,128	

Notes: Standard errors are clustered at the municipality level. The variable Ever Mosque 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 opening by five years. Mosque 1980 is a dummy for the presence of a mosque in 1980, i.e., the first year of the sample.

on the coefficient. Indeed, results based on the ever-mosque indicator are slightly smaller than the main results and can be taken as conservative estimates, robust against the described problem.

A related concern is that our main specification implies that Muslim communities only become visible during Ramadan after a mosque has been built. This specification does not take into account the notion that these religious groups may have been active and thus visible before the official opening. However, the results are insensitive to anticipating mosque construction by five years, as shown in column 8 of Table 2B. In online Appendix Table A.6, 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, similar coefficients are obtained when we interact the Ramadan dummy with the share of Muslims living in a county in 1987 (Schmitt, Rattinger, and Oberndörfer 1994) (see online Appendix B for details), i.e., panel B of online Appendix Table A.6.[19]

Timing of Ramadan and Elections.—Information that is further in 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 sufficiently long period for features to lose their salience is an empirical question.

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[19] An additional concern is related to the voting behavior of Muslims entitled to vote at local and national elections. We address this issue in online Appendix C.

In our main specification, an election is defined to be affected by a higher salience if it happens within 3 months after the start of Ramadan, i.e., 60 days after the last day of Ramadan celebrations. We test for the sensitivity of our estimates with respect to the choice of this time window in Figure 4. We plot 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 1, with standard errors clustered at the municipality level. Choosing the time window after Ramadan implies a trade-off between the number of treated observations and the plausible expected effect size. While the effect of salience is plausibly decreasing after Ramadan, the number of treated elections increases. The estimated effect size decreases monotonically for both right- and left-wing vote shares. The share of treated observations (in brackets) increases with a larger window. We observe a sharp drop in the estimated effect after 60 days after the end of Ramadan, which coincides with our main specification. Table A.6 in the online 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.

Backyard Mosques.—We retrieved additional data from the online mosque register Moscheesuche (2014) on mosques without any traditional Islamic architecture (e.g., minarets or domes), which we label as backyard mosques. These are usually located in disused warehouses or apartments (Toğuşlu 2015). Records of backyard mosques provide the year of opening in only 35 percent of all cases and do not contain information about closures. Further, we cannot run the same validation checks we did for visible mosques; the online register, however, provides an indicator, based on users' reports, on whether the mosque's presence is confirmed. Based on these reports, 121 municipalities have at least 1 backyard mosque in 2013 (31 percent), while 142 municipalities (36 percent) have either a backyard or visible mosque.

We construct a time-invariant city-specific variable for the presence of backyard mosques alongside the ever-mosque indicator similar to column 7 of Table 2B to test for a separate salience effect of backyard mosques. Results are reported in Table A.11 in the online Appendix. The results show that backyard mosques generate qualitatively similar effects to visible mosques for both far-right and far-left political parties. Relative to visible mosques, the effect of backyard mosques is smaller by about one order of magnitude. Controlling for the presence of backyard mosques alongside visible mosques reduces the effect of visible mosques, as both types of mosques are often present in the same municipality.

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 for 78 federal and state elections that took place in West Germany between 1980 and 2013 (Falck, Gold, and Heblich 2014b). Due to limited availability and a lack of harmonization of federal statistics, this sample does not include control variables on sociodemographic characteristics of cities. The number of treated elections increases from 4 to 20. Mosques in other German states are located in 92 municipalities. Summary statistics are shown in online Appendix Table A.12.
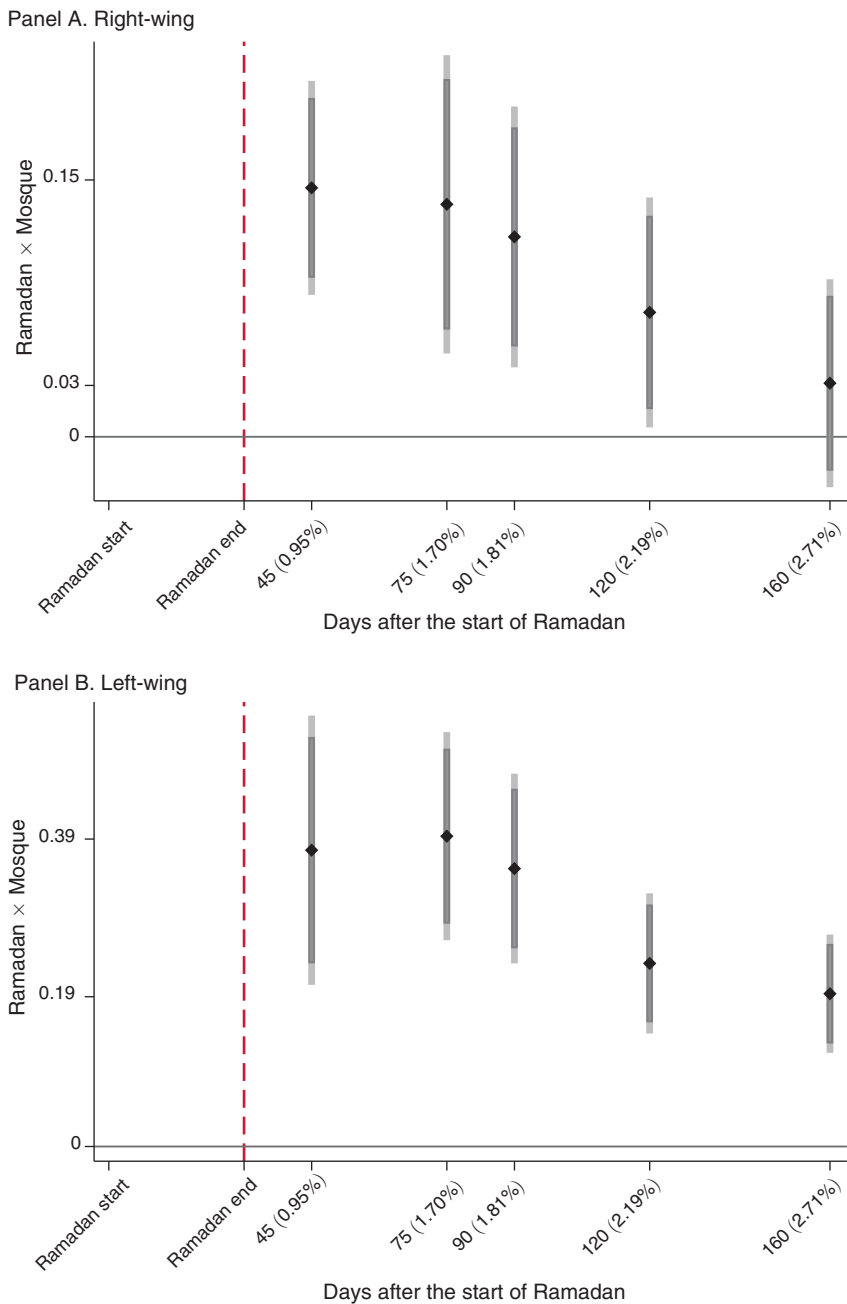
FIGURE 4. ELECTORAL EFFECT AND DISTANCE TO RAMADAN

Notes: The figure plots estimated coefficients from separate regressions in which the definition of treated election varies from 45 to 160 days after the start of Ramadan. The percentages in brackets report the share of treated observations. All regressions include the same set of controls as in Table 1, column 4. The vertical lines denote 95 percent and 90 percent confidence intervals based on standard errors clustered at the municipality level.

The results summarized in Table 3 yield a similar pattern of polarization in response to the 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 and left-wing parties by 1.03 percentage points (column 1). Controlling for municipality and election date fixed effects, we again observe a substantially stronger polarization in municipalities with a mosque (column 2). Right- and left-wing parties increase their vote share by 0.39 percentage points and 0.31 percentage points (corresponding to 23 percent and 18 percent of a standard deviation), respectively. Excluding observations from NRW—hence, focusing on a sample distinct from the one in the main analysis—does not change the observed 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.

C. *Neighborhood-Level Analysis*

The results presented so far are based on municipalities that strongly differ in size. Hence, the results at this aggregate geographical level might mask within-city dynamics and heterogeneous effects depending on a neighborhood's proximity to a mosque. We use data for the electoral districts of Berlin over the 2006–2016 period to investigate potential heterogeneous effects of increased salience on political extremism at a detailed geographical level (Amt für Statistik Berlin-Brandenburg 2016).

The city-state of Berlin has a population of about 3.5 million people. It is subdivided into 12 boroughs (*Bezirke*), comprising about 160 smaller electoral districts (*Wahlkreis*) with an average population of 1,700 people. Our sample covers two federal and three state-level elections: all elections aside from those in 2006 and 2016 happened within three months after the start of Ramadan. 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 considered. Our final sample comprises 9,709 electoral district–election observations. A more detailed description of the Berlin data can be found in online Appendix B.

We merge the election data with the location and dates of construction of all visible mosques in Berlin. Using the exact address of each mosque, we construct the distance from the centroid of each electoral district. Figure A.1 in the online Appendix 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 percent 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 percent), while vote shares of right-wing parties are lower on average in proximity to a mosque (2.1 percent versus 3.1 percent, online Appendix Table A.13). Electoral districts in close proximity to mosques display a significantly higher share of foreigners (23 percent) than those outside the 1,500m radius (12 percent).

TABLE 3—RAMADAN AND ELECTORAL OUTCOMES IN WEST GERMANY

	West Germany			Without NRW	
	(1)	(2)	(3)	(4)	(5)
Panel A. Right-wing parties (*percent*)					
Ramadan	0.6591				
	(0.0597)				
Mosque	−0.0592	−0.1808		−0.2575	
	(0.0741)	(0.0497)		(0.0740)	
Ramadan × Mosque	0.8035	0.3087		0.3375	
	(0.1040)	(0.0580)		(0.0830)	
Ramadan × Ever Mosque			0.2214		0.2001
			(0.0441)		(0.0595)
Control group mean		1.3236		1.3586	
Panel B. Left-wing parties (*percent*)					
Ramadan	1.0338				
	(0.0385)				
Mosque	0.8856	0.2075		0.1734	
	(0.0684)	(0.0473)		(0.0594)	
Ramadan × Mosque	0.8091	0.3867		0.3216	
	(0.0930)	(0.0628)		(0.0712)	
Ramadan × Ever Mosque			0.2522		0.2198
			(0.0399)		(0.0457)
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	152,083	152,083	144,995	144,995

Notes: 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 1, 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 2B, column 7.

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. Given that the borders of electoral districts change across elections, we treat 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 4 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 3 months after the start of Ramadan (column 1).[20] 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 1 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 a

[20] 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.

TABLE 4—RAMADAN AND ELECTORAL OUTCOMES IN BERLIN

|	Distance		Radius		
	(log)		≤1,000m	≤1,500m	≤2,000m
	(1)	(2)	(3)	(4)	(5)
Panel A. Right-wing parties (percent)					
DistanceMosque × Ramadan	−0.7017	−0.6962	0.8183	0.7886	0.7747
	(0.3186)	(0.3166)	(0.5351)	(0.4463)	(0.4061)
Control group mean			4.1080		
Panel B. Left-wing parties (percent)					
DistanceMosque × Ramadan	0.6068	0.6092	−0.4228	−0.6098	−0.5278
	(0.3652)	(0.3676)	(0.6100)	(0.6574)	(0.5469)
Control group mean			7.1379		
Panel C. Established parties (percent)					
DistanceMosque × Ramadan	0.6325	0.6794	−1.4179	−1.1579	−1.1572
	(0.5096)	(0.4611)	(1.3343)	(1.0713)	(0.8633)
Control group mean			29.5636		
Panel D. Turnout (percent)					
DistanceMosque × Ramadan	−0.0117	0.0399	−0.0951	−0.1623	−0.1320
	(0.4474)	(0.4136)	(0.8968)	(0.7657)	(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 (percent)	N	Y	Y	Y	Y
Observations			9,709		

Notes: The table only reports coefficients of the interaction DistanceMosque × Ramadan; the variables DistanceMosque and Ramadan are also included in the regressions. 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 one 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 three months after the start of Ramadan.

mosque experience an increase of about 0.79 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. This is reflected by our investigation of potential nonlinear effects, where we use more flexible specifications using different distance categories in the relationship between distance and increased salience during Ramadan.

Panel A of Figure 5 plots estimated effects on left-wing vote shares 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.

Panel A. Left-wing parties
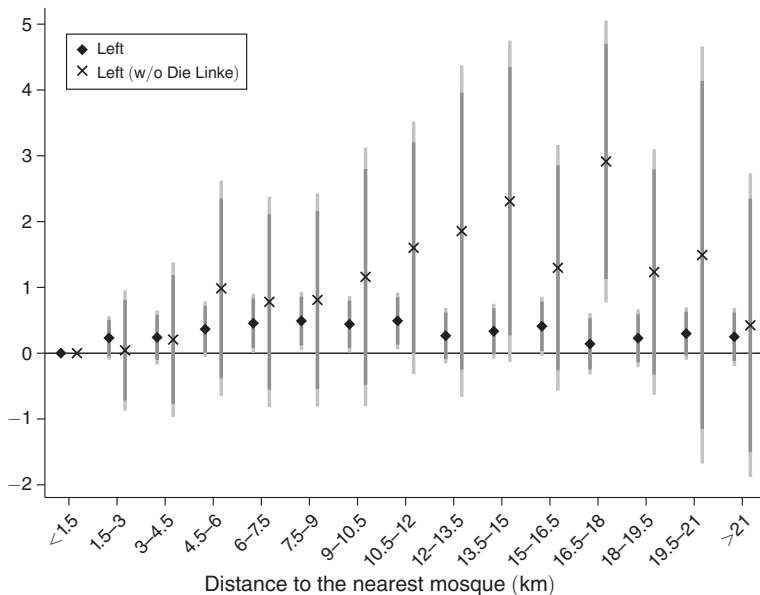
Panel B. Right-wing parties
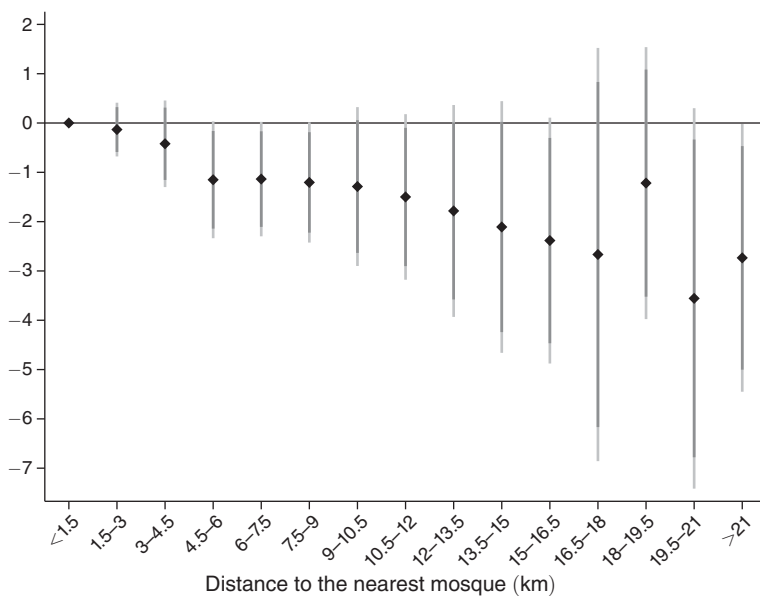
FIGURE 5. ELECTORAL EFFECT AND DISTANCE TO THE MOSQUE—BERLIN

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 *Die Linke* party. The average vote share for far-left parties without *Die Linke* is 0.44. 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 1,500 meters away from the mosque has been normalized to 0; estimates of this coefficient are shown in Table 4. The vertical lines denote 95 percent and 90 percent 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*-statistics equal to 11.31 (*p*-value = 0.000), 32.99 (*p*-value = 0.000), and 9.34 (*p*-value = 0.000), respectively.

Blocks between 0 and 1,500 meters are used as a comparison category. The figure reports coefficients from two separate regressions: in the first one, the dependent variable is the vote shares for left-wing parties (dark gray triangles), while in the second one (light gray crosses), we excluded the *Die Linke* party from the group of left-wing parties. Using this nonlinear specification, the effect on left-wing parties 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 left-wing parties is stronger when we exclude the *Die Linke* party, as this party may be considered as "established" in East Berlin (and nowadays is part of the ruling coalition). The same regression coefficients on the support for right-wing parties are shown in panel B of Figure 5: the effect becomes smaller with the distance to the nearest mosque. The estimated effects at different distances for each dependent variable are statistically different from each other.[21] These results also suggest that the effect on left-wing vote shares is not due to a direct exposure to Muslims but rather could be driven by exposure to right-wing rallies and propaganda, i.e., second-order salience. We discuss this second-order salience mechanism in further detail in Section V.

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 is consistent with a NIMBY (not in my backyard) explanation: close proximity to Muslim communities generates negative attitudes of the majority group toward them, while support for left-wing parties increases.

D. *Mechanisms: 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 (2014), in which roughly 3,000 German residents were interviewed between August 2014 and February 2015. The European Social Survey (ESS) 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 online Appendix B. We exploit variations in the interview date to determine whether respondents differ in their expressed opinion about Muslims and their political orientation when they are interviewed close to Ramadan. We estimate

$$(2) \qquad y_i \, = \, \gamma_0 + \gamma_1 \, Ramadan_i + \gamma_3 X + \epsilon_i,$$

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 percent. Figure A.2 in the online Appendix plots

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[21] We reject the hypothesis of the equality of the coefficient in the three regressions as the *F*-statistics are highly significant; in particular, the *F*-statistics for left-wing (with and without *Die Linke*) and right-wing are 32.99, 9.34, and 11.31, respectively.

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 toward minorities and political preferences.

The ESS provides information about respondents' opinions toward minorities and immigration as well as political preferences and socioeconomic characteristics.[22] Table 5 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 a 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. Indeed, respondents interviewed during and just after Ramadan 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.

Ramadan specifically influences attitudes toward Muslims compared with other ethnicities. We interpret this finding in the sense of a 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 your country?" The respondent has four choices ranging from "allow many" (1) to "allow none" (4). The regression results show that treated individuals have less favorable attitudes toward Muslims than nontreated 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 foreign-born individuals living in a municipality. We use answers to the question "Of every 100 people in Germany, how many are born outside of Germany?" to compute the log share of perceived foreigners as the dependent variable in panel F. The perceived share of foreigners increases by about 9 percent when the survey takes places within 3 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 emphasizes cultural dissimilarities between the minority and majority. During Ramadan, respondents also perceive "White" and "Christian" as more desirable attributes of immigrants (panel H), while the level of education does not seem to be a relevant characteristic. To what extent these changed perceptions are driven by

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[22] Table A.14 in the online Appendix reports descriptive statistics of all dependent variables analyzed.

TABLE 5—RAMADAN AND INDIVIDUAL ATTITUDES

	OLS		Probit	
	(1)	(2)	(3)	Observations
Panel A. Political extremism				
Ramadan	0.0273	0.0237	0.0226	
	(0.0097)	(0.0099)	(0.0069)	2,884
Panel B. Right-wing extremism				
Ramadan	0.0118	0.0107	0.0105	
	(0.0044)	(0.0043)	(0.0033)	2,884
Panel C. Left-wing extremism				
Ramadan	0.0155	0.0130	0.0128	
	(0.0087)	(0.0086)	(0.0064)	2,884
Panel D. Anti-Muslims attitudes				
Ramadan	0.0413	0.0316	0.0427	
	(0.0175)	(0.0157)	(0.0177)	2,942
Panel E. Anti-Jewish attitudes				
Ramadan	−0.0122	−0.0133	−0.0129	
	(0.0161)	(0.0163)	(0.0164)	2,945
Panel F. Foreign-born (perceived percent)				
Ramadan	0.0856	0.0937		
	(0.0336)	(0.0345)		2,894
Panel G. Cultural dissimilarities attitudes				
Ramadan	0.0429	0.0338	0.0438	
	(0.0208)	(0.0192)	(0.0208)	2,988
Qualification for immigrants				
Panel H1. Being White				
Ramadan	0.0063	0.0056	0.0063	
	(0.0032)	(0.0034)	(0.0025)	2,989
Panel H2. Being Christian				
Ramadan	0.0079	0.0067	0.0071	
	(0.0037)	(0.0038)	(0.0029)	2,988
Panel H3. Being educated				
Ramadan	0.0003	−0.0088	0.0017	
	(0.0138)	(0.0136)	(0.0134)	2,987
Controls				
Region fixed effects	Y	Y	Y	
Individual characteristics	N	Y	N	

Notes: Data from the seventh 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 (and age squared) and dummy variables for gender, country of birth, education level, place of residence, 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.

the extensive margin of higher visibility in news and public life or by an intensive margin of actually different Muslims' behavior during Ramadan still remains an open question.

V. Discussion

A. *Why Do We Observe 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 initially seem counterintuitive. In the following, we provide a rationale for the political polarization observed based on observed protest patterns of the German Left and Right.

Where does the observed effect on the Left stem from? While the German extreme Left has occasionally served marginalized social groups with antiglobalization, anti-immigration positions, left-wing platforms predominantly support open borders and "melting pot" policies. Therefore, there is no obvious direct effect to be expected. Instead, we attribute the strong response on the Left to a counterreaction 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 is an artifact of the responsiveness of the Left to right-wing activities. In Germany, mobilization against the extreme Right is considered as a huge identifying element of the Left dating back to the 1960s (Backes 2007, Jesse 2013).[23]

Countermobilization can happen through a variety of channels, e.g., through media debates, protests, or nowadays social media campaigns and discussions. We draw from two different data sources to support the idea that a reaction on the Left through countermobilization is a plausible mechanism explaining the significant salience effects on both the Right and the Left.

First, we focus on tweets about the currently most successful left- and right-wing parties (*Die Linke* and *AfD*, respectively). The salience shock increases tweets about both the Right and the Left by a similar magnitude (online Appendix Table A.15). Tweets about both *Die Linke* and *AfD* increase by more than 40 percent during Ramadan in areas with mosques. Hence, salience shocks appear to systematically alter the structure of social media debates. While no direct empirical link between these debates and the electoral results can be established in our data, this result supports the occurrence of similar salience shocks on both sides of the political spectrum.

Second, we support the idea that increased activity on the Right likely triggers a countermobilization on the Left by employing data on German protests from PRODAT, a comprehensive dataset on protest events in Germany between 1950 and 2002 (PRODAT 2002). We use information on the political background of protests

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[23] 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 postwar West Germany (*Vergangenheitsbewältigung*). Furthermore, increasing right-wing radicalism after Germany's reunification in 1990 gave rise to a massive countermovement by the extreme political Left (Rucht 2013).
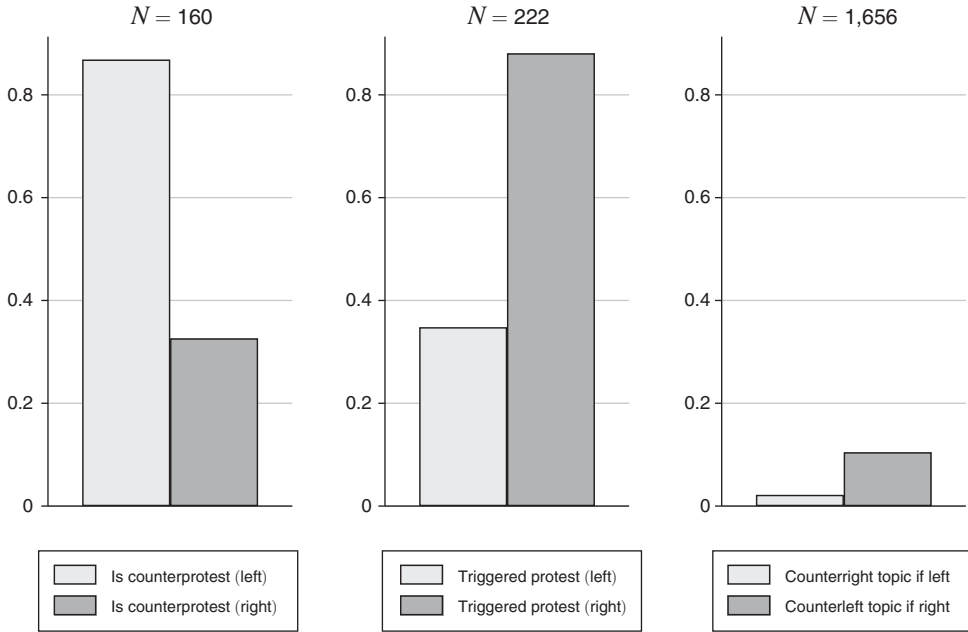
FIGURE 6. LEFT- AND RIGHT-WING PROTESTS BY TOPIC AND TRIGGER

Notes: The left panel displays shares of left- and right-wing topics that are characterized as counterprotests. The middle panel displays shares of left- and right-wing protests that have triggered a counterprotest. The right panel displays shares of left- and right-wing protests that can be clearly assigned as addressing the political opponent. Numbers of observations with relevant information.

Source: Own calculations using PRODAT database.

(left versus right) as well as whether a protest was considered a counterprotest or triggered a counterprotest. The data reveal a robust pattern of differences in the ability of the Left and Right in terms of topics and counterprotest culture. Figure 6 reveals a clear pattern. Almost 90 percent of left-wing protests with the relevant information in the data are classified as being triggered by a right-wing protest, while only about one-third of right-wing protests are considered a counterprotest. Vice versa, while only one-third of left-wing protests triggered a right-wing counterprotest, almost 90 percent of right-wing protests were accompanied by a left-wing counterprotest.

B. *Economic Significance*

Increased Muslim salience affects individual attitudes and voting behavior: right-wing parties increase their vote share by 0.12 percentage points. The small size of the estimates is to be expected given that only a small share of the municipality population is directly exposed to mosques and Muslims during Ramadan. Even in municipalities with at least 1 mosque, the corresponding population that may be affected is extremely small; on average, the number of mosques is 1 every 50,000 inhabitants and 1 every 65 square kilometers, respectively.

We then expect the effects to be larger as the exposed population increases. For instance, the analysis of electoral results in Berlin shows larger effects when we consider as treated only voters living nearby a mosque: electoral districts within 1,500 meters from the nearest mosque experience an increase in right-wing vote share of about 0.8 percentage points. In addition, we estimate equation (1) replacing the *Mosque* dummy with a variable indicating the number of mosques per square kilometer; i.e., we normalize the treatment by the land area of the municipalities in NRW. Results in online Appendix Table A.16 show that the vote share of right-wing parties increases by almost 8 percentage points during Ramadan in municipalities that have 1 additional mosque per square kilometer, i.e., 0.8 percentage points increase every additional mosque per 10 square kilometers. Similarly, in columns 3 and 4, we replace the mosque indicator with the number of mosques per capita; results are similar: during Ramadan, the vote share of right-wing parties increases by about 3 percentage points in areas where there is an additional mosque every 1,000 inhabitants.

Despite the size of these effects, the results are economically meaningful for at least three reasons. First, 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, Egorov, and Fiorin (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.[24]

Finally, the question arises how our estimates of a minority salience effect relate to the right-wing surge in the 2017 elections in Germany, resulting in a right-wing party winning 12.6 percent of votes for the national parliament. Previous studies (Autor et al. 2019; Dippel, Gold, and Heblich 2015) 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. 2019). Therefore, we test how the electoral effects of a shock to minority salience change with economic downturns. Online Appendix Table A.17 shows regression results for a triple interaction between the presence of a mosque, the occurrence of Ramadan, and employment growth in

[24] In the 2012 NRW state elections, the total number of votes that a party needed to become eligible for public funding was roughly 80,000 votes, i.e., 1 percent of the valid votes, or about 200 votes on average in each of the 396 municipalities. The average increase in the vote share of right-wing parties estimated in panel A of Table 1 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 each year until the next state elections (Deutscher Bundestag 2015).

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 (Dippel 2014; Grosfeld, Rodnyansky, and Zhuravskaya 2013; Sakalli 2016). Hence, our findings show that changes in Muslims' visibility only affect small shares of the electorate, although this is significantly amplified when these changes coincide with negative economic conditions.

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, whereas these findings have not been demonstrated in field settings before.

VI. Conclusion

In this paper, we establish a causal link between the exposure 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 on individual attitudes in a difference-in-difference framework. We thus examine how elections happening closely after Ramadan lead to differential vote shares for extremist parties in municipalities with and without the presence of a mosque.

Both right- and left-wing parties gain substantial support in response to the higher salience of Muslims. By focusing on shares of eligible instead of actual votes, we ensure that this effect is not driven by reduced turnout of Muslims. Effects on right-wing party support are amplified during economic downturns. Individual-level attitudes reveal that people interviewed during or shortly after Ramadan have less favorable attitudes toward Muslims and they also perceive a larger share of foreign-born persons living in the country. In addition, the obtained evidence suggests that immigration concerns play a stronger role in determining individual political orientation during Ramadan.

While previous studies have primarily focused on the relative size of the immigrant population, this paper investigates the role of the visibility of minorities. The effect on the Right may be explained by 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 provide descriptive evidence suggesting that the positive effect on left-wing vote shares is due to a "second-order" salience effect. The Left gains support through counterrallies and protest behavior against increased right-wing support.

To the best of our knowledge, this is the first paper that establishes a causal link between ethnic minority salience and voting decisions using observational data. Our

results provide insights into an important mechanism behind the empirical relation between immigration and extremist voting. We argue that the effect of salience is a prerequisite for a causal effect of immigrants' share on voting; thus, our results reinforce the existing body of literature identifying the causal effect of immigration on extremist parties' success.

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