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## Terrorism and Misperceptions: Evidence from Europe

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# Terrorism and Misperceptions: Evidence from Europe

## Abstract

How does exposure to Islamist terrorism change perceptions of the share of Muslims and immigrants? We conduct a large-scale survey that measures misperceptions towards minority groups in four European countries. Our results show that terror attacks in the past increased misperceptions of the share of Muslims and immigrants. We also contend that this increase in misperceptions is particularly large and significant for lower-educated respondents and people from regions with a low share of the foreign population. Given that misperceptions are higher on average in regions with a large share of foreigners, terror attacks make misperceptions across different groups converge.

JEL-Codes: D700, H110, H120, H410, I180.

Keywords: terror attacks, misconceptions, public opinion, cognitive biases, prejudice, attitude formation.

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# 1 Introduction

Our perceptions (or misperceptions) significantly affect our behavior and attitudes and potentially shape social norms in a community (Bursztyn and Yang 2021). For instance, taste-based discrimination may stem from erroneous beliefs (Benjamin 2019) and can lead to a misallocation of resources (Becker 1957). Misperceptions are widespread, prevalent across factual domains (inflation, income, population), and typically larger toward outgroups (Bursztyn and Yang 2021). At the same time, misperceptions are more prevalent among older, female, less educated, and low-income respondents in the U.S (Alesina, Miano, and Stantcheva 2018). Similarly elevated misperceptions are also reported in Europe (Sides and Citrin 2007; Arin et al. 2021). It is crucial for both academics and policymakers to understand the causes and consequences of misperceptions. So far, the drivers of misperception are largely *terra incognita*; in particular, little is known about which events and/or processes can elevate or lower misperceptions at the individual level.

In this paper, we investigate the relationship between terrorism and misperceptions. Specifically, we exploit terror attacks as shocks that shift attention to outgroups. We conducted large-scale surveys in four European countries: France, Germany, Spain, and the United Kingdom, with more than 16,000 respondents. Using geocoded information on our respondents, we merged our survey-based misperception measures with the incidence of terrorism using the Global Terrorism Database (GTD). We hypothesize that people who live close to a place where an Islamist terror attack occurred may have higher misperceptions of the share of immigrants and Muslims compared to people who did not experience a terror attack in their proximity. Previous literature has found that misperceptions are more significant in magnitude when the outgroup is particularly salient (Sigelman and Niemi 2001). This can be due to spatial or social proximity. For instance, whites living close to Black neighborhoods show a stronger overestimation of the share of the Black population (Sigelman and Niemi 2001), and middle-income households tend to overestimate top incomes more as the top-income group represents their aspiration levels. Salience may also be fostered when a group in a society gets more media attention (Czymara and Dochow 2018).

We also investigate misperceptions regarding other societal dimensions (poverty, unem-

ployment); a terror shock may or may not lead to elevated misperceptions here depending on whether the attack increases the salience of the respective socioeconomic group (poor, rich). Previous studies showed that misperceptions are heterogeneous across the population, e.g., they are significantly higher for women and lower-educated fractions (Arin et al. 2021). It is not clear where this heterogeneity comes from. It might very well be that some social groups react more strongly to signals or shocks, for instance, because of differences in media consumption or attention span for outgroups. Suppose the observed differences in misperceptions are not completely exogenous or genetically determined. In that case, we expect that the heterogeneity patterns observed in previous studies also hold for the misperception reactions following a terror shock.

Our results, in line with our expectations, indicate that immigration and Muslim misperceptions increase with the proximity to Islamist terror attacks. We also find that terror attacks' effect on misperceptions is more substantial for women and less educated respondents. Moreover, the magnitude of the effects of terror attacks on misperceptions is larger in areas with a lower share of foreigners, i.e., the marginal salience effect is more substantial for the less cosmopolitan areas. As the initial level of misperceptions is larger in regions with a higher share of foreigners, the larger marginal salience consequently leads to a convergence of misperceptions between cosmopolitan and less-diverse regions.

We also demonstrate that the effects are long-lasting; people who experienced an Islamist terror attack in their regions a long time ago (2000-2014) have roughly the same elevated misperceptions as people who experienced such an attack more recently (2015-2019). However, we find no discernible relationship between exposure to Islamist terrorism and misperceptions about the economic environment as measured by unemployment and poverty. This makes the salience hypothesis a plausible explanation of the above findings since Islamist terror attacks are more likely only to create heightened attention towards outgroups that are generally linked to such events in the public perception and unlikely to increase the salience of economic processes.

Our comprehensive survey in four major European countries allows us to study commonalities and differences in the impact of terrorism on misperceptions. Islamist terror attacks are fairly new in all four countries; the threat has only taken a permanent position in the public

perception post 9-11. However, the four countries have quite different histories of other terrorist threats. Older people in the UK may still have the IRA bombings in their minds, but the risk of terror attacks had more or less vanished after the Good Friday Agreement of 1998. In Spain, it was the Basque separatist movement whose terror attacks had cost many lives; the ETA did not completely renounce its 50-year lasting war against the Spanish government before 2018. French and Germans faced minimal terror risks in their everyday lives. Most media attention was given to left-wing radicals who abducted and killed politicians and top executives in the 1970s and 1980s. Hence, the Islamist terror of the last twenty years has been a new phenomenon in all four countries, but it happened against entirely different backgrounds. This also provides us with a potential check by considering all non-Islamist terror attacks that took place in the vicinity of our respondents. We find no effect of these attacks on the misperceptions towards Muslims or immigrants, ruling out the influence of confounders that make a region more conducive to violent events.

To the best of our knowledge, this is the first paper to investigate the relationship between terrorism and misperceptions. We, therefore, highlight a previously neglected mechanism of long-term damages from terrorism. Many impacts of terror attacks are transitory. The change in misperceptions, however, is long-lasting. As misperceptions may shape attitudes and behavior, such shifts in misperceptions may alter the political landscape in the long run.

## **2 Previous Literature**

### **2.1 Terrorism and Political Behavior**

After a terror attack, most personal consequences, such as changes in mood and life satisfaction, tend to be only temporary (Luhmann and Bleidorn 2018). However, several studies argue that terrorism shapes political behavior. There is a strong consensus that terror experience increases the inclination toward voting participation. On the other hand, the impact on voting choices is mixed. Spanish data on ETA terrorist attacks shows that terrorist attacks increase individuals' intent to participate in democratic elections but do not change their party preferences (Balcells and Torrats-Espinosa 2018). Conversely, district-level Turkish data suggest that exposure to

terrorism increases the vote share of the right-wing parties (Kibris 2011). The results of Kibris (2011) are consistent with Hersh (2013), which uses government records for those who lost relatives on 9/11 and reports an increase in allegiance to the Republican party after the attacks. However, the political consequence of a terror attack might not so much be a shift to the right but that voters blame the party in government for mismanagement. Montalvo (2011) compares voters who voted before and after the 2004 Madrid attack and finds a significant reduction in the electoral support of the incumbent party. Terror attacks may not only lead to repositioning in the political left-right spectrum but also to revaluations of crucial qualities of top politicians.

Another strand of the literature concentrates on the "Rally-Around-The-Flag" effect (Montalvo 2011). "Rally-Around-The-Flag" refers to the short-term surge in voter approval as the nation unites behind its leader during a crisis or emergency. After a terrorist incident, the likelihood of having confidence in the national government increases by 6 to 11 percentage points, and the likelihood of approval of the country leader's performance rises by 8 to 13 percentage points (Chen 2022). Chen (2022) also provides evidence regarding the channels through which this effect is disseminated and shows that the increase in political trust and support was mainly driven by patriotism and the civic engagement of citizens. The "Rally-around-the-flag" effect may be conditional on whether there are human casualties (Belmonte 2020). In South Tyrol, the Italian-speaking minority reacted to increased terrorist attacks by punishing the government party at the ballot box. However, when terror prompted casualties, the rally-around-the-flag effect was prevalent; even the German-speaking population turned away from the party representing their interests (SVP). Also, the salience of the terror attack is important (Peri, Rees, and Smith 2021). Using European Social Surveys (ESS) data, Peri, Rees, and Smith (2021) document that respondents living in the attacked region tend to express more trust in parliament and more satisfaction with the national government in the post- as compared to the pre-attack period. Particularly salient terror attacks produce nationwide rally-around-the-flag effects.

Finally, several papers investigate the effect of exposure to violence on socioeconomic and political attitudes. A terrorist attack changes the willingness to trade security for liberties (Bozzoli and Müller 2011), and voters may emphasize leadership qualities in times of terrorist threat (Merolla and Zechmeister 2009).



## 2.2 Misperceptions

Over the last 20 years, impressive literature has emerged demonstrating the systematic perception biases in the population regarding various policy areas such as immigration, inflation, inequality, or poverty. Here we focus on misperceptions of the share of ethnic/religious minorities and foreign-born populations. In our empirical analysis, we also use misperceptions about unemployment and poverty as a falsification test.<sup>1</sup> The literature consistently shows the systematic overestimation of ethnic minorities and foreign-born populations. For instance, more than half of the American population estimated the share of the black population at 30 percent or more, whereas the actual number was around 12 percent (Nadeau, Niemi, and Levine 1993). A longitudinal study for the US shows that these misperceptions have grown over time, especially among politically conservative Americans (Herda 2019). European studies primarily focus on the share of the foreign-born population and also find highly exaggerated estimates (Sides and Citrin 2007; Semyonov, Raijman, and Gorodzeisky 2008; Herda 2010; Alesina, Miano, and Stantcheva 2018).

Perceptions are often more important for policy stances than the actual size of the foreign-born population (Gorodzeisky and Semyonov 2020). For instance, a higher perceived share of immigrants reduces the support for redistributive policies (Alesina, Miano, and Stantcheva (2018) for Europe, Steele and Perkins (2019) for New York City) and increases the support for more restrictive immigration policies (Herda (2020) for Canada). There is also a relatively consistent picture of the socio-demographic determinants of misperceptions, which are more prevalent among older, female, low-educated, and low-income respondents (Herda 2010; Sides and Citrin 2007; Semyonov, Raijman, and Gorodzeisky 2008; Arin et al. 2021).

Academic research has addressed whether the salience of minorities drives misperceptions. On the one hand, the lack of personal contact could lead to inflated misperceptions; people in rural, ethnically homogeneous areas would have larger misperceptions. On the other hand, seeing people from diverse backgrounds could induce people to take the everyday experience in

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<sup>1</sup>For a survey that includes left-wing misperceptions on poverty and top incomes, see Arin et al. (2021). There, we use the same dataset and show that people substantially overestimate the share of immigrants, Muslims, people under the poverty line, and the income share of the richest. We investigate the socio-economic determinants of these misperceptions. In a controlled experiment, we also try to correct misperceptions.

their neighborhood as representative of the entire country; in that case, people in heterogeneous cities would have larger misperceptions. The existing studies lean towards the second hypothesis: salience creates inflated misperceptions. For instance, Sigelman and Niemi (2001) find that white respondents who live in an area with a large black population exhibit higher misperceptions of the share of the African-American population in the US. Nadeau, Niemi, and Levine (1993) also demonstrate that direct contact with minorities inflates estimates. For Europe, Herda (2010) shows that misperceptions are higher among those with neighborhood contact with immigrants, but city residency per se is insignificant.

### **3 Data**

We conducted large-scale surveys in four European countries: France, Germany, Spain, and the United Kingdom. The survey was designed and programmed by the authors via Qualtrics, and was administered between March 3 and March 30, 2020, in all four countries by the company Respondi (<https://www.respondi.com/EN/>), which has access to representative samples of respondents to whom they send out survey links by email. The survey was administered to 31,568 respondents in the national language.<sup>2</sup> The average time for the survey was 24 minutes, and the respondents were paid only if they completed the survey. We removed respondents who did not complete the demographic part of the questionnaire and who completed the survey either very fast (in less than 5 minutes) or very slowly (more than two hours). Our final sample includes 19,690 respondents aged 18 to 70 who completed the questionnaire. The sample is close to representative in each country (see Table C.1 in Appendix C). The sample sizes are 5,332 for Germany, 4,969 for France, 4,872 for the United Kingdom, and 4,517 for Spain. Not all respondents filled out all the questions that we used as outcomes. Therefore, the sample sizes vary by the outcome. Summary statistics can be found in Table C.2 in Appendix C.

We use the Global Terrorism Database (GTD) to construct our measures of exposure to terrorism in our sample. The GTD provides latitude and longitude information on all attacks having taken place worldwide from 1970 to 2020 that can be labeled as terrorism. The GTD is maintained by the University of Maryland and is regularly employed in academic research across

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<sup>2</sup>For the English version of the survey, see Appendix A.

disciplines (LaFree and Dugan 2007; LaFree 2019). Given that our survey data also include geocodes, we match an attack between 2000-2019 to respondents in our survey if they were located within 25 kilometers of the attack. This defines our baseline treatment indicator. We consider both successful as well as attempted but eventually unsuccessful attacks. The latter is defined as attacks planned by perpetrators but failed to materialize fully. For instance, a planted bomb failed to explode, or a lorry driver was arrested before mauling pedestrians, etc. In addition, and most importantly, the GTD also records information on who claimed responsibility for the attack or was found to be responsible by the authorities. This helps us separate attacks into those conducted by Islamist outfits and those carried out by other organizations like environmental groups, political dissidents, etc.

In our sample period, we recorded 171 attacks within Europe labeled as Islamist. Around 70% of these attacks were carried out in the four countries that our survey was conducted in.<sup>3</sup> Regarding the perpetrators, 19 attacks were carried out by Al-Qaeda, 15 by ISIS, and 102 were carried out by Muslim/Jihadi-inspired outfits or individuals. The average number of fatalities in these attacks was slightly over 4, with a standard deviation of 13. In addition, we have close to 4,000 attacks during the above sample period, which are non-Islamist, over half of which are carried out by unknown perpetrators. Among the identified perpetrators, the largest category is the Euskadi Ta Askatasuna (ETA) in the Basque region of Spain, responsible for about 6% of the attacks. Each of the non-Islamist attacks resulted in 0.12 deaths on average, with a standard deviation of 1.26. In other words, the Islamist attacks are likely to provide a much bigger shock and hence are more likely to be salient for the average population.

## 4 Methodology

We use the following simple econometric specification,

$$MI_{is} = \alpha + \beta_1 \text{Error Islamist}_{is} + \beta_2 \text{Error Other}_{is} + \mathbf{X}'_{is} \boldsymbol{\gamma} + \lambda_s + \varepsilon_{is} \quad (1)$$

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<sup>3</sup>Since we define treatment based on the proximity of a respondent's physical location to a terror attack, we will also pick up some incidents that happened within Europe but beyond the borders of these countries.

where  $MI_{is}$  represents different measures of misperceptions calculated as the difference between the number estimated by each individual  $i$  living in the region (NUTS2)  $s$  and the actual number from official statistics (See Appendix B).<sup>4</sup> These include misperceptions about the share of Muslims in the country, the share of immigrants, the share of unemployed individuals, and the share of people below the poverty line.

In Figure 1 and Figures C.1 - C.3 in Appendix C, we present the average misperceptions by NUTS2 region for the four countries. A casual look at the heat maps reveals that misperceptions vary across the regions. Interestingly, Muslim misperceptions seem to be higher in regions where terror attacks happened in the past (e.g., southern regions of France) or regions with a large immigrant Muslim community (e.g., English Midlands or Southwest Germany). By contrast, misperceptions seem to be lower in regions where the share of the foreign-born population is low (e.g., Eastern Germany). In regions with a larger share of immigrants, people may rely on stereotypes and generalizations – especially in the lack of meaningful intergroup contact. Negative incidents, such as terror attacks, may reinforce preexisting stereotypes about Muslims, leading to increased misperceptions and cognitive biases.

Our main variable of interest is  $Terror\ Islamist_{is}$  which takes the value 1 if an Islamist fundamentalist terror attacks occurred within 25 kilometers (km) of the respondent's residential location measured by the exact latitude and longitude. The exact locations of Islamist terror attacks are also displayed in the maps in Figure 1. The variable,  $Terror\ Other_{is}$ , measures all terrorist attacks carried out by non-Islamist outfits. This provides an important check on whether the estimated effect is only due to a potential shock and/or general violence effect as opposed to the salience inherent in Islamist attacks vis a vis their impacts on our outcomes of interest. The vector  $X$  contains a set of individual-level controls, including gender, nonparametric controls for 5-year age cells, levels of educational attainment, labor market status, and dummies for marital status and whether the respondent was unemployed anytime during the last 5 years. Finally and crucially, we add a region-level fixed effect, ensuring that we compare individuals within broad administrative regions but who differ in whether they were close to a terror attack.<sup>5</sup> The error

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<sup>4</sup>NUTS refers to the Nomenclature of Territorial Units for Statistics. It is the European geocode standard for referencing the administrative divisions of countries for statistical purposes.

<sup>5</sup>We use the NUTS2 administrative boundaries that we merge with our survey and GTD data.

term is represented by  $\varepsilon_{is}$ , and we cluster the standard errors at the NUTS2 level as well.

Terror attacks are unlikely to be randomly distributed across space and time; hence, equation (1) faces standard endogeneity concerns. Compared to the previous literature, our geocoded data allows us to use individuals within the same NUTS2 region but more than 25 km away from the incidence of the attack as a control group. This mitigates the problem of endogenous location choice by terrorists under the assumption that the treatment effects are salient only for the population living close to the attack. Nevertheless, it does not fully resolve all the other perils of causal inference faced by the empirical literature in this domain.

We conduct a number of checks to establish the degree of confidence we have in uncovering the causal link between terror attacks and misperceptions. First, we add an indicator for non-Islamist terror attacks, which helps highlight the salience of Islamist attacks as opposed to a response to general violent events. It also helps rule out security lapse-related confounders; for instance, a community with weak civic bonds and hence less engagement with law enforcement might be more prone to terror attacks. These confounders might also contribute to the higher prevalence of misperceptions towards outgroups.  $\beta_2$  helps us study the importance of such concerns.

Second, it can be the case that terrorists, particularly Islamist operators, target population centers that already harbor high misperceptions towards Muslims. This reverse causality can lead to a spurious positive relationship between Islamist attacks and misperceptions. To explore this concern, we add separate indicators for successful and failed Islamist attacks to Equation (1). Suppose our findings are driven by reverse causality. In that case, the failed attack coefficient should be similar or at least positive, as the choice of targeting a region by terrorists is already made in both instances. The failure of the attack is more likely to be a function of variables close to the event, such as the success of intelligence-based police operations, failure in detonation devices, etc.

## 5 Empirical results

Table 1 shows the effect of residing in an area where a terror attack happened within 25 kilometers on the four misperception indices. Each model is estimated using only the region-fixed effects

in the odd columns, whereas the even columns add our full set of controls. Panel A shows the effect of Islamist and non-Islamist (e.g., Euskadi Ta Askatasuna-ETA or Irish Republican Army-IRA) attacks on misperceptions. The fully controlled specification in column (2) tells us that if an Islamist terror attack happened within a 25 km radius, people's misperceptions about the percentage of Muslims increase by about 0.9 percentage points from an already high mean of 16.7% (significant at the 10% level). In the following two columns, we consider the effect of Islamist terrorism on immigration misperceptions. We estimate a significant increase in immigration misperceptions by about 1.8 percentage points from a mean of 12.3%. On the other hand, we do not find an effect of Islamist terror attacks on unemployment and poverty misperceptions. Also, here, respondents have significant misperceptions about basic societal facts; they overestimate unemployment by 15 percentage points and poverty by 11 percentage points.<sup>6</sup> This pattern of results makes sense as the salience created by Islamist terror attacks is more likely to have a direct link to perceptions about Muslims as well as immigrants, given that the latter debate in popular media has increasingly focused on Muslim immigrants in the wake of the Syrian refugee crisis. The null effects on the economic outcomes thus help underscore the salience channel argued above.

A key pattern in the point estimates for the incidence of Islamist terror is their stability across the uncontrolled specification, odd columns, and the fully controlled one, even columns. This provides suggestive evidence that conditional on region fixed-effects, Islamist terror attacks are as good as random as the addition of a detailed set of background and demographic characteristics of the respondents barely changes the impact sizes.

The second row in Panel A reports findings for all other terror attacks that took place within a 25 km radius of our respondents. We consistently estimate no discernible relationship between these other attacks and any of our misperception outcomes. This highlights that the above results are not only due to exposure to violent events and/or civic disturbance.

Panel B adds indicators for successful and failed Islamist terror attacks. This provides a crucial check for potential reverse causality concerns, as outlined above. It appears that suc-

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<sup>6</sup>These results on the base level of misperception are consistent with most previous studies which document significant misperceptions across several dimensions, like Herda (2010), Sides and Citrin (2007), Semyonov, Rajzman, and Gorodzeisky (2008), Herda (2019), Malul (2019), and Cardoso, Loviglio, and Piemontese (2016).

cessful terror attacks entirely drive the effect of Islamist terror attacks on Islam and immigration misperceptions. Failed terror attacks do not seem to affect any of the misperceptions indices. The point estimates for misperception towards Muslims are particularly small, close to zero, and negative. If terrorists targeted only places with high misperceptions towards Muslims, these point estimates should have also been positive. Thus the null findings here give us confidence in a causal interpretation of our findings.

Several individual-level factors are significant in shaping misperceptions and their magnitudes (Alesina, Miano, and Stantcheva 2018; Buchanan 2020). In the following three tables, we assess potential heterogeneous effects by gender, education, and the share of foreign people within the area. Table 2 indicates that females drive the positive effect of Islamist terror attacks on Islam and immigration misperceptions. Males' misperceptions are not significantly affected. We should note that the baseline bias is already higher among female respondents in all four dimensions of misperceptions. The higher overestimation of the immigrant population among female respondents has been consistently demonstrated in previous studies (Alesina, Miano, and Stantcheva 2018; Dylong and Uebelmesser 2022). A terror attack in the vicinity furthers their misperceptions of the shares of immigrant and Muslim populations.

Table 3 shows the regression results for a sample split along the education dimension. Respondents with at least a college degree have lower baseline misperceptions in all four dimensions. Their misperceptions do not change after having experienced an Islamist terror attack within a 25 km radius. In contrast, people who have not finished college exhibit an extra overestimation in the percentage of immigrants by more than two percentage points from a baseline misperception of 14%. They also show an elevated overestimate of the share of Muslims after an attack, although this estimate is only significant at the 10% level. Table 4 also indicates that the effects are mostly driven by older people (above the age of 35).

Table 5 shows that people's misperceptions tend to increase after an Islamist terror attack in areas where the share of the foreign population is less than 20%. In areas where immigrants are salient (more than 20%), Islamist terror attacks do not appear to influence misperceptions. Note that the baseline misperceptions of the share of the foreign population are higher in regions with a large immigrant share. This aligns with the salience hypothesis (Sigelman and Niemi 2001;

Nadeau, Niemi, and Levine 1993; Herda 2010), which claims that people tend to extrapolate local conditions for the entire society. Even though there is a general tendency to overestimate the outgroup of foreign-born, this tendency is even stronger when there are many foreign-born people in the neighborhood. The terror attack now leads to an additional upward bias in the perception among respondents with little contact with the foreign-born population. Overall, terror attacks lead to a convergence in immigrant misperceptions.

Finally, we investigate country differences. Table 7 shows the results from the baseline regression for the four countries separately. The elevated immigration misperceptions after an Islamist terror attack in the vicinity are very pronounced in Germany and France. We do not find this effect in the other two countries – the impact is even significantly negative in Spain. One hypothesis requiring further investigation in future research is that Islamist terror only leads to elevated misperceptions of the foreign-born population if a country does not have a long tragic history of terror attacks. Spain and the UK had experienced terror from ETA and IRA, respectively; hence, the Islamist terror was not an entirely new shocking experience. In Germany and France, the terror against the general population had no precedents; therefore, attacks may have induced an elevated misperception of outgroups. This finding may also help to explain the – at first sight – somewhat puzzling results in Spain: Islamist terror attacks slightly reduced misperceptions of the foreign-born population. However, the effect is even more negative when a non-Islamist attack occurs in the vicinity. The attack redirects attention away from the outgroup ‘foreign-born’ towards the old outgroup of ethnic or linguistic minorities from within Spain.

We now present some robustness checks that probe the aptitude of the above design. In table 6 Panel A, we first look at the time dimension. Are elevated misperceptions driven by recent terror attacks or terror attacks that occurred several years ago? We compare the impact of recent (2015-2019) and previous (2000-2014) attacks. In this sample split, the baseline misperceptions are very similar. Recent and previous terror attacks lead to elevated misperceptions of the share of immigrants, though the effect of recent attacks is only significant at the 10% level. The highly significant effect of previous terror attacks suggests that the effect of terror attacks on misperceptions is long-lasting.

In panel B, we use respondents that have seen any form of non-Islamist terror attacks in



the past, assuming that areas more prone to any kind of violence might provide a better and more comparable control group. Again, we uncover point estimates very similar to our baseline findings, albeit misperceptions towards the share of the Muslim population are actually slightly higher. In Panel C, we add population density controls at the NUTS3 level, which is a finer geographic aggregation than the baseline regional fixed effect in our main specifications. This is motivated to capture any confounding differences due to the endogenous sorting of individuals into denser urban populations as opposed to sparser rural ones, which may, in turn, be predictive for both terror attacks and misperceptions. Once again, our point estimates are very similar in magnitude and statistical significance compared to the baseline presented in Table 1 Panel A.

## **6 Discussion**

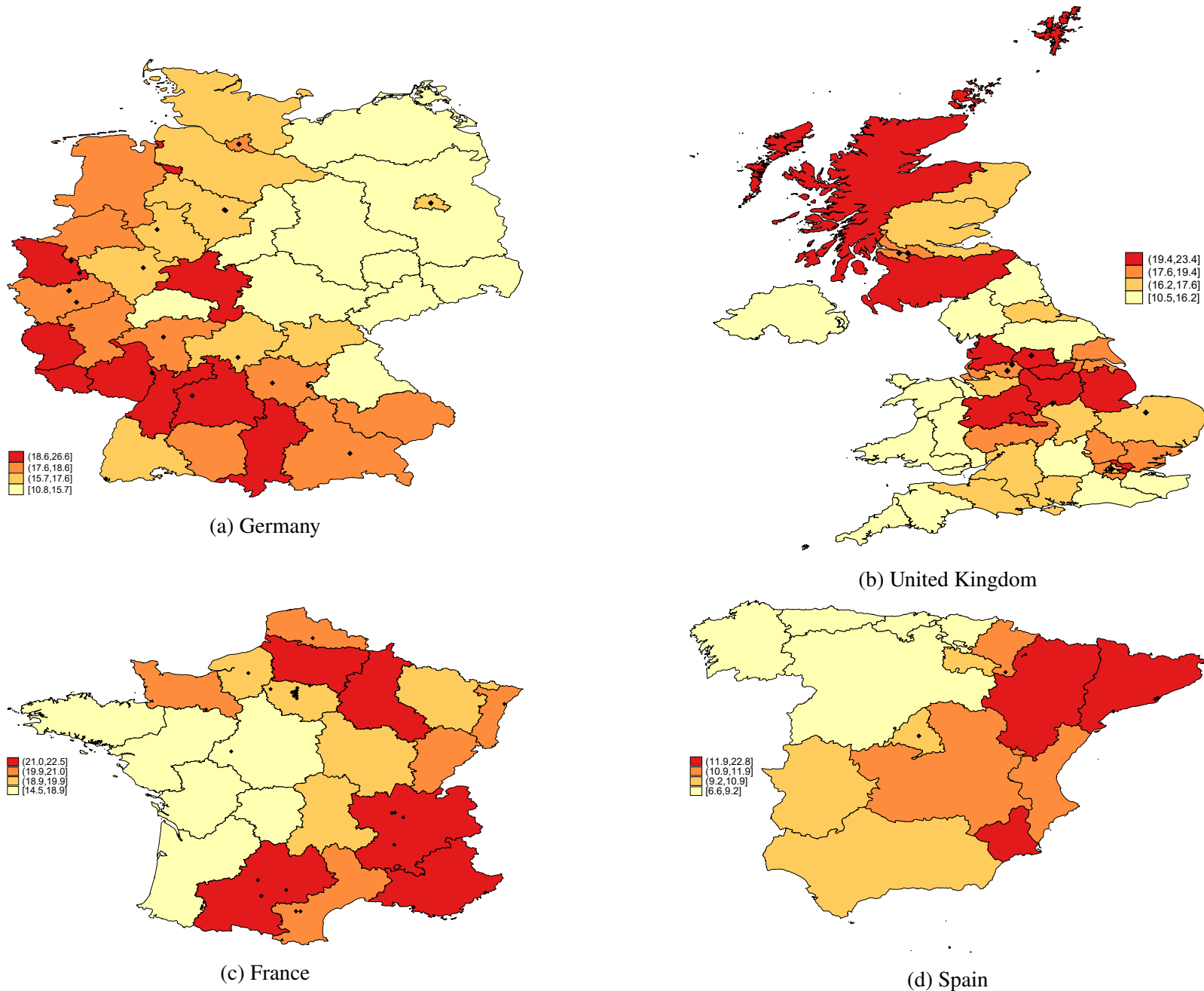
Our empirical investigation shows that terror attacks in the vicinity lead to higher misperceptions of the foreign-born population (and, to some extent, of the Muslim population). In contrast to many other effects of terror in the political (voting) or personal (life satisfaction) spheres, the impact of terror attacks on misperception is long-lasting. Even for terror attacks that happened many years ago in the vicinity, an elevated misperception of the immigrant population remains detectable. Our survey also shows some heterogeneity among respondents regarding the push effect on misperceptions. Female and less educated respondents show elevated misperceptions of immigrants if a terror attack had happened in their vicinity. Also, people living in a region with a relatively small foreign-born population react more strongly.

Several channels may drive these adjustments in (mis)perceptions, which are worth investigating more closely. First, the previous literature has established that salience and reference groups matter for misperceptions. Living in a neighborhood with a large outgroup (regarding ethnicity or culture) leads to elevated misperceptions of the outgroup (Sigelman and Niemi 2001; Nadeau, Niemi, and Levine 1993; Herda 2010). Our paper points to an additional channel for salience. People living in regions with a small foreign-born population rarely have personal contact with the outgroup. Therefore, there is no widespread salience of immigrants and/or Muslims. However, a terror attack in the vicinity creates a new type of salience via social or mass media. The terror attack makes respondents suddenly see more foreigners.

This salience channel via mass and social media raises the question of why the effect is local and not nationwide. If a mere report about a terror attack or a mere post on social media creates salience, why do we see a differential impact on people near the attacks? A possible explanation is that it is not the attack or the report about it that matters. Rather, an emotional trigger may be needed. Emotional triggers have been identified in other domains as important learning drivers. In a comprehensive survey on the influence of emotions on learning and memory, Tyng et al. (2017) describe how emotions are crucial for "learning and long-term retention of the material." Thoresen et al. (2012) investigate the spatial dimension of emotional distress after a terror attack. They show that emotional responses increased with proximity to the terror attack in Oslo and on Utøya Island in July 2011. Correcting misinformation by providing cognitively accessible facts has generated mixed effects (Callaghan et al. 2021; Bublitz 2020). Many people do not correctly update their beliefs when being given factual information. Information that enters our mind via affection seems stronger in updating our beliefs. When a terror attack happens in the vicinity, most people are emotionally triggered (even though they may not know any victim of an attack personally) through a similar channel. This emotional trigger leads to updates in the beliefs about the outgroup, in our case, the share of the foreign-born population.

While our methodology is subject to the usual limitations (self-report bias, the limited scope of inquiry, and limited control of the research environment), our results show that exposure to terrorism may have long-term effects on our perceptions of reality. Consequently, long-term inaccurate beliefs about a particular group of people may result in stereotyping and prejudice, which leads to discrimination in areas such as education, employment, and housing. Moreover, misperceptions can also create a climate of fear and hostility towards that particular group, resulting in hate crimes and other forms of violence. Therefore, governments should consider the emergence and long-term nature of potential societal biases that could determine the success or failure of well-intended policy proposals.

Figure 1: Heatmaps for Mean Misperceptions for Islam across Countries



Note: The maps plot, at the region (NUTS2) level, the mean misperceptions for the share of the Muslim population in the country. The heatmap classes are determined by quantiles of the variable within each country and are presented in the legend. The black diamonds mark the location of each Islamist terror attack in our sample

Table 1: Baseline Estimates for Islamist Terrorism on Misperceptions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: Islamist and Other Attacks</b>								
Islamist Terror Attack within 25 km	0.753 (0.501)	0.902* (0.475)	1.748** (0.690)	1.791** (0.710)	0.220 (0.636)	0.219 (0.590)	0.276 (0.665)	0.352 (0.631)
Other Terror Attack within 25 km	-0.360 (0.432)	-0.075 (0.428)	-0.689 (0.501)	-0.371 (0.505)	-0.056 (0.449)	0.352 (0.447)	-0.756* (0.449)	-0.258 (0.436)
Mean Dep. Var	16.689	16.685	12.291	12.291	15.398	15.397	11.097	11.096
Observations	18,358	18,357	19,668	19,667	19,752	19,751	19,834	19,833
<b>Panel B: Successful and Failed Islamist Attacks</b>								
Successful Islamist Terror Attack within 25 km	0.883* (0.524)	1.077** (0.483)	2.008*** (0.725)	2.147*** (0.718)	0.248 (0.675)	0.292 (0.602)	0.633 (0.699)	0.736 (0.657)
Failed Islamist Terror Attack within 25 km	-0.065 (0.954)	-0.081 (0.961)	-0.620 (0.717)	-0.891 (0.805)	0.024 (0.736)	-0.174 (0.768)	-0.445 (0.830)	-0.574 (0.817)
Other Terror Attack within 25 km	-0.374 (0.422)	-0.095 (0.417)	-0.657 (0.487)	-0.330 (0.492)	-0.063 (0.443)	0.358 (0.439)	-0.780* (0.438)	-0.274 (0.427)
Mean Dep. Var	16.689	16.685	12.291	12.291	15.398	15.397	11.097	11.096
Observations	18,358	18,357	19,668	19,667	19,752	19,751	19,834	19,833
Controls	×	✓	×	✓	×	✓	×	✓
Region/State (NUTS2) FE	✓	✓	✓	✓	✓	✓	✓	✓

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. Misperception measures are defined as the difference between the guess of the respondent and the real proportion of the respective category. The control variables include indicators for gender, marital status, 5-year bins of age of the respondent, separate indicators for whether they dropped out of school, finished high school, attained Bachelor's, Master's, or, Ph.D., whether they were unemployed for more than 3 months in the last 5 years, and 10 categorical indicators for the labor market status: paid work, ongoing education, self-employed, unemployed and searching, unemployed and not searching, discouraged worker, retired, military, homemaker, and others. All regressions also include regional fixed effects at the NUTS2 level. Standard errors are clustered at the state/NUTS2 level.

Table 2: Baseline Estimates for Islamist Terrorism and Misperceptions - By Gender

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Males	Islam		Immigration		Unemployment		Poverty	
Islamist Terror Attack within 25 km	0.071 (0.750)	0.301 (0.741)	1.037 (0.793)	1.069 (0.841)	0.161 (0.700)	0.123 (0.701)	-0.011 (0.737)	0.076 (0.708)
Other Terror Attack within 25 km	0.170 (0.553)	0.436 (0.551)	-1.288* (0.723)	-1.058 (0.721)	0.236 (0.559)	0.604 (0.559)	-0.581 (0.631)	-0.159 (0.596)
Mean Dep. Var	14.083	14.083	9.142	9.142	11.593	11.593	7.452	7.452
Observations	8,860	8,860	9,538	9,538	9,510	9,510	9,580	9,580
Panel B: Females								
Islamist Terror Attack within 25 km	1.330** (0.636)	1.397** (0.587)	2.450*** (0.914)	2.477*** (0.871)	0.364 (0.858)	0.314 (0.794)	0.499 (0.846)	0.468 (0.800)
Other Terror Attack within 25 km	-0.906 (0.600)	-0.728 (0.603)	-0.088 (0.697)	0.080 (0.701)	-0.113 (0.615)	0.117 (0.609)	-0.767 (0.635)	-0.372 (0.628)
Mean Dep. Var	19.120	19.113	15.257	15.256	18.931	18.929	14.503	14.501
Observations	9,498	9,497	10,130	10,129	10,242	10,241	10,254	10,253
Controls	×	✓	×	✓	×	✓	×	✓
Region/State (NUTS2) FE	✓	✓	✓	✓	✓	✓	✓	✓

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. Misperception measures are defined as the difference between the guess of the respondent and the real proportion of the respective category. The control variables include indicators for gender, marital status, 5-year bins of age of the respondent, separate indicators for whether they dropped out of school, finished high school, attained Bachelor's, Master's, or Ph.D., whether they were unemployed for more than 3 months in the last 5 years, and 10 categorical indicators for the labor market status: paid work, ongoing education, self-employed, unemployed and searching, unemployed and not searching, discouraged worker, retired, military, homemaker, and others. All regressions also include regional fixed effects at the NUTS2 level. Standard errors are clustered at the state/NUTS2 level.

Table 3: Baseline Estimates for Islamist Terrorism and Misperceptions - By Education

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: Less than College</b>								
		<b>Islam</b>	<b>Immigration</b>		<b>Unemployment</b>		<b>Poverty</b>	
Islamist Terror Attack within 25 km	1.202* (0.647)	1.149* (0.617)	2.616** (1.065)	2.419** (1.085)	0.632 (0.875)	0.339 (0.837)	0.975 (0.962)	0.697 (0.941)
Other Terror Attack within 25 km	-0.315 (0.569)	-0.117 (0.560)	-0.758 (0.673)	-0.464 (0.645)	0.329 (0.572)	0.710 (0.565)	-0.564 (0.560)	-0.160 (0.549)
Mean Dep. Var	18.669	18.662	14.231	14.230	17.789	17.788	14.006	14.004
Observations	10,839	10,838	11,688	11,687	11,752	11,751	11,794	11,793
<b>Panel B: College or Over</b>								
Islamist Terror Attack within 25 km	0.487 (0.657)	0.626 (0.648)	0.776 (0.682)	0.809 (0.706)	0.074 (0.762)	0.127 (0.745)	-0.219 (0.736)	-0.098 (0.695)
Other Terror Attack within 25 km	-0.108 (0.502)	0.016 (0.474)	-0.280 (0.676)	-0.231 (0.696)	-0.244 (0.632)	-0.240 (0.615)	-0.513 (0.662)	-0.314 (0.651)
Mean Dep. Var	13.836	13.836	9.450	9.450	11.886	11.886	6.830	6.830
Observations	7,519	7,519	7,980	7,980	8,000	8,000	8,040	8,040
Controls	×	✓	×	✓	×	✓	×	✓
<b>Region/State (NUTS2) FE</b>	✓	✓	✓	✓	✓	✓	✓	✓

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. Misperception measures are defined as the difference between the guess of the respondent and the real proportion of the respective category. The control variables include indicators for gender, marital status, 5 year bins of age of the respondent, separate indicators for whether they dropped out of school, finished high school, attained bachelors, masters, or, PhD, whether they were unemployed for a period of more than 3 months in the last 5 years, and 10 categorical indicators for labor market status: paid work, ongoing education, self employed, unemployed and searching, unemployed and not searching, discouraged worker, retired, military, homemaker, and other. All regressions also include regional fixed effects at the NUTS2 level. Standard errors are clustered at the state/NUTS2 level.

Table 4: Baseline Estimates for Islamist Terrorism and Misperceptions - By Age

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: Age &gt; 35</b>								
		Islam	Immigration	Unemployment	Poverty			
Islamist Terror Attack within 25 km	0.840 (0.586)	1.077* (0.555)	1.868** (0.758)	2.078*** (0.729)	-0.054 (0.741)	0.181 (0.657)	0.522 (0.772)	0.744 (0.699)
Other Terror Attack within 25 km	-0.463 (0.494)	-0.167 (0.475)	-1.126* (0.574)	-0.788 (0.579)	0.208 (0.461)	0.621 (0.478)	-0.564 (0.470)	-0.073 (0.474)
Mean Dep. Var	16.725	16.725	11.134	11.134	13.974	13.974	10.141	10.141
Observations	13,542	13,542	14,238	14,238	14,276	14,276	14,333	14,333
<b>Panel B: Age ≤ 35</b>								
Islamist Terror Attack within 25 km	0.753 (0.788)	0.810 (0.795)	1.173 (1.029)	1.214 (1.091)	0.512 (0.960)	0.629 (1.025)	-0.668 (1.136)	-0.527 (1.134)
Other Terror Attack within 25 km	-0.429 (0.793)	-0.099 (0.754)	0.415 (0.921)	0.962 (0.876)	-1.095 (0.946)	-0.476 (0.843)	-1.676 (1.414)	-0.928 (1.303)
Mean Dep. Var	16.572	16.572	15.323	15.323	19.109	19.109	13.586	13.586
Observations	4,815	4,815	5,429	5,429	5,475	5,475	5,500	5,500
Controls	×	✓	×	✓	×	✓	×	✓
Region/State (NUTS2) FE	✓	✓	✓	✓	✓	✓	✓	✓

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. Misperception measures are defined as the difference between the guess of the respondent and the real proportion of the respective category. The control variables include indicators for gender, marital status, 5-year bins of age of the respondent, separate indicators for whether they dropped out of school, finished high school, attained Bachelor's, Master's, or Ph.D., whether they were unemployed for more than 3 months in the last 5 years, and 10 categorical indicators for the labor market status: paid work, ongoing education, self-employed, unemployed and searching, unemployed and not searching, discouraged worker, retired, military, homemaker, and others. All regressions also include regional fixed effects at the NUTS2 level. Standard errors are clustered at the state/NUTS2 level.

Table 5: Baseline Estimates for Islamist Terrorism and Misperceptions - By Share Foreign

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: Share Foreign &lt; 20%</b>								
	Islam		Immigration		Unemployment		Poverty	
Islamist Terror Attack within 25 km	0.710 (0.626)	0.965 (0.605)	1.951* (1.003)	2.144** (0.943)	0.555 (1.032)	0.756 (0.928)	0.626 (0.946)	1.013 (0.840)
Other Terror Attack within 25 km	-0.025 (0.436)	0.189 (0.426)	-0.960* (0.531)	-0.665 (0.539)	-0.111 (0.512)	0.273 (0.505)	-0.710 (0.490)	-0.208 (0.469)
Mean Dep. Var	16.647	16.647	11.726	11.726	15.709	15.709	12.168	12.168
Observations	10,859	10,859	11,629	11,629	11,695	11,695	11,731	11,731
<b>Panel B: Share Foreign ≥ 20%</b>								
Islamist Terror Attack within 25 km	0.365 (0.679)	0.366 (0.585)	0.253 (0.925)	0.153 (0.893)	-0.436 (0.780)	-0.666 (0.653)	-0.920 (1.293)	-1.145 (1.122)
Other Terror Attack within 25 km	-1.432 (1.192)	-0.976 (1.141)	0.148 (1.556)	0.522 (1.484)	-0.382 (0.909)	0.267 (0.754)	-0.496 (1.318)	0.113 (1.156)
Mean Dep. Var	16.716	16.706	13.120	13.118	14.722	14.719	9.449	9.445
Observations	7,115	7,114	7,628	7,627	7,639	7,638	7,686	7,685
Controls	×	✓	×	✓	×	✓	×	✓
Region/State (NUTS2) FE	✓	✓	✓	✓	✓	✓	✓	✓

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. Misperception measures are defined as the difference between the guess of the respondent and the real proportion of the respective category. The control variables include indicators for gender, marital status, 5-year bins of age of the respondent, separate indicators for whether they dropped out of school, finished high school, attained Bachelor's, Master's, or Ph.D., whether they were unemployed for more than 3 months in the last 5 years, and 10 categorical indicators for the labor market status: paid work, ongoing education, self-employed, unemployed and searching, unemployed and not searching, discouraged worker, retired, military, homemaker, and others. All regressions also include regional fixed effects at the NUTS2 level. Standard errors are clustered at the state/NUTS2 level.



Table 6: Robustness Checks for Islamist Terrorism on Misperceptions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: Attacks in 2015-19</b>								
		<b>Islam</b>	<b>Immigration</b>	<b>Unemployment</b>	<b>Poverty</b>			
Islamist Terror Attack within 25 km	0.760 (0.602)	0.955* (0.572)	1.573* (0.821)	1.649** (0.822)	0.375 (0.730)	0.359 (0.652)	0.542 (0.821)	0.613 (0.741)
Other Terror Attack within 25 km	0.029 (0.535)	0.159 (0.506)	0.171 (0.620)	0.250 (0.631)	-0.383 (0.533)	-0.274 (0.529)	-0.822 (0.533)	-0.665 (0.470)
Mean Dep. Var	16.988	16.984	12.280	12.279	15.504	15.503	11.425	11.424
Observations	16,556	16,555	17,764	17,763	17,841	17,840	17,913	17,912
<b>Panel B: Other Attacks as Controls</b>								
Islamist Terror Attack within 25 km	0.923* (0.490)	1.235*** (0.471)	1.775** (0.765)	1.907** (0.786)	0.593 (0.770)	0.269 (0.688)	0.366 (0.728)	0.216 (0.633)
Mean Dep. Var	16.594	16.588	12.486	12.485	15.505	15.503	10.539	10.537
Observations	13,543	13,542	14,486	14,485	14,560	14,559	14,630	14,629
<b>Panel C: Baseline (Table 1 Panel A) with Pop Density Controls at NUTS3 Level</b>								
Islamist Terror Attack within 25 km	0.821 (0.547)	0.914* (0.519)	1.873** (0.741)	1.900** (0.757)	0.225 (0.652)	0.223 (0.608)	0.312 (0.690)	0.376 (0.652)
Other Terror Attack within 25 km	-0.336 (0.434)	-0.056 (0.428)	-0.660 (0.506)	-0.354 (0.507)	-0.031 (0.447)	0.360 (0.447)	-0.754* (0.452)	-0.279 (0.437)
Mean Dep. Var	16.695	16.691	12.301	12.300	15.395	15.394	11.094	11.092
Observations	18,262	18,261	19,564	19,563	19,646	19,645	19,726	19,725
Controls	×	✓	×	✓	×	✓	×	✓
<b>Region/State (NUTS2) FE</b>	✓	✓	✓	✓	✓	✓	✓	✓

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. Misperception measures are defined as the difference between the guess of the respondent and the real proportion of the respective category. The control variables include indicators for gender, marital status, 5-year bins of age of the respondent, separate indicators for whether they dropped out of school, finished high school, attained Bachelor's, Master's, or, Ph.D., whether they were unemployed for more than 3 months in the last 5 years, and 10 categorical indicators for the labor market status: paid work, ongoing education, self-employed, unemployed and searching, unemployed and not searching, discouraged worker, retired, military, homemaker, and others. All regressions also include regional fixed effects at the NUTS2 level. Standard errors are clustered at the state/NUTS2 level. In Panel C, we add a control for the population density at the NUTS3 level for both columns.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: Germany</b>								
	Islam		Immigration		Unemployment		Poverty	
Islamist Terror Attack within 25 km	1.442* (0.768)	1.380** (0.630)	3.336** (1.281)	3.515** (1.300)	1.019 (1.056)	1.047 (1.019)	0.532 (1.321)	0.665 (1.127)
Other Terror Attack within 25 km	-0.368 (0.674)	0.015 (0.641)	0.064 (0.977)	0.321 (0.963)	-0.743 (0.844)	-0.412 (0.859)	0.196 (0.899)	0.657 (0.841)
Mean Dep. Var	17.455	17.455	13.215	13.215	14.711	14.711	8.439	8.439
Observations	5,024	5,024	5,322	5,322	5,285	5,285	5,332	5,332
<b>Panel B: United Kingdom</b>								
Islamist Terror Attack within 25 km	2.548* (1.414)	3.038** (1.288)	-0.118 (1.755)	0.037 (1.491)	2.001 (1.924)	2.168 (1.648)	1.382 (1.426)	1.537 (1.443)
Other Terror Attack within 25 km	-0.251 (1.129)	-0.120 (1.108)	-0.740 (1.145)	-0.799 (1.135)	-0.378 (1.060)	-0.369 (0.997)	-1.871 (1.115)	-1.749* (0.973)
Mean Dep. Var	17.735	17.735	12.990	12.990	19.051	19.051	10.549	10.549
Observations	4,393	4,393	4,795	4,795	4,844	4,844	4,872	4,872
<b>Panel C: France</b>								
Islamist Terror Attack within 25 km	-0.260 (0.468)	0.326 (0.638)	1.517* (0.775)	2.067** (0.774)	-0.684 (1.121)	-0.421 (0.959)	0.406 (1.019)	1.109 (0.963)
Other Terror Attack within 25 km	0.853 (0.787)	1.067 (0.770)	0.298 (0.761)	0.646 (0.873)	1.262 (0.861)	1.794** (0.710)	-0.471 (0.775)	0.227 (0.714)
Mean Dep. Var	20.000	19.984	12.312	12.309	13.767	13.763	17.567	17.563
Observations	4,586	4,585	4,944	4,943	4,979	4,978	4,969	4,968
<b>Panel D: Spain</b>								
Islamist Terror Attack within 25 km	0.055 (1.335)	-0.102 (1.207)	0.285 (1.023)	-0.173 (0.987)	-1.046 (0.856)	-1.455 (0.887)	-1.647*** (0.541)	-1.995*** (0.609)
Other Terror Attack within 25 km	-1.686* (0.820)	-1.176 (0.715)	-2.973*** (0.845)	-2.349** (0.817)	-0.391 (0.965)	0.528 (0.995)	-0.930 (0.883)	-0.125 (0.880)
Mean Dep. Var	11.264	11.264	10.475	10.475	14.119	14.119	7.815	7.815
Observations	4,355	4,355	4,607	4,607	4,644	4,644	4,661	4,661
Controls	×	✓	×	✓	×	✓	×	✓
Region/State (NUTS2) FE	✓	✓	✓	✓	✓	✓	✓	✓

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. Standard errors are clustered at the state level. Misperception measures are defined as the difference between the guess of the

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## Appendix A UK version of the questionnaire

- Q1 Were you born in the United Kingdom? Yes / No
- Q2 What is your gender? Male / Female
- Q3 What is your age?
- Q4 What is your gross weekly household income? Less than £400 / £400–£600 / £600–£1,000 / More than £1,000
- Q5 Please indicate your marital status. Single / Couple, Married / Separated or Divorced / Widowed
- Q6 How many children do you have? I do not have children / 1 / 2 / 3 / 4 / 5 / More than 5
- Q7 Which category best describes your highest level of education? Compulsory Education / High School / University (but not finished) / Bachelor degree / Master Degree / Doctoral Degree
- Q8 Which of these descriptions best describes your situation? Please select ONLY one. In paid work / In education / Self-employed / Unemployed and actively looking for a job / Unemployed, wanting a job but not actively looking for a job / Permanently sick or disabled / Retired / In community or military service / Doing housework, looking after children or other persons / Refusal
- Q9 Have you ever had a paid job? Yes / No / Refusal-Don't know
- Q10 In what year were you last in a paid job?
- Q11 In your main job are/were you. . . Please select ONLY one. An employee / Self-employed / Working for your own family's business / Refusal-Don't know
- Q12 How many employees (if any) do/did you have?
- Q13 Do/did you have a work contract of...Unlimited duration / Limited duration / Do/did you have no contract / Refusal-don't know
- Q14 Including yourself, about how many people are/were employed at the place where you usually work/worked?
- Q15 In your main job, do/did you have any responsibility for supervising the work of other employees? Yes / No / Refusal-Don't know
- Q16 Please indicate on a scale of 0-10 how much the management at your work allows/allowed you to influence policy decisions about the activities of the organization
- Q17 Have you ever been unemployed and seeking work for a period of more than three months in the last five years? Yes / No / Refusal-Don't know
- Q18 Have any of these periods lasted for 6 months or more? Yes / No / Refusal-Don't know
- Q19 Please consider the total income of all household members. What is the main source of income in your household? Wages or salaries / Income from self-employment / Pensions / Unemployment/redundancy benefit / Any other social benefits or grants / Income from investment, savings, insurance or property / Income from other sources / Refusal/Don't know
- Q20 Which of the descriptions comes closest to how you feel about your household's income nowadays? Living comfortably on present income / Coping on present income / Finding it difficult on present income / Finding it very difficult on present income / Refusal-Don't know
- Q21 Please indicate on a scale of 0-10 how interested you would say you are in politics
- Q22 Please indicate on a scale of 0-10 how much you would say the political system in the United Kingdom allows people like you to have a say in what the government does
- Q23 Please indicate on a scale of 0-10 how able you think you are to take an active role in a group involved with political issues
- Q24 Please indicate on a scale of 0-10 how confident you are in your own ability to participate in politics
- Q25 Please indicate on a scale of 0–10 how much you personally trust each of these institutions (0 = Do not trust at all; 10 = Complete trust). Country's parliament / The legal system / The police / Politicians / Political parties / The European Parliament / The United Nations
- Q26 Some people don't vote nowadays for one reason or another. Did you vote in the last national election in December 12th, 2019? Yes / No / Refusal-Don't know
- Q27 Which party did you vote for in that election? Conservative / Labour / Liberal Democrat / UKIP / Paid Cymru / Green Party / SNP / Brexit Party / Other (write in) / Refusal/Don't know
- Q28 Which party do you plan to vote in the next national election? Conservative / Labour / Liberal Democrat / UKIP / Paid Cymru / Green Party / SNP / Brexit Party / Other (write in) / Refusal/Don't know
- Q29 In politics people sometimes talk about “left” and “right”. Please indicate on a scale of 0-10 where you would place yourself (0 = Left; 10 = Right).
- Q30 Please indicate on a scale of 0-10 how religious you think you are (0= Not religious at all; 10 = Very religious) Please indicate on a scale of 0–10 whether you agree or disagree with the following statements (0= Completely disagree; 10 = Completely agree).
- Q31 The opinion of ordinary people is worth more than that of experts and politicians.
- Q32 Politicians should listen more closely to the problems the people have.
- Q33 Ministers should spend less time behind their desks, and more among the ordinary people.
- Q34 People who have studied for a long time and have many diplomas do not really know what makes the world go round. For the next two questions, notice that we consider an ethnic group as a community or population made up of people who share a common cultural background.
- Q35 Please indicate on a scale of 0–10 to what extent you think the United Kingdom should allow people of the same race or ethnic group than the majority of the British people to come and live here (0 = Allow none; 10 = Allow many to come and live here).
- Q36 Please indicate on a scale of 0–10 to what extent you think the United Kingdom should allow people of the different race or ethnic group than the majority of the British people to come and live here (0 = Allow none; 10 = Allow many to come and live here).
- Q37 Please indicate on a scale of 0–10 to what extent you think the United Kingdom should allow people of different religious faith than the majority of the British people to come and live here (0 = Allow none; 10 = Allow many to come and live here).
- Q38 Please indicate on a scale of 0–10 to what extent you think the United Kingdom should allow people from poorer countries outside Europe to come and live here (0 = Allow none; 10 = Allow many to come and live here).
- Q39 Please indicate on a scale of 0–10 to what extent you think the United Kingdom has become a worse or a better place to live by people coming to live here from other countries (0 = Worse place to live; 10 = Better place to live).

- Q40 Typically, how often do you access news? By news we mean national, international, regional/local news and other topical events accessed via radio, TV, newspaper or online. (Several times a day / Once a day / Several times a week / Once a week / Several times a month / Once a month / Less often than once a month / Whenever I come across by coincidence / Almost never / Never) Thinking about your news habits, please indicate on a scale of 0-10 how often do you. . . (0 = Never; 10 = Always).
- Q41 Read any newspapers in print?
- Q42 Listen to news on the radio?
- Q43 Watch television news?
- Q44 Get news from a social media site (such as Facebook, Twitter, or Snapchat)?
- Q45 Get news from a news website or app?
- Q46 Which, if any, of the following sources of information do you use to keep up with political issues? Please select all that apply (Friends, relatives or colleagues / National printed newspapers and/or their online sites/apps / Radio broadcasters and/or online sites/apps / TV broadcasters and/or online sites/apps / Politically focused magazines and/or online sites/apps / Political parties and/or their newsletters or online sites / Online specialist sites or political blogs / Social media such as Facebook and Twitter / Don't know / None of these)
- Q47 Please indicate on a scale of 0-10 how much trust and confidence you have in the mass media – such as newspapers, TV and radio – when it comes to reporting the news fully, accurately and fairly (0 = None at all; 10 = A great deal).
- Q48 Please indicate on a scale of 0-10 how much trust and confidence you have in the social media – such as Twitter, Facebook, Instagram and YouTube – when it comes to reporting the news fully, accurately and fairly (0 = None at all; 10 = A great deal).
- Q49 Please indicate below whether you get news about politics and current affairs regularly from each of the following sources. For each item, please indicate on a scale of 0-10 if it is something you do regularly (0 = Never; 10 = Always). [The Guardian / The Sunday Times / The Times / Daily Mail / The Independent / The Sun / Channel 4 / BBC / ITV / Film 4]
- Q50 Please indicate on a scale of 0-10 how much trust and confidence you have in the following sources when it comes to reporting the news fully, accurately and fairly (0 = None at all; 10 = A great deal). [The Guardian / The Sunday Times / The Times / Daily Mail / The Independent / The Sun / Channel 4 / BBC / ITV / Film 4]
- Q51 On a typical day, about how much time do you spend using the internet on a computer, tablet, smartphone or other device, whether for work or personal use? Please give your answer in hours and minutes.
- Q52 Please indicate on a scale of 0-10 how often you come across news stories about politics online that you think are not fully accurate (0 = Never; 10 = Always).
- Q53 Have you ever shared a political news story online that you later found out was made up? (Yes / No / No answer)
- Q54 Have you ever shared a political news story online that you thought at the time was made up? (Yes / No / No answer) As you may have heard, there have recently been some instances of so called “fake news stories” circulating widely online. Please indicate on a scale of 0-10 how much responsibility each of the following has in trying to prevent made up stories from gaining attention (0 = No responsibility at all; 10 = A great deal of responsibility).
- Q55 Members of the public
- Q56 The government, politicians, and elected officials
- Q57 Social networking sites like Facebook, Twitter, WhatsApp and search sites like Google
- Q58 Media
- Q59 Please indicate on a scale of 0-10 how confident you are in your own ability to recognize news that is made up (0 = Not at all confident; 10 = Very confident).
- Q60 Please indicate on a scale of 0-10 how much you think these kinds of news stories leave people confused about the basic facts of current issues and events (0 = Not at all; 10 = A great deal).
- Please indicate on a scale of 0–10 whether you agree or disagree with the following statements (0= Completely disagree; 10 = Completely agree).
- Q61 There is too much moral decay today
- Q62 The sense of belonging together that we used to have is irrevocably lost
- Q63 Parents no longer adequately educate their children
- Q64 People don't care for each other any more
- Q65 The United Kingdom will face a situation of ever-increasing job insecurity
- Q66 Even more enterprises will move to low-wage countries, threatening employment in the United Kingdom.
- Q67 In order to face the competition of other countries we will have to dismantle our welfare state.
- Q68 Multinational enterprises will become increasingly powerful, small enterprises are bound to suffer.
- Q69 Opening the European frontiers means that our employers will prefer the low-cost workers from poorer countries to our own workers.
- Q70 In the future we will become even less open and tolerant with regard to people from other cultures
- Q71 The relationship between Christians and Muslims is bound to become violent in the future
- Q72 The relationship between Christians and Jews is bound to become violent in the future
- Q73 You can generally trust the people who run our government to do what is right.
- Q74 For the next question, please consider globalization as the increased trade between countries in goods, services, and investments. Please indicate on a scale of 0–10 whether you think globalization has had a negative or a positive effect on each of the following (0= Completely negative effect; 10 = Completely positive effect) [British factory workers / Multinational corporations based in the United Kingdom / You and your immediate family / The British economy] Please indicate on a scale of 0–10 whether you agree or disagree with the following statements (0= Completely disagree; 10 = Completely agree).
- Q75 It is important to live in secure and safe surroundings.
- Q76 People should follow rules at all times, even when no-one is watching.
- Q77 It is important that the government is strong and ensures safety against all threats.
- Q78 It is important to follow traditions and customs handed down by religion or family.
- In the following questions, we refer to legal immigrants as people who were not born in the United Kingdom and legally moved here at a certain point of their life. We are NOT considering irregular migration.
- Q79 Think about all of the currently living in the United Kingdom. Out of every 100 people in the United Kingdom, how many are born in another country?



- Q80 Fill in the boxes below to indicate how many out of every 100 people in the United Kingdom you think practice each religion. Christianity; Islam; Buddhism; Hinduism; Other Religions/Atheist/No religious affiliation
- Q81 Out of every 100 people, who are between 20 and 64 years old, in the United Kingdom how many are currently unemployed? By unemployed we mean people who are currently not working but searching for a job (and maybe unable to find one). Now let's compare this to the number of unemployed among foreign-born people. Out of every 100 foreign-born people how many do you think are currently unemployed?
- Q82 The poverty line is the estimated minimum level of income needed to secure the necessities of life. Out of every 100 adult people born in the United Kingdom, how many live below the poverty line? Let's compare this to poverty among legal immigrants. Out of every 100 legal immigrants in the United Kingdom today, how many do you think live below the poverty line?
- Q83 The International Organization for Migration (IOM) defines irregular migration as "movement that takes place outside the regulatory norms of the sending, transit and receiving country". A migrant in an irregular situation may fall within one or more of the following circumstances: He or she may enter the country irregularly; he or she may reside in the country irregularly; he or she may be employed in the country irregularly. Think about the evolution of the irregular migration flows in Europe in the last 3 years. It has increased over time / It has decreased over time / It has kept constant over time / Don't know
- Q84 Think about the evolution of detections of illegal border crossing at the EU's external borders in the last 3 years. It has increased over time / It has decreased over time / It has kept constant over time / Don't know
- Q85 How many Islamist terrorists do you think have been arrested in the United Kingdom in 2018?
- Q86 How many people do you think have been killed during terror attacks committed by Islamist terrorists in the United Kingdom in the last 5 years?
- Q87 Please indicate on a scale of 1–10 whether you agree or disagree with the following statement (0 = Completely disagree; 10 = Completely agree): Most crimes in the UK are committed by foreigners.
- Q88 What percentage of the prison population in the United Kingdom are foreign national prisoners?
- Q89 What do you think is the income share of the poorest 20% of all people living in the United Kingdom?
- Q90 What do you think is the income share of the richest 10% of all people living in the United Kingdom?
- Q91 How large is the share of taxes and social contributions in percentage of GDP in the United Kingdom?
- Q92 According to the share of taxes and social contributions as a percentage of GDP, in which position do you think the United Kingdom is among the 28 Union European countries? Notice that a higher position in the list implies a larger share.
- Q93 Please consider corruption in a broad sense, including offering, giving, requesting and accepting bribes or kickbacks, valuable gifts and important favors, as well as any abuse of power for private gain. Transparency International is the leading global civil organization on the fight against corruption. Each year they elaborate a Corruption Perceptions Index which ranks 180 countries and territories by their perceived levels of public sector corruption according to experts and business people. In which position do you think the United Kingdom is among the 28 Union European countries?
- Q94 There are people who tend to be towards the top of our society and people who tend to be towards the bottom. Below is a scale that runs from top to bottom. On a scale of 1–10 Where you would put yourself (1 = Bottom of our society; 10 = Top of our society). Please indicate on a scale of 0-10 to what extent you agree with the following statements (0= Completely disagree; 10 = Completely agree).
- Q95 I experience a general sense of emptiness
- Q96 There are many people I can trust completely
- Q97 I miss having people around me.
- Q98 I often feel rejected.
- Q99 I have enough opportunities to advance in life
- Q100 I know exactly where I feel at home and where I belong

## **Appendix B Definitions and Data Sources of Actual Statistics**

We used the following definitions and data sources to compare our respondents' perceptions with actual statistics.

### **B.1 Foreign born**

For the question "Out of every 100 people in [country], how many are born in another country?", we used the share of foreign-born in the entire population. Data are taken from Eurostat, Population and Migration Statistics, code: migr\_pop3ctb. We employed the most recent data available at the time of the survey, which was the population figures for 2018. The share of foreign-born amounts to 12% in France, 17% in Germany, 13% in Spain, and 14% in the UK.

### **B.2 Muslim population**

The respondents' estimate for the Muslim share was captured by the question, "How many out of every 100 people in [country] you think practice each religion." No uniform database covers the actual share of people practicing Islam. In Germany, the share of the Muslim population is 5.1%; the estimate refers to 2018 and is taken from *Forschungsgruppe Weltanschauungen in Deutschland* (<https://fowid.de/meldung/religionszugehoerigkeiten-2018>). For France and UK, we relied on the CIA World Factbook (<https://www.cia.gov/the-world-factbook/countries/>). The median estimate for France is 8% and refers to 2015. For the UK, the most recent estimate is from 2011 with a value of 4.4%. The number of Muslims residing in Spain is 2,091,656, according to the Demographic Study of the Muslim Population, prepared by the Union of Islamist Communities of Spain (UCIDE) and by the Andalusian Observatory, which collect data as of December 31, 2019 (<http://observatorio.hispanomuslim.es/estademograf.pdf>). With a total population of 47 m. (<https://www.ine.es/jaxiT3/Datos.htm?t=31304>), Spain has a Muslim share of 4% in the entire population.

### **B.3 Poverty**

Respondents were asked "The poverty line is the estimated minimum level of income needed to secure the necessities of life. Out of every 100 adult people born in [country], how many live below the poverty line?". Eurostat sets this threshold of being at risk of poverty at 60% of median equivalised income after social transfers. We used the poverty rate of the population aged 18 and over from Eurostat (Quality of life, code: *ilc\_li31*). In March 2020, the most recent data were available for the year 2018 (2017 for UK). The poverty rates were 10% in France, 16% in Germany, 18% in Spain and 16% in the UK.

### **B.4 Unemployment**

We elicited the respondents' estimates for the unemployment rate by asking: "Out of every 100 people, who are between 20 and 64 years old, in [country] how many are currently unemployed? By unemployed, we mean people who are currently not working but searching for a job (and maybe unable to find one)." We contrast these estimates with data from Eurostat (Unemployment rates by sex, age, and country of birth, code: *lfsa\_urgacob*). The unemployment rates for 2019 (available in March 2020) were 7.5% in France, 3.7% in Germany, 15.1% in Spain, and 2.7% in the UK.

## Appendix C Descriptive Statistics

Table C.1: Comparing Sample Statistics and Population Statistics

	Germany (DE)		Spain (ES)		France (FR)		United Kingdom (UK)	
	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop
	Female	54.1	49.6	50.0	50.2	53.0	51.1	50.1
18-35y.o.	29.2	31.3	27.3	28.3	24.6	32.2	30.0	35.1
36-54y.o.	38.0	37.0	41.9	43.6	36.8	37.7	34.1	37.5
55-70y.o.	27.7	31.7	25.5	28.1	30.0	30.1	28.1	27.4
High Educated	13.0	28.0	41.4	37.4	38.5	37.4	42.2	43.3
Married/Coh.	56.5	61.1	60.8	61.5	61.3	63.5	59.8	63.1
Low income	22.0	24.4	17.4	16.9	23.4	31.0	30.1	27.0
Middle income	63.5	59.4	64.6	63.4	49.4	45.0	54.2	43.0
High income	14.4	16.3	18.0	19.7	27.2	24.0	15.7	30.0
Employed	73.9	75.4	61.4	63.6	59.6	65.8	63.3	75.3
Unemployed	2.7	2.3	11.0	9.9	3.02	5.7	4.2	2.4
Out of labor force	23.1	22.2	26.1	26.5	32.2	28.4	20.1	22.3

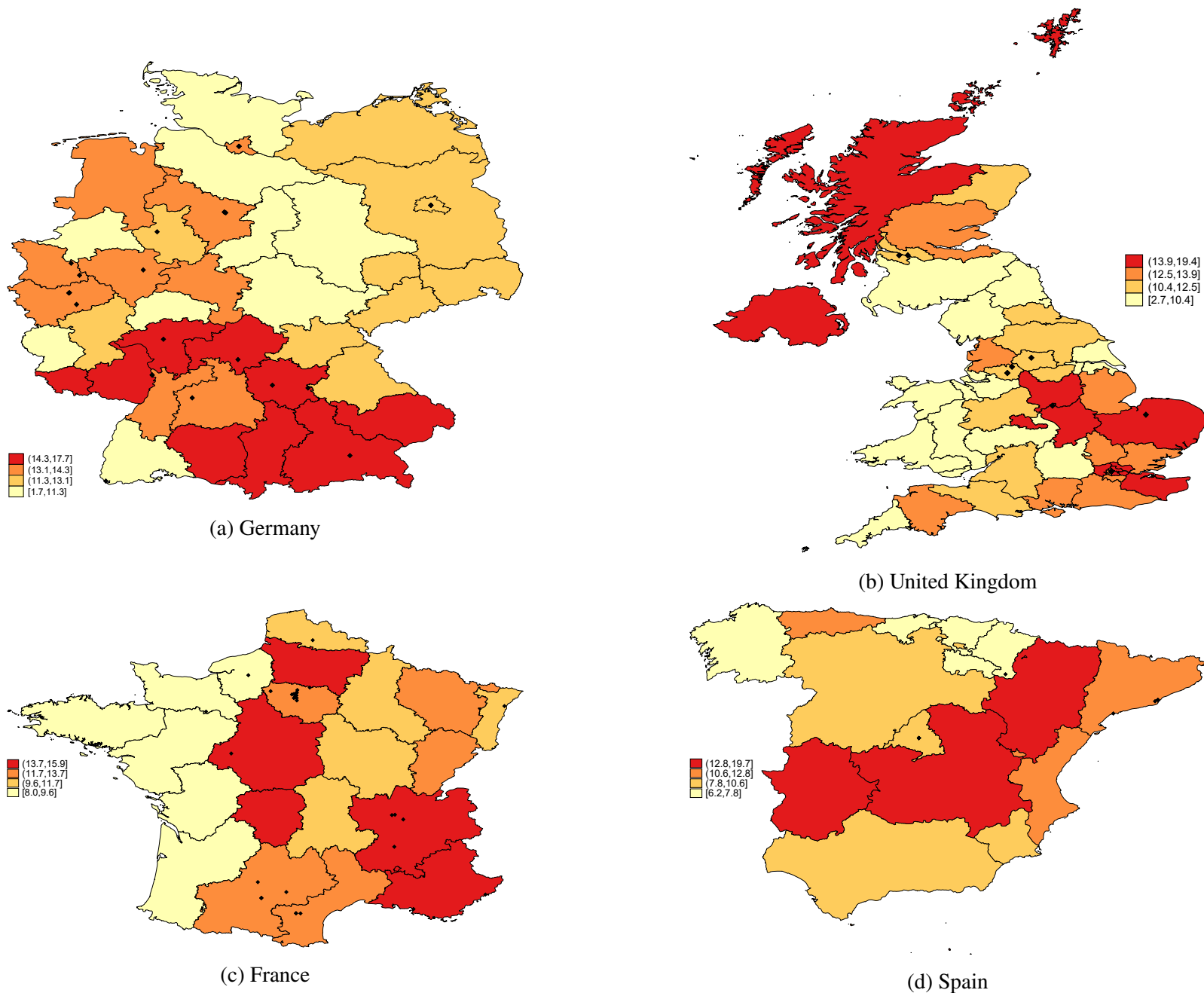
Notes: This table shows summary statistics from our sample alongside representative statistics of the population in each country. Data for gender, age, employed, household type and unemployed come from Eurostat. Eurostat is the statistical office of the European Union: <https://ec.europa.eu/eurostat/>. "Married/Coh." captures the share of the adult population living as a couple; the data for the entire population is taken from the Labor Force Statistics (*LFST\_HHNHTYCH*, number of private households by household composition). The education data also comes from the Labor Force survey (*LFSA\_PGAED*, population by sex, age and educational attainment level) and refers to the population aged 20-64. For income data the sources are: 1) For France: OECD (<https://stats.oecd.org/>). Income levels (monthly net household income) are: less than 1500€; 1500€–3000€; more than 3000€; 2) For Germany: National Statistics Institute ([https://www.destatis.de/DE/Home/\\_inhalt.html](https://www.destatis.de/DE/Home/_inhalt.html)). Income levels (monthly net household income) are: less than 1500€; 1500€–4500€; more than 4500€; 3) For Spain: National Statistics Institute (<https://www.ine.es/>). Income levels (monthly net household income) are: less than 1000€; 1000€–3000€; more than 3,000€; 4) For the United Kingdom: National Statistics Institute (<https://www.gov.uk/search/research-and-statistics>). Income levels (gross weekly household income) are: less than £400; £400–£1000; more than £1000. Employment data is taken from the labor force survey (population by sex, age, citizenship, and labor status, *LFsq\_PGAnWS*). Employed category also includes self-employed.

Table C.2: Descriptive Statistics

	(1)	(2)
Panel A: Demographic Statistics		
Age	46.7	16.02
Proportion Married	0.547	0.498
Proportion High School or Below	0.437	0.496
Proportion College or Above	0.335	0.472
Proportion with Paid Employment	0.600	0.490
Proportion Self Employed	0.051	0.221
Proportion Unemployed for 3 months or more in Last 5 years	0.232	0.422
Misperception Outcomes		
Islam	16.69	17.54
Immigration	12.24	21.34
Unemployment	15.37	19.09
Poverty	11.11	21.52
Terrorism Exposure		
Islamist Terror Attack within 25 km	0.401	0.490
Other Terror Attack within 25 km	0.727	0.445
Observations	19,689	

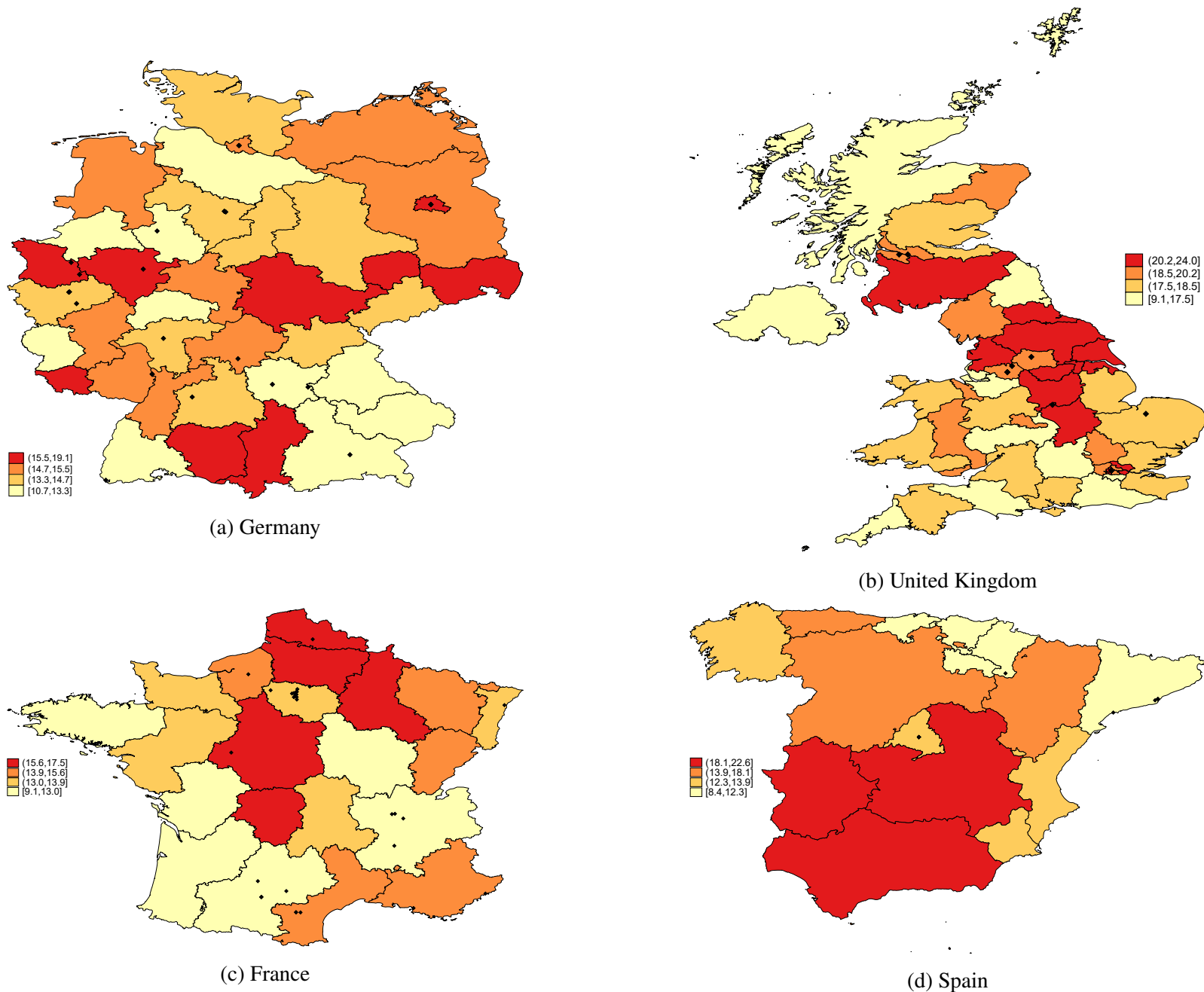
The table represents basic descriptive statistics for our estimation sample. Education and employment variables are not exhaustive and only salient categories are reported.

Figure C.1: Heatmaps for Mean Misperceptions for Immigration across Countries



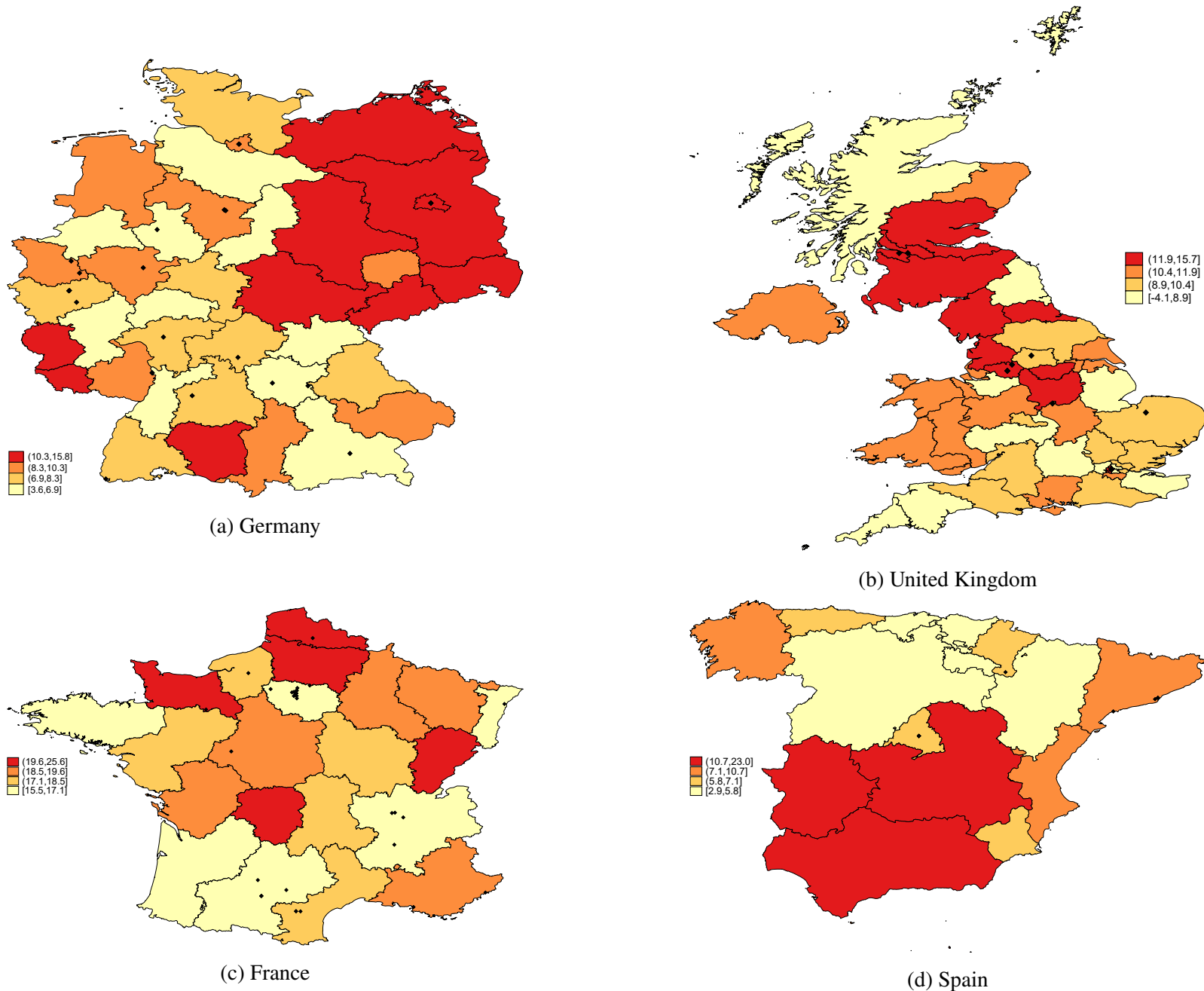
Note: The maps plot, at the region (NUTS2) level, the mean misperceptions for the share of immigrants in the country. The heatmap classes are determined by quantiles of the variable within each country and are presented in the legend. The black diamonds mark the location of each Islamist terror attack in our sample

Figure C.2: Heatmaps for Mean Misperceptions for Unemployment across Countries



Note: The maps plot, at the region (NUTS2) level, the mean misperceptions for the rate of unemployment in the country. The heatmap classes are determined by quantiles of the variable within each country and are presented in the legend. The black diamonds mark the location of each Islamist terror attack in our sample

Figure C.3: Heatmaps for Mean Misperceptions for Poverty across Countries



Note: The maps plot, at the region (NUTS2) level, the mean misperceptions for the rate of poverty in the country. The heatmap classes are determined by quantiles of the variable within each country and are presented in the legend. The black diamonds mark the location of each Islamist terror attack in our sample