# Getting Under the Skin: The Impact of Terrorist Attacks on In- and Out-Group Sentiment

Arun Frey*

October 12, 2020

**Abstract**

There is growing academic interest in examining how terrorist attacks shape the majority's attitudes towards minority groups. Yet, little is known of how these minority groups react to the backlash such events provoke. This paper leverages the exogenous occurrence of a series of terrorist attacks during the fieldwork period of two surveys to estimate how threatening events affect the sentiment of both citizens and asylum seekers in Germany. Results of the natural experiment reveal that the 2016 terror attacks in Nice, Würzburg, and Ansbach had a substantial impact on both in- and out-groups. Among German respondents, anti-refugee sentiment increased considerably after the attacks. Refugees, concurrently, reported higher rates of discrimination and felt less welcome than they did at their initial arrival to Germany. Importantly, refugees' mental health and well-being also declined in the immediate aftermath of the terror attacks. Together, these results demonstrate the corrosive impact of threatening events on intergroup relations, especially among those out-groups that are blamed and thus suffer the brunt of the backlash following their occurrence.

*Direct correspondence to Arun Frey, University of Oxford, Department of Sociology, 42 Park End Street, Oxford, OX1 1JD. E-mail: arun.frey@stcatz.ox.ac.uk.

# 1 Introduction

How do terrorist attacks affect refugee and immigrant communities? A number of studies have shown that terrorist attacks generate higher levels of anti-immigrant sentiment among in-group members, increase discrimination in the housing and labour market, and in some cases even provoke violent backlash (e.g. Böhmelt, Bove and Nussio 2019; Frey 2020; Legewie 2013; Jäckle and König 2018; Rabby and Rogers 2010; Ratcliffe and von Hinke Kessler Scholder 2015; Wagner and Petev 2019). The extent to which refugees and asylum seekers are affected by such hostile responses, however, remains under-studied. Research examining attitudinal changes in the aftermath of threatening events mostly focuses on the hardening of attitudes among members of the majority population. Yet, little is known of how these same events impact the attitudes and experiences of minority groups. This is a problematic oversight given that such groups are often portrayed as the perpetrators of these events and thus likely suffer the brunt of backlash following their occurrence.

This article sets out to address this gap by examining changes in sentiment among *both* in-group and out-group members following a disruptive event. After first illustrating the impact of a set of terrorist attacks on anti-refugee attitudes among the German population, the paper then explores how these same attacks affect the sentiment of local refugees and asylum seekers. To do this, the study focuses on a series of threatening events that shook France and Germany in mid-July 2016: Within the span of two weeks, three terrorist attacks occurred in close succession in Nice, Würzburg, and Ansbach, during which dozens of people were killed and hundreds wounded. Together, the attacks reignited tensions over immigration policies in Germany, with many drawing parallels between the incidents and the recent influx of refugees into the country. Coincidentally, two surveys (the ALLBUS

General German Social Survey and the SOEP Survey of Refugees in Germany) were already in the midst of gathering survey responses at the time of the events. The fact that the two fieldwork periods concurred with the timing of the attacks presents a unique opportunity to estimate how the terrorist attacks impacted German citizens *and* resident refugees and asylum seekers.

Results of this natural experiment provide rare causal evidence of how threatening events affect the experiences of both in-group and out-group members. On the one hand, the terrorist events increased anti-refugee attitudes among the German population: respondents interviewed during the period following the attacks expressed more negative feelings towards refugees and asylum seekers and associated greater risks with their presence in Germany. Refugees, in turn, were more likely to experience discrimination after the July attacks and reported feeling less welcome than at their initial arrival in the country. Alarmingly, this increased exposure to anti-refugee sentiment and discrimination also translated into worsening mental health and well-being among asylum-seekers. In the immediate aftermath of the events, refugees' mental health substantially deteriorated, with the effects slowly abating over time. Given that the risk of mental health disorders is already far more prevalent among refugee and asylum-seeking communities compared to the general population (Bogic, Njoku and Priebe 2015), this latter finding is of particular concern.

This paper makes three contributions to the literature on the effect of events on intergroup relations. First, while some work suggests that terror attacks in more recent years no longer have an effect on xenophobia and anti-immigrant sentiment (Castanho Silva 2018; Larsen, Cutts and Goodwin 2019), this article demonstrates that even a series of remote (Nice) and comparably 'small' and non-deadly

(Würzburg and Ansbach) terrorist attacks still led to a substantial increase in anti-refugee hostility. This hostility, in turn, was directed specifically against refugees and asylum seekers but not against other minority groups. Second, to the author's knowledge this analysis constitutes the first attempt to examine how threatening events affect the living experiences of refugee communities. In doing so, it highlights some of the additional challenges such events pose to refugees amidst an already laborious integration process. It also complements existing research that only focuses on changing attitudes among the majority population by also illuminating how the minority groups perceived as responsible react to increasing hostility and vitriol. Finally, the analysis offers causal evidence that terrorist attacks not only erode intergroup relations, but also adversely affect the mental health and well-being of out-group members.

## 2 Background and Theory

In July 2016, three Islamist terrorist attacks occurred in close succession and shocked the German public. On July 14th, a cargo truck was launched into a crowd during the Bastille Day celebrations in Nice, France, killing 86 people and wounding hundreds others. Four days later, a 17-year-old asylum seeker severely injured five people with a knife and hatchet on a train near Würzburg, Germany. Finally, on July 24th, a Syrian asylum seeker detonated a bomb outside a wine bar in Ansbach, Germany, killing himself and injuring 15 others.

These events intensified public concerns over the influx of refugees to Germany. Since both domestic attacks were committed by individuals seeking asylum in Germany, many linked the increased threat of terror to the recent surge in immigration.[1] Across the country, attacks against refugee shelters increased in the weeks following

the events (Frey 2020). While the government warned residents against placing all asylum seekers under general suspicion because of the actions of two individuals, others were quick to perceive the terrorist attacks as a result of the increase in domestic refugee presence. "We were right in all our prophecies", Horst Seehofer, the then minister president of Bavaria and vocal critic of chancellor Angela Merkel's refugee policy, proclaimed in a statement following the attacks (der Spiegel 2016). According to him and other like-minded commentators, Islamist terrorists had finally arrived in Germany—disguised as asylum seekers and aided by the country's liberal immigration policy (Connolly 2016).

## 2.1 Terrorism and In-Group Attitudes

One of the first public reactions after a collective threat is to try and identify who is to blame for its occurrence (Carlin, Love and Zechmeister 2013). Following terrorist attacks that are committed by individual members of an out-group, that out-group as a whole can be held "collectively liable" for the conduct of their peers (Black 1983). In addition to the individual threat to safety and security, such events therefore also hold the potential to deteriorate intergroup relations more generally by evoking feelings of threat, fear, and anger among the majority population (Sniderman, Hagendoorn and Prior 2004; Lickel et al. 2006), particularly when perpetrators are part of an already stigmatised out-group (Van Hauwaert and Huber 2020).

Ample evidence demonstrates that the experience of domestic terrorism amplifies the majority's negative sentiment towards those minority groups perceived to be associated with the perpetrators. Using a series of panel surveys in the United States, Hopkins (2010) finds that natives' attitudes towards immigration became more restrictive in the months following the September 11 attacks. In Europe,

the 2004 Madrid and 2005 London bombings increased negative prejudice against Muslim and Arab minorities, respectively (Echebarria-Echabe and Fernández-Guede 2006; Van de Vyver et al. 2016). Similarly, when Dutch film maker Theo van Gogh was assassinated in 2004 by a Muslim extremist, Muslim immigrants were more likely to be perceived as a threat to Dutch culture and to national security (Boomgaarden and de Vreese 2007).

Such attitudinal reactions are not only confined to the targeted country, but also affect intergroup relations abroad. Using a natural experiment, Legewie (2013) finds that the 2002 terror attacks in Indonesia had a far-reaching impact by deteriorating attitudes towards immigrants across several European countries. The terrorist attacks on September 11th, 2001 not only increased xenophobia within the United States, but also affected anti-immigrant sentiment throughout Europe (Åslund and Rooth 2005; Noelle-Neumann 2002; Schüller 2016).[2] While such distant threatening events may contribute to deteriorating intergroup relations abroad, however, Böhmelt, Bove and Nussio (2019) show that the effect is strongest when the event occurs in neighbouring states. Attitudinal spill-overs propagate most strongly in nearby countries because individual threats to safety and security are felt more urgently if an event occurs close by, and because local media disproportionately covers more proximate events.

Whereas the findings above suggest that terrorist attacks at home and in neighbouring countries consistently exacerbate intergroup conflict, there is some ambiguity as to whether more recent attacks elicit similar reactions. Measuring changes in public sentiment across Europe following the Paris terrorist attacks in January and November 2015, Castanho Silva (2018: 838) finds mostly no effect, concluding that 'views on immigration and immigrants have, to a certain extent, stabilised across

Europe and are less susceptible to shifts from dramatic events'. Van Hauwaert and Huber (2020) corroborate these results using different survey data: while in-group solidarity increases following the November 2015 attacks, the authors find no effect on anti-immigrant attitudes among French citizens. Larsen, Cutts and Goodwin (2019) examine anti-refugee sentiment following the 2016 Berlin attacks and, again, find no evidence of a populist or xenophobic response among German and European residents. The authors conclude that 'at least in the short term, the European public do not react strongly to terrorist attacks that are perpetrated in other countries' (Larsen, Cutts and Goodwin 2019: 199).

Considering the ambiguity surrounding the attitudinal consequences of more recent terrorist attacks, it is important to begin the analysis by establishing whether the July 2016 attacks actually increased anti-refugee sentiment among the German population. Since the domestic attacks were primarily associated with the recent refugee arrivals from Muslim majority countries, the events should primarily stoke anti-refugee sentiment, rather than deteriorating attitudes towards immigrants more generally. Previous research, however, rarely distinguishes between different minority groups when examining the effect of terrorism on attitudinal change, assuming instead that such events affect natives' attitudes towards the immigrant population as a whole.[3] Instead, this article compares changes in Germans' attitudes towards asylum seekers to those towards other immigrant groups (people of Polish, Turkish, Italian or Jewish heritage). Given the perceived nature of the threat, the terrorist events should have the greatest impact on anti-refugee sentiment, rather than equally deteriorating attitudes towards all immigrant groups.

## 2.2 Terrorism and Out-Group Attitudes

Although terrorist attacks may incite fear and anger among the majority population, the effects are likely more consequential for those local minority groups against which the resulting increase in vitriol is directed. Yet, while the effects on the in-group have been well-documented, we know surprisingly little about how threatening events impact the attitudes and living experiences of out-group members.

This oversight is problematic for three reasons: First, a narrow focus on only the reactions of the native population fails to identify unique challenges such events pose for targeted immigrant communities. Second, studies on worsening attitudes towards immigrants following terrorist attacks largely *assume* rather than *measure* that this attitudinal change translates into an observable increase in discrimination. Previous research, however, indicates that some attacks do not have the same impact on discriminatory behaviour as they have on anti-immigrant sentiment (see Birkelund et al. 2018). Finally, any holistic understanding of how a disruptive event alters intergroup relations necessitates examining its effect on both in- and out-group communities.

Despite the relative absence of research on attitudinal change among minority groups, there is good reason to believe that threatening events have a considerable negative impact on their living experiences. Most directly, such events hold the potential to drastically increase individual exposure to hostility and physical violence. In the week after the terrorist attacks on September 11, 2001, hate crimes against Arab and Muslim minorities in the United States escalated from less than 1 to more than 200 reported cases (Byers and Jones 2007). In Germany, news of the 2015/16 New Year's Eve sexual assaults—which occurred only a few months prior to the events examined here—caused an unprecedented wave of backlash violence against

refugee communities throughout the country (Frey 2020).

In addition to these direct detrimental effects, threatening events also indirectly corrode minority group members' experiences by spilling over into various other aspects of everyday life. Islamist terrorist attacks have been shown to increase the discrimination against Muslims in the housing, labour, and online rental markets, for example (Ratcliffe and von Hinke Kessler Scholder 2015; Rabby and Rogers 2010; Wagner and Petev 2019). Law enforcement and the judicial system are also more prone to bias following threatening events. Legewie (2016) shows that police officers in New York City are quicker to use force during pedestrian stops of African Americans following the homicide of fellow officers by Black suspects. Such aggressive policing not only impacts those minorities directly involved in the confrontation, but also damages surrounding communities by for instance impacting the educational performance of local minority youth (Legewie and Fagan 2019) or reducing crime reporting rates (Desmond, Papachristos and Kirk 2016). Even court rulings are susceptible to shifts in public sentiment: non-US citizens tried in local courts in New York City and Washington, DC, received harsher sentences following the September 11 terrorist attacks (Light, Dinsmore and Massoglia 2019).

The criminalisation of immigration at institutional level also accelerates in the aftermath of terrorist attacks (Chacón 2008). Governments respond to attacks by implementing more restrictive immigration policies under the guise of establishing counter-terrorism strategies (Avdan 2014; Neumayer 2006). Following the attacks in Würzburg and Ansbach, for example, German chancellor Angela Merkel promised to expedite the deportation of asylum seekers with little chance of remaining in Germany, including back into crisis-prone regions (Peters and Mayr 2016). Although such restrictive policies are often implemented after the occurrence of a terrorist

attack, other governments have taken them pre-emptively or in response to events elsewhere. Despite the absence of recent domestic Islamist terrorist activity, U.S. President Donald J. Trump passed Executive Order 13780 (2017) as one of his first actions in office, suspending the entry of all immigrants and asylum seekers from six Muslim-majority countries with the explicit aim of 'protecting the Nation from foreign terrorist entry into the United States.'[4]

Threatening events can thus introduce more hardship, physical violence, and institutional discrimination into the everyday life of immigrant groups. Among those immigrants, refugees and asylum seekers—whose future prospects in a host country are heavily dependent on government policies and the current socio-political climate—are at highest risk of suffering from such sudden shocks that corrode intergroup relations. After examining the impact of the terrorist attacks in Nice, Würzburg, and Ansbach on Germans' attitudes towards refugees, this study therefore explores to what extent these same events affect refugees' and asylum seekers' exposure to hostility and discrimination.

## 2.3 Discrimination and Mental Health

Increasing intergroup hostility in the aftermath of threatening events may not only impede the integration of minority groups, but also affect their mental well-being. Literature on the relationship between racism and mental health treats discrimination as a stressor that adversely affects health outcomes by (1) evoking negative emotional states and psychological distress, and by (2) encouraging unhealthy stress-induced behaviour such as increased substance abuse or sleep deprivation (Williams and Mohammed 2009).[5] Accordingly, a range of studies demonstrate that the experience of discrimination is associated with several adverse health outcomes, including depression, anxiety, or psychological and physiological distress, as well as with unhealthy coping strategies (e.g. Burt, Simons and Gibbons 2012; Johnston and Lordan 2012; Kessler, Mickelson and Williams 1999; Monk 2015; Pascoe and Richman 2009; Williams and Mohammed 2009; Zorlu and Frijters 2019). Discrimination need not be personally experienced to have such detrimental effects: vicarious exposure through others and even the mere anticipation of exposure to discrimination itself can suffice to lower individuals' subjective well-being (Williams, Lawrence and Davis 2019; Sawyer et al. 2012).

A terrorist attack can be understood as a primary stressor that adversely affects the mental health of blamed out-group members by increasing their exposure to discrimination and elevating psychological distress. This initial experience can in turn give rise to other secondary or chronic stressors (such as loss of employment or social isolation) that have a lasting deleterious impact on individuals' more enduring life conditions (Pearlin 1989: 247).[6]

Such a damaging effect of terrorism on mental health is particularly problematic for refugees and asylum seekers: in a meta-study of articles assessing the preva-

lence of depression and anxiety disorders in adult refugees, Bogic, Njoku and Priebe (2015: 35) conclude that 'refugees may be up to 14 times more likely to have depression and 15 times more likely to have [post-traumatic stress disorder]' compared to the general Western adult population. This elevated vulnerability is not only due to differences in exposure to traumatic events *prior* to migration, but continues to be shaped by experiences *upon arrival* in the host country (see Bogic, Njoku and Priebe 2015; Walther et al. 2019; Szaflarski and Bauldry 2019). Thus far, however, no research has systematically examined how these "post-migratory" experiences shape refugee well-being. In assessing how threatening events and the potential backlash that ensues affect the mental health of asylum seekers, this study therefore considerably improves our understanding of the persisting mental health disparities between refugees and the general population.

Methodologically, this research design also provides a unique opportunity to causally assess the impact of discrimination on well-being. In a systematic review of 115 peer-reviewed articles, Williams and Mohammed (2009: 4) note that while, 'almost without exception, studies of discrimination and mental health find that higher levels of discrimination are associated with poorer mental health status (...), almost all studies are cross-sectional, leaving open the possibility that perceptions of discrimination are a consequence [rather than a cause] of mental health status.' Since perceived discrimination is 'reported by subjects without verification of actual events', differences in perceptions may themselves be endogenous to mental health disparities (Pascoe and Richman 2009: 3). Thus, while the inverse relationship between discrimination and mental health is well established, its causal direction is often ambiguous. A rare exception is Bor et al. (2018), who use instances of police killings of unarmed African Americans to demonstrate how rapid increases in per-

ceived injustice corrode mental health among the Black community in the United States. Following a similar design, this research provides first causal evidence of how a sudden spike in discrimination affects the mental health of refugees and asylum seekers.

# 3 Data and Methods

Given the country's sudden surge in refugee presence, with 1.2 million registered asylum applications in 2015 and 2016 alone (bpb 2018), Germany constitutes a unique case to explore how threatening events deteriorate everyday interactions between an established in- and a rapidly-expanding out-group. To do this, the study makes use of two surveys: the German General Social Survey (ALLBUS) and the IAB-BAMF-SOEP Survey of Refugees in Germany (SOEP). While the ALLBUS survey comprises a biennial cross-sectional survey which, since 1980, has provided information on the attitudes and behaviours of German residents, the SOEP Refugee panel was only recently introduced in 2016 following a joint effort to survey the increasing number of persons seeking protection from violence and political prosecution in Germany (DIW Berlin 2019).[7]

In late July, 2016, the fieldwork period of both surveys overlapped with the terrorist attacks in Nice, Würzburg, and Ansbach (see Figure 1). This constitutes a unique opportunity for a natural experiment: given exogenous variation in exposure to the events, it is possible to examine whether the terror attacks had an impact on the sentiment of Germans and refugees by comparing responses in prior weeks (control group) to those in the aftermath (treated group).[8] To balance the number of cases against the plausibility of the experimental design, the study only considers respondents who were interviewed in the four weeks leading up to and following the

first terrorist attack in Nice, on July 14th, 2016 (see shaded areas in Figure 1).[9]

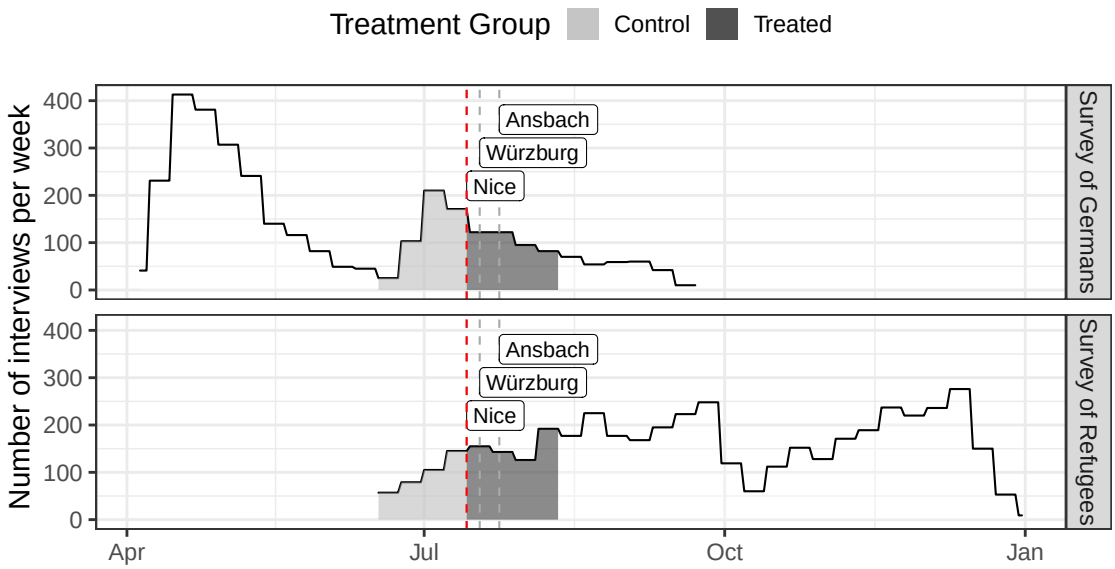



Figure 1: Fieldwork and sample periods of the German and Refugee surveys
*Notes*: Respondents interviewed in the four weeks prior to July 14th, 2016, are part of the control group, while respondents interviewed in the four weeks after July 14th, 2016, are part of the treatment group. Respondents who were interviewed on the day of the first attack itself were removed from the analysis.

## 3.1 Estimation Strategy

Given the exogenous shock of the terrorist attacks, respondents should be assigned to treatment and control groups as good as randomly, depending only on the timing of their interview. Two assumptions are needed to establish a causal effect (Muñoz, Falcó-Gimeno and Hernández 2019): *excludability* (i.e. differences in attitudes between those interviewed before and after the treatment are solely due to the treatment effect) and *temporal ignorability* (i.e. the timing of the interview should be independent from the potential outcomes of Y).

The *excludability* criterion posits that the timing of the interview should not

affect the outcome through any other channel but the treatment. Since individuals are split into treatment and control groups based on the date of their interview, other time-varying variables that are systematically related to the outcome may bias the effect estimates. To reduce such potential biases, I have selected the short window of analysis of only four weeks on each side of the treatment. During this treatment period, one other mass shooting occurred at a mall in Munich on July 21st, killing nine people and wounding thirty-six others. Unlike with the cases considered here, however, the event was classified as a revenge crime, following the alleged bullying of the 17-year-old German-Iranian perpetrator at school. Since this event was not blamed on or brought in connection with the resident refugee population, I therefore do not expect it to have impacted intergroup relations between Germans and asylum seekers. To scrutinize this expectation, I run a separate robustness check where I further differentiate between individuals who were interviewed before and after the shootings in Munich on July 21st. Treatment coefficients estimated before and after these attacks do not differ systematically, increasing my confidence in the assumption that the Munich events did not bias the estimated results (see Section B in the Appendix).

The *temporal ignorability* assumption holds that the potential outcomes in $Y$ are independent of treatment assignment. Survey fieldwork designs (where some groups are interviewed at earlier points than others) and differences in reachability (where some groups are harder to reach than others) can violate this assumption and introduce systematic differences between treatment and control groups. Fortuitously, both the German citizen and the Refugee surveys contain information on the number of prior interview attempts for each participant.[10] Controlling for the number of times each respondent was contacted thus accounts for differences in

reachability. In addition to this, I also examine the balance between treatment and control groups on a range of other variables known to be associated with differences in survey response: for both surveys, I include information on respondents' age, sex, and geographic locality (East and West Germany). Among German interviewees, I additionally test for balance on education, unemployment and marital status. For the refugee sample, differences in legal status and the high housing mobility during the refugee crisis may have affected response rates among hard-to-reach population groups (see Kühne et al. 2019). I therefore also include information on respondents' refugee status, country of origin, and type of accommodation.[11] Whereas language barriers are usually another source of bias, the SOEP Refugee survey went to great lengths to ease such concerns by providing all interview materials in seven different languages (German, English, Arabic, Farsi, Pashto, Urdu, and Kurmanji) (Kühne et al. 2019).

Figure 2 suggest that balance on covariates is already very high for both datasets. For most variables, the standardised mean difference between treatment and control groups falls below the threshold of 0.1 (Stuart, Lee and Leacy 2013). However, the matched sample—where observations are matched using entropy balancing (Hainmueller 2012)—further improves the balance across both datasets. In addition to conditioning on these set of variables in the main regression analysis, I therefore also repeat all estimations using the entropy re-balanced sample in Section G of the Appendix, and results are robust to this change.

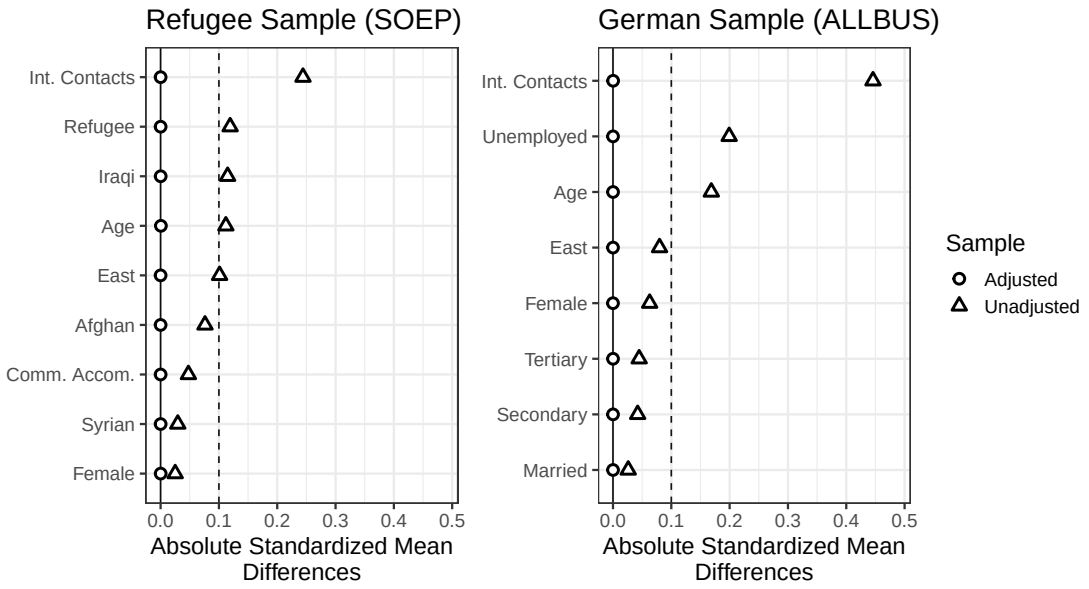



Figure 2: Covariate Balance across treatment and control groups in the Refugee and German citizen surveys.
*Notes:* Entries report the standardised mean covariate differences between the treatment and the control groups. The adjusted sample was preprocessed using entropy re-balancing.

Thus, following the conditional ignorability assumption ($Y_i(0) \perp Y_i(1) \mid X_i$), I estimate the causal effect of the terrorist attacks on attitudinal change using the equation:

$$Y_i = \alpha + X_i\beta + \delta T_i + \epsilon_i$$

Where $T_i$ is a binary variable that differentiates between respondents interviewed prior to the attacks (control group) and those interviewed in the aftermath (treatment group), so that $\delta$ identifies the estimated effect of the terrorist events on attitudinal change, conditional on pre-treatment covariates $X_i$.

## 3.2 Dependent variables

Following this estimation strategy, the study assesses the impact of the terrorist attacks on a range of dependent variables. For German respondents, the analysis explores whether the events heightened negative emotions toward, risk assessments of, and perceived social distance to asylum seekers. Conversely, for refugee respondents the analysis assesses whether the attacks increased refugees' negative living experiences in Germany and adversely impacted mental health and well-being. Missing values were imputed using random forests to maximise the number of observations across regressions and to improve comparability (Stekhofen and Bühlmann 2012).[12] Re-running the analysis using pairwise deletion of missing values instead, however, does not affect the results.

### 3.2.1 Survey of German citizens (ALLBUS)

Among other items, the ALLBUS survey includes an array of questions concerning respondents' attitudes towards refugees and asylum seekers. These items are used as dependent variables to examine how Germans' (1) feelings towards, (2) risk perceptions of, and (3) perceived social and cultural distance from refugees change following the terrorist attacks.

A set of survey questions required respondents to describe their feelings towards different minority groups, including asylum seekers. Interviewees were asked to what extent they agree or disagree with four different emotional positions towards minorities: pity, fear, anger, and affection (on a scale from 1 to 4). I summarised these continuous responses in a single factor variable measuring overall negative sentiment towards asylum seekers (using principal component analysis), and also converted each emotion into a separate binary dependent variable to illustrate whether the

attacks had a stronger impact on some emotional states over others.[13]

Next, the questionnaire contained a set of items gauging the extent to which respondents associate refugees with risks to public safety, social cohesion, as well as to the welfare state and economy. For each of these topics, interviewees were asked to rate on a five-point scale whether refugees constitute a risk (1) or an opportunity (5) for the future of Germany. As before, each of these items was recoded into separate binary variables as well as summarised into a single factor variable, which captures the extent to which citizens perceive refugees and asylum seekers as a general risk for the future of Germany.[14]

Finally, two questions were used to estimate the effect of the attacks on perceived social distance: (1) the extent to which interviewees were uncomfortable with having a refugee as their neighbour, and (2) the degree of perceived difference between the lifestyle of refugees and Germans (both ranging from 1 to 7). Both variables were recoded so that higher values indicate more perceived social distance. Table 1 includes the summary statistics for all variables for the German sample.

# Figures

Table 1: Summary Statistics (German Sample)

| | Control | | | Treatment | | |
|---|---|---|---|---|---|---|
| | N | Mean | s.d. | N | Mean | s.d. |
| **Emotions** | | | | | | |
| Neg. Emotions (Factor) | 521 | -0.10 | 1.54 | 438 | 0.12 | 1.47 |
| Anger | 521 | 0.23 | 0.42 | 438 | 0.29 | 0.45 |
| Fear | 521 | 0.30 | 0.46 | 438 | 0.37 | 0.48 |
| Pity | 521 | 0.78 | 0.41 | 438 | 0.77 | 0.42 |
| Affection | 521 | 0.47 | 0.50 | 438 | 0.41 | 0.49 |
| **Risk** | | | | | | |
| Risk (Factor) | 521 | -0.05 | 1.67 | 438 | 0.05 | 1.59 |
| Welfare State | 521 | 0.62 | 0.49 | 438 | 0.64 | 0.48 |
| Social Cohesion | 521 | 0.45 | 0.50 | 438 | 0.51 | 0.50 |
| Safety | 521 | 0.68 | 0.47 | 438 | 0.74 | 0.44 |
| Economy | 521 | 0.38 | 0.49 | 438 | 0.40 | 0.49 |
| **Social Distance** | | | | | | |
| Cultural Difference | 521 | 5.64 | 1.25 | 438 | 5.66 | 1.26 |
| Neighbour | 521 | 4.55 | 1.48 | 438 | 4.68 | 1.44 |
| **Independent Variables** | | | | | | |
| Female | 521 | 0.50 | 0.50 | 438 | 0.47 | 0.50 |
| Age | 521 | 53.24 | 17.76 | 438 | 50.27 | 17.64 |
| East | 521 | 0.31 | 0.46 | 438 | 0.35 | 0.48 |
| Int. Contacts | 521 | 1.58 | 0.49 | 438 | 1.81 | 0.51 |
| Secondary | 521 | 0.63 | 0.48 | 438 | 0.61 | 0.49 |
| Tertiary | 521 | 0.37 | 0.48 | 438 | 0.39 | 0.49 |
| Married | 521 | 0.57 | 0.50 | 438 | 0.56 | 0.50 |
| Unemployed | 521 | 0.45 | 0.50 | 438 | 0.35 | 0.48 |

Fortuitously, the German survey also required respondents to rate their emotions and perceived social distance towards other minority groups. To check the robustness of my estimates, I thus compare changes in anti-refugee sentiment following the terrorist attacks to changes in perceptions of Italian, Polish, Jewish, and Turkish groups. This comparison will also reveal whether the July 2016 attacks increased

anti-refugee sentiment specifically, or fuelled more general anti-immigrant attitudes.

### 3.2.2 Survey of Refugees (SOEP)

In 2016, the SOEP Survey of Refugees interviewed 4,817 refugees and asylum seekers to obtain information on the integration efforts and living conditions of the recent arrivals in Germany. I use this dataset to examine whether changes in xenophobic sentiment among the German population actually translate into heightened perceived hostility and mental distress among refugees and asylum seekers.

**Hostility** Three items from the survey questionnaire were used to examine changes in refugees' exposure to hostility following the July 2016 attacks: first, refugees were asked whether they have recently experienced any discrimination on the basis of their origin. I recode this item from a three-level to a binary variable, where 0 indicates no experience of discrimination, and 1 some or frequent discrimination. Second, respondents were asked about a list of concerns, including their worry about the level of anti-immigrant sentiment in Germany (ranging from 1 to 3). Following the same approach as above, I transform this item into a binary variable, where 0 indicates no concerns about anti-immigrant sentiment and 1 indicates some or strong concerns. Third, I construct a variable measuring whether respondents felt more or less welcome now than at their arrival. For many refugees and asylum seekers, the feeling of being welcome played an important role in their decision to migrate to Germany. Of all survey respondents, 44 per cent listed Germany's "welcome culture" as one of the main reasons for migrating to the country. In fact, out of all 11 reasons for travelling to Germany that were included in the survey, the feeling of being welcome was among the most frequently selected, second only to concerns over human rights protection. It is conceivable that this feeling of acceptance suffered

in response to the terrorist attacks and the resulting increase in hostility. The survey includes two questions on how welcome respondents feel, both when they first arrived in the country and at the time of the interview. Using these two items, I construct a continuous variable that measures each individual's change in feeling welcome, where 0 indicates no change and negative (positive) scores imply that the respondent feels less (more) welcome now than at her arrival.

**Well-Being** Finally, to examine whether the attacks also affected refugees' and asylum seekers' mental well-being, I make use of two indices: the 4-item Patient Health Questionnaire for Depression and Anxiety (PHQ-4) and the 12-item Mental Health Component Summary (MCS) score. The PHQ-4 is a short and reliable measure of mental distress that has been repeatedly used and validated (Kroenke et al. 2009; Löwe et al. 2010), including most recently in two studies of the German refugee population (Kliem et al. 2016; Walther et al. 2019). The variable consists of four measures that cover the core symptoms of depression and anxiety, yielding a single estimate of mental distress that ranges from 0 (no distress) to 12 (severe distress). The Mental Health Component Summary score is obtained from the frequently-used 12-item Short Form Health Survey (SF-12) measure of mental health. Individual scores are generated using exploratory factor analysis and then transformed to range from 0 to 100, with higher scores indicating higher levels of mental health ([for a detailed summary of the computation, see Nübling et al. 2007). The average MCS score for the German population is 50, with a standard deviation of 10. Table 2 includes the summary statistics for each of the variables used from the refugee survey.

Table 2: Summary Statistics (Refugee Sample)

| | Control | | | Treatment | | |
|---|---|---|---|---|---|---|
| | N | Mean | s.d. | N | Mean | s.d. |
| **Hostility** | | | | | | |
| Discrimination | 386 | 0.35 | 0.48 | 647 | 0.43 | 0.49 |
| Anti-immig. worries | 386 | 0.29 | 0.45 | 647 | 0.31 | 0.46 |
| Feeling welcome | 386 | 0.01 | 0.80 | 647 | -0.10 | 0.87 |
| **Well-Being** | | | | | | |
| Mental Health | 386 | 46.90 | 12.40 | 647 | 46.03 | 11.85 |
| Mental Distress | 386 | 3.17 | 3.07 | 647 | 3.24 | 2.98 |
| **Independent Variables** | | | | | | |
| Female | 386 | 0.34 | 0.47 | 647 | 0.35 | 0.48 |
| Age | 386 | 33.34 | 11.30 | 647 | 32.15 | 10.58 |
| East | 386 | 0.18 | 0.38 | 647 | 0.22 | 0.41 |
| Int. Contacts | 386 | 1.61 | 0.41 | 647 | 1.72 | 0.44 |
| Refugee | 386 | 0.33 | 0.47 | 647 | 0.38 | 0.49 |
| Syrian | 386 | 0.51 | 0.50 | 647 | 0.49 | 0.50 |
| Iraqi | 386 | 0.08 | 0.26 | 647 | 0.11 | 0.31 |
| Afghan | 386 | 0.11 | 0.32 | 647 | 0.09 | 0.29 |
| Comm. Accom. | 386 | 0.37 | 0.48 | 647 | 0.35 | 0.48 |

# 4 Results

Results of the regression analyses are presented below. The figures display the estimated coefficients and confidence intervals (90% and 95%) of the treatment effect across all models, conditioning on all other independent variables. The corresponding regression tables are listed in Section D of the Appendix, alongside a series of robustness checks in Sections G, H, and, I. The reported estimates are derived using OLS with heteroskedasticity-consistent robust standard errors.[15] To facilitate a comparison between continuous and binary outcomes, all continuous dependent variables are standardised by dividing by two standard deviations of the control

group (Gelman 2008).

## 4.1 Anti-refugee attitudes

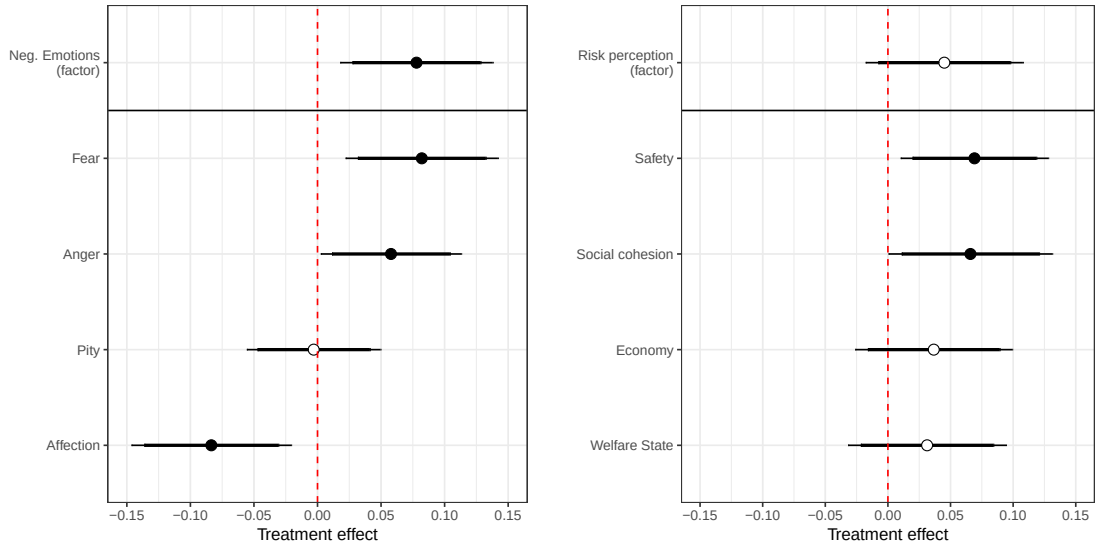
The study begins by examining the impact of the terrorist attacks on native Germans' negative attitudes towards refugees and asylum seekers.

Figure 3a visualises to what extent respondents' anger, fear, pity, and affection towards refugees changes in the aftermath of the terror attacks. In line with the theoretical expectations, the events substantially increase respondents' fear of and anger toward asylum seekers, while also decreasing feelings of affection. Specifically, respondents who were interviewed in the month after the attacks are 8 percentage points more likely to fear and 6 percentage points more likely to be aggravated by refugees, a substantial 28% and 26% increase from the control group mean. While affection towards refugee groups drops by about 7 percentage points (15%), pity seems to have not been affected by the attacks.

Interestingly, despite this considerable increase in anti-refugee sentiment following the terrorist attacks, however, Germans' feelings towards other minority groups remain unchanged. Figure E.1 in the Appendix reveals that feelings towards Polish, Jewish, Italian, and Turkish minorities are largely unaffected by the terrorist events. This not only strengthens the robustness of the findings, but also indicates that, rather than causing an undifferentiated increase in xenophobia, the July 2016 attacks seem to primarily spur negative emotions towards asylum seekers—the out-group deemed responsible for the events.

In addition to these emotive reactions, German respondents also associate greater risks with refugees in the weeks following the terror attacks (see Figure 3b). In line with the perceived nature of the threat, German interviewees are particularly

concerned about the threats that refugees pose to safety and social cohesion, while being somewhat less worried about their more general impact on the German welfare state or the economy. These substantial effects are particularly striking given that, even prior to the July attacks, respondents were very worried about threats to safety and cohesion. Already in the control group, some 68% of respondents report to be concerned about the safety threat that refugees pose, yet this share increases by an additional 7 percentage points (10%) in the aftermath of the attacks.




(a) Emotions towards asylum seekers (b) Risks associated with asylum seekers

Figure 3: Impact of the terror attacks in Nice, Ansbach, and Würzburg on feelings toward refugees and risk perceptions.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, education, marriage and employment status, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

Whereas the July 2016 terrorist attacks have a clear impact on anti-refugee sentiment and risk perceptions, the effect is less clear-cut for perceived social distance. Theoretical insights suggest that while threatening events can spark immediate hos-

tility, anger, and aggression (Blumer 1958; Lickel et al. 2006), social boundaries develop over longer periods (Qian and Lichter 2007; Smith, McPherson and Smith-Lovin 2014) and may thus be less sensitive to sudden shocks. In line with this, Figure 4 showcases that the July 2016 terrorist attacks had less of an effect on perceived social and cultural distance: while Germans' discomfort with having an asylum seeker as their neighbour increases by 0.09 standard deviations, this effect is statistically insignificant. Perceived differences between Germans and asylum seekers are also not affected by the July 2016 events. Respondents in the control group already perceive refugee communities as very different from their own, even when compared to other minority groups. The mean "social difference" score (which ranges from 1 (no difference) to 7 (very different)) is 5.6 for refugees in the control group—compared to 2.7 for Jewish, 2.8 for Polish, 3.0 for Italian, and 4.5 for Turkish communities. This large initial gap does not, however, further increase following the terrorist attacks.

Taken together, results of the German sample demonstrate that the terror attacks in Nice, Würzburg, and Ansbach lead to a substantial increase in anti-refugee attitudes, increasing negative emotions toward and heightening risk perceptions of refugees and asylum seekers throughout Germany. These results are particularly striking given that for many of the dependent variables used, the baseline rate in the period prior to the events is already very high. In the control group, some 68% of respondents already view refugees as a risk to their personal safety, 63% as a risk to the state, and 45% as a threat to social cohesion. Yet, despite high pre-existing antipathy towards refugees (and potentially dampening ceiling effects), negative sentiment still further increases in the aftermath of the attacks. Results also indicate that the July terror attacks do not cause a broad and indiscriminate increase in xenophobia. While recent findings suggest that the impact of threatening events

may have subsided (Castanho Silva 2018; Larsen, Cutts and Goodwin 2019), these results clearly showcase that refugees—the out-group blamed for the attacks—were viewed more negatively by the German public in the weeks that followed.

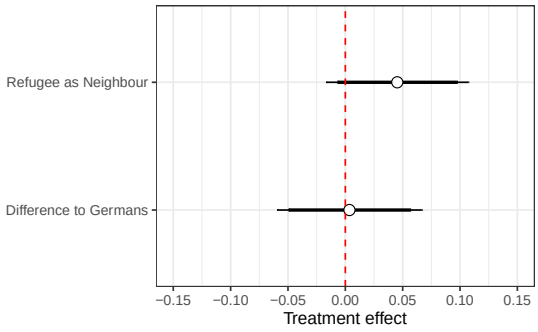



Figure 4: Perceived Social Distance between Germans and Asylum Seekers.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, education, marriage and employment status, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

## 4.2 Refugees' experiences of hostility

Having established that the terror attacks in Nice, Würzburg, and Ansbach did stoke anti-refugee sentiment, the analysis now turns to examining whether such change in sentiment was felt by the resident refugee population in Germany.

Figure 5 visualises the impact of the terror attacks on refugees' experiences of discrimination, worry over anti-immigrant sentiment, and feelings of being welcome in Germany. As the positive coefficient indicates, refugees interviewed in the period after the attacks were significantly more likely to have experienced discrimination than those interviewed prior to the events: more specifically, while some 34 per cent of refugees report to have been discriminated against in the control group, this share increases by 8 percentage points to 43 per cent among respondents in the treatment

period. This represents a substantial 24% increase, highlighting the considerable impact of the July attacks on refugees' exposure to discrimination in Germany.

Mirroring this increase in discrimination, refugees also feel less welcome in the aftermath of the terror attacks. On average, each respondents' feeling of being welcome drops by 0.11 points (or 0.14 standard deviations) in the treatment period. In fact, there is no observed difference in the extent to which refugees feel welcome between arrival and the interview if the interview was conducted *prior* to one of the threatening events; it is only *after* the terrorist attacks that respondents report a relative decline in feeling welcome. Further controlling for refugees' year of arrival in Germany does not affect these results—suggesting that this decrease is not due to differences in the timing of entry into the country. Together with the increased experiences of discrimination, these findings indicate that the surge in anti-refugee sentiment among the majority population actually translated into higher levels of discrimination and impacted the living experiences of refugees and asylum seekers in Germany.

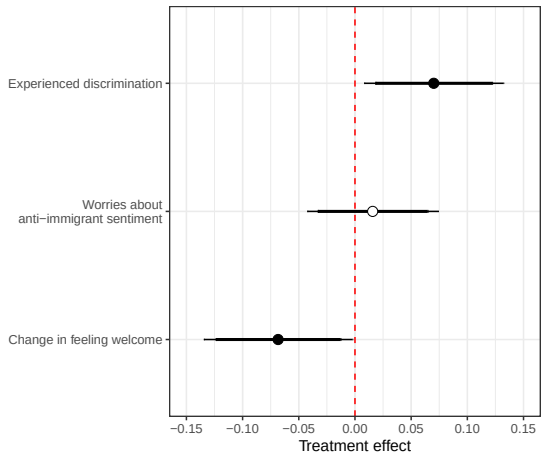



Figure 5: Impact on refugee sentiment.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, refugee status, country of origin, type of refugee shelter and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

As Figure 5 also suggests, however, this increased hostility does not seem to translate into an elevated concern over anti-immigrant attitudes. Despite the documented increase in negative sentiment towards refugees and a self-reported increase in discrimination, interviewed refugees are *not* more likely to worry about anti-immigrant attitudes following the July attacks. A closer examination of the complete set of worries listed in the survey reveals that asylum seekers are not nearly as troubled by xenophobic sentiment as they are by other issues. In fact, Figure F.1 in the Appendix visualises that concern over anti-immigrant attitudes ranks *last* among all possible worries in both treatment and control group, with only about 30% of respondents being somewhat or very concerned about xenophobia. Instead, most asylum seekers seem to have much more immediate concerns: the large majority worry about their dire economic situation, followed by their future prospects in Germany and in their countries of origin. These worries reflect the precarious

position of refugees and asylum seekers in Germany in 2016. At the time of the survey, as few as 3% of respondents report to be in full employment, with many still awaiting a decision over their asylum status. In the presence of other, more pressing problems, such as finding employment, securing permanent residency, or worrying about the precarious situation in their home country, refugees and asylum seekers may not have the "luxury" of also agonizing over less tangible issues like the level of latent xenophobia within the host country.

## 4.3 Refugees' mental health and well-being

To what extent, then, does the observed increase in anti-refugee sentiment among German citizens and reported higher levels of discrimination affect refugees' mental health and well-being? Figure 6 visualises the effect of the events on asylum seekers' mental health and emotional distress. While Figure 5 suggest that refugees are not more concerned about anti-immigrant sentiment following the July attacks, results in Figure 6 indicate that the events still impacted subjective well-being. Refugees who were interviewed during the treatment period report significantly lower levels of mental health. Concretely, the MCS score drops by about 0.11 standard deviations among respondents in the treatment period.

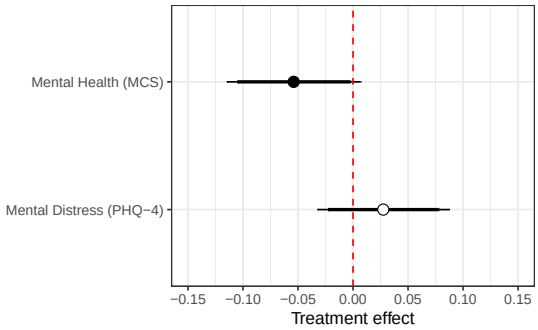



Figure 6: Impact of the terror attacks in Nice, Würzburg, and Ansbach on the well-being of refugees and asylum seekers.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, refugee status, country of origin, type of refugee shelter and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

The reported coefficient measuring refugees' mental distress, however, is only slightly positive and statistically insignificant. While this suggests that, over the four-week period, the terrorist attacks in July 2016 seem to no longer affect refugees' level of emotional distress, it may be that such an effect is strongest in the immediate aftermath of an event. A treatment period of four weeks could in such case conceal stronger short-term effects that abate over time. To explore whether the terrorist attacks had an abrupt but less durable impact on refugees' and asylum seekers' mental health, I therefore repeat the analysis above but vary the treatment period to range between 5 and 35 days. Figure 7 visualises the treatment coefficients for each of these regression models and, indeed, provides evidence of a drastic short-term effect. Refugees' mental health and distress suffer most directly following the attacks: in the first five days of the treatment period, respondents report a 0.39 standard deviation decrease in mental health and 0.23 standard deviation increase in mental distress. These changes are not only substantial but also clinically rele-

vant: two studies in Europe (Vilagut et al. 2013) and Australia (Gill et al. 2007) identify a mental health component score of 45 or less as the screening threshold for detecting depressive disorders. After exposure to the terrorist attacks, refugees' MCS score drops by 4.8 points to 42.1, well below this recommended threshold. This pronounced effect then slowly decreases over time, with the positive coefficient for mental distress becoming statistically insignificant (at $p < 0.1$) after 18 days. The effect on mental health, while decreasing over time, remains statistically significant through most of the treatment period. These results provide first evidence that the July 2016 terrorist attacks not only exacerbated anti-refugee sentiment among the majority population and increased refugees' experiences of discrimination, but also substantially deteriorated refugees' and asylum seekers' subjective well-being.

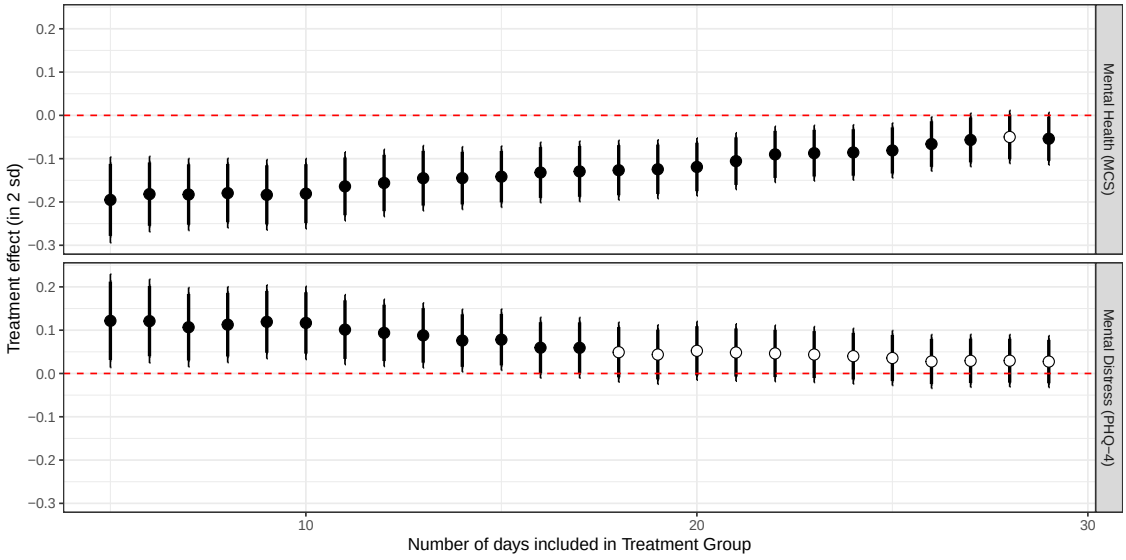



Figure 7: Effect of the terrorist attacks on wellbeing abates over time.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, refugee status, country of origin, type of refugee shelter and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

# 5 Conclusion

The literature on intergroup relations is increasingly embracing the use of natural experiments to explore how exogenous shocks fuel between-group aggression and stoke conflict. This is a welcome development that sheds more light on the conditions under which threatening events provoke intergroup contention. However, current research is still heavily skewed toward only studying how such events affect the majority population.

This article leveraged the occurrence of a series of terrorist attacks during the fieldwork period of two surveys to examine how threatening events impacted the sentiment of in- *and* out-group members. Focusing on attitudinal changes among both the native and the resident refugee population in Germany, the study finds that a series of Islamist terrorist attacks in July 2016 exacerbated anti-refugee sentiment among German respondents, while increasing experiences of discrimination and mental distress among refugees and asylum seekers. German participants interviewed in the aftermath of the attacks felt more negatively toward refugees (exhibiting higher levels of anger and fear, and lower levels of affection) but not towards other minority groups, and considered refugees as a greater risk to safety and social cohesion. Mirroring this increase in hostility, refugees and asylum seekers reported a substantial 8 percentage point increase in discrimination after the attacks, and felt less welcome than at their initial arrival in the country. This observed increase in hostility ultimately seems to have resulted in a marked decrease in psychological well-being among refugee communities, who suffered clinically-relevant declines in mental health in the immediate aftermath of the terrorist attacks.

These findings highlight a crucial but often overlooked aspect of intergroup conflict: how blamed out-groups—against which much of the resulting increase in vit-

riol, discrimination, and violence is directed—react to threatening events. In doing so, the study illuminates some of the particular challenges such groups face. Even in the absence of a threatening event, refugees and asylum seekers display markedly lower rates of subjective well-being compared to the general population in Western Europe, with differences not attenuating over time (Walther et al. 2019). This study suggests that the occurrence of a threatening event may contribute to these ongoing disparities in health status. Unlike with traumatic experiences that occurred *prior* to arrival, however, concrete policy measures can be taken to reduce the impact of such *post*-migratory stressors on refugees' mental health and well-being. Given the vulnerability of these communities, policy makers should be keenly aware of any additional factors that aggravate existing challenges. As such, the design of robust integration policies should consider (and mitigate) the added stress experienced by refugee communities following the aftermath of a threatening event.

This natural experiment also constitutes a rare opportunity to assess the causal impact of discrimination on the mental health of minority groups. While the inverse correlation between discrimination and well-being is amply documented, the direction of this relationship is explored less frequently, given a reliance on cross-sectional or retrospective data. In this vein, these results also speak to our understanding of persisting health disparities between minority groups and the majority population by offering causal evidence of the impact of environmental stressors on refugees' well-being.

Finally, a persistent shortcoming with all research examining intergroup conflict but relying on survey data is that *talk is cheap*: such research often fails to identify whether changes in attitude actually translate into concrete changes in behaviour. This paper has addressed this problem by triangulating multiple data sources on

native and refugee sentiment. It thus complements existing research by showcasing that changes in attitudes among the majority population are in fact felt by the targeted minority groups: higher levels of anti-refugee sentiment among natives actually correspond to refugees' own experiences of discrimination within the same time period. Ultimately, however, future research that combines such individual-level survey data with rich behavioural information could fill this gap more elegantly, and greatly improve our understanding of when changes in behaviour follow from changes in attitude.

# Notes

1. By the end of 2015, an estimated 890,000 asylum seekers had made their way into Germany. Between 2015 and 2016 alone, more than 1.1 million applications for asylum were submitted across the country, far more than during previous years (see Figure A.1).

2. Interestingly, Åslund and Rooth (2005) show that this shift in attitudes did not correspond with increased discrimination in the labour market.

3. Among the few exceptions are Bar-Tal and Labin (2001) and Echebarria-Echabe and Fernández-Guede (2006).

4. These countries include Yemen, Syria, Sudan, Somalia, Iraq, and Iran.

5. Next to discrimination, differential access to services, internalised negative stereotypes, and institutional barriers also contribute to racial disparities in health outcomes (Williams and Mohammed 2009).

6. This multiplication of stressors illustrates how discrete events (such as exposure to terrorism, criminal justice contact (Sugie and Turney 2017) or aggressive policing (Geller et al. 2014)) compound to contribute to the persisting social inequalities in health status between majority and minority groups (Pearlin 1999).

7. The survey was first introduced by the following organisations: The Institute for Employment Research (IAB), the Socio-Economic Panel (SOEP) at the German Institute for Economic Research (DIW Berlin), and the Research Centre on Migration, Integration, and Asylum of the Federal Office of Migration and Refugees (BAMF-FZ) (DIW Berlin 2019).

8. Responses from the day of the first attack (July 14th, 2016) were excluded from the analysis.

9. In Section I of the Appendix, I run additional robustness checks where I vary the temporal bandwidth to 21 and 35 days.

10. I square this variable to account for its right-skewed distribution.

11. Here, I differentiate between refugees and asylum seekers from Syria, Iraq, Afghanistan, and other countries.

12. Random forest imputation was performed separately for the German and the Refugee survey, each run with 100 decision trees and a maximum of 10 iterations. In addition to including all variables but the treatment, other measures were added as auxiliary variables to improve the quality of the imputation. Random forests were run prior to any modifications of the raw variables. For example, the three-level survey item measuring discrimination, which for the purposes of this analysis was re-coded into a binary variable (0: no discrimination, 1: some or frequent discrimination), was only modified *after* missing values were imputed. In this case, the random forest thus had to classify missing values as either "no discrimination", "some discrimination", or "frequent discrimination".

13. Variables were recoded so that "applies completely" and "applies somewhat" were coded as 1, and "does not apply at all" and "does not apply somewhat" were coded as 0. For constructing the factor variable using PCA, the complete variable ranges were used. See section C in the Appendix for the full set of survey questions used in the analysis.

14. Variables were recoded so that "considerably more risks" and "somewhat more risks" were coded as 1, and "neither risks nor opportunities", "somewhat more opportunities", and "considerably more opportunities" were coded as 0. For constructing the factor variable using PCA, the complete variable ranges were used.

15. Robust standard errors account for the fact that OLS imposes heteroskedasticity for binary dependent variables. See Friedman (2012) and Pischke (2012) for arguments in favour of using Linear Probability Models as an alternative to Logit or Probit regressions. I also repeat all estimations of binary dependent variables using logistic regression models in Appendix Section H, and the relative size and direction of estimates does not change.

# References

Åslund, Olof and Dan-Olof Rooth. 2005. "Shifts in Attitudes and Labor Market Discrimination: Swedish Experiences after 9-11." *Journal of Population Economics* 18(4):603–629.

Avdan, Nazli. 2014. "Do Asylum Recognition Rates in Europe Respond to Transnational Terrorism? The Migration-Security Nexus Revisited." *European Union Politics* 15(4):445–471.

Bar-Tal, Daniel and Daniela Labin. 2001. "The Effect of a Major Event on Stereotyping: Terrorist Attacks in Israel and Israeli Adolescents' Perceptions of Palestinians, Jordanians and Arabs." *European Journal of Social Psychology* 31(3):265–280.

Birkelund, Gunn Elisabeth, Tak Wing Chan, Elisabeth Ugreninov, Arnfinn H Midtbøen and Jon Rogstad. 2018. "Do Terrorist Attacks Affect Ethnic Discrimination in the Labour Market? Evidence from Two Randomized Field Experiments." *The British Journal of Sociology* 5(4):1–20.

Black, Donald. 1983. "Crime as Social Control." *American Sociological Review* 48(1):34–45.

Blumer, Herbert. 1958. "Race Prejudice as a Sense of Group Position." *The Pacific Sociological Review* 1(1):3–7.

Bogic, Marija, Anthony Njoku and Stefan Priebe. 2015. "Long-Term Mental Health of War-Refugees: A Systematic Literature Review." *BMC international health and human rights* 15:29.

Böhmelt, Tobias, Vincenzo Bove and Enzo Nussio. 2019. "Can Terrorism Abroad Influence Migration Attitudes at Home?" *American Journal of Political Science* p. ajps.12494.

Boomgaarden, Hajo G and Claes H de Vreese. 2007. "Dramatic Real-World Events and Public Opinion Dynamics: Media Coverage and Its Impact on Public Relations to an Assassination." *International Journal of Public Opinion Research* 19(3):354–366.

Bor, Jacob, Atheendar S. Venkataramani, David R. Williams and Alexander C. Tsai. 2018. "Police Killings and Their Spillover Effects on the Mental Health of Black Americans: A Population-Based, Quasi-Experimental Study." *The Lancet* 392(10144):302–310.

bpb. 2018. Zahlen Zu Asyl in Deutschland. Technical report Bundesamt für Politische Bildung. https://www.bpb.de/gesellschaft/migration/flucht/.

Burt, Callie Harbin, Ronald L. Simons and Frederick X. Gibbons. 2012. "Racial Discrimination, Ethnic- Racial Socialization, and Crime: A Micro-Sociological Model of Risk and Resilience." *American Sociological Review* 77(4):648–677.

Byers, Bryan D. and James A. Jones. 2007. "The Impact of the Terrorist Attacks of 9/11 on Anti-Islamic Hate Crime." *Journal of Ethnicity in Criminal Justice* 5(1):43–56.

Carlin, Ryan E., Gregory J. Love and Elizabeth J. Zechmeister. 2013. "Natural Disaster and Democratic Legitimacy: The Public Opinion Consequences of Chile's 2010 Earthquake and Tsunami." *Political Research Quarterly* .

Castanho Silva, Bruno. 2018. "The (Non)Impact of the 2015 Paris Terrorist Attacks on Political Attitudes." *Personality and Social Psychology Bulletin* 44(6):838–850.

Chacón, Jennifer M. 2008. The Security Myth: Punishing Immigrants in the Name of National Security. In *Immigration, Integration, and Security: America and Europe in Comparative Perspective*, ed. Ariane Chebel d'Appollonia and Simon Reich. Pittsburgh: University of Pittsburgh Press pp. 145–63.

Connolly, Kate. 2016. "Bavaria Calls for Extra Police and Migrant Crackdown after Attacks." *The Guardian* . https://www.theguardian.com/world/2016/jul/26/germany-bavaria-police-attacks-munich-ansbach-wurzburg.

der Spiegel. 2016. "Horst Seehofer und die CSU: Forderung nach neuen Sicherheitsmaßnahmen." *Der Spiegel* . https://www.spiegel.de/politik/deutschland/csu-stellt-forderungen-zur-sicherheitspolitik-vor-a-1104813.html.

Desmond, Matthew, Andrew V Papachristos and David S Kirk. 2016. "Police Violence and Citizen Crime Reporting in the Black Community." *American Sociological Review* 81(5):857–876.

DIW Berlin. 2019. "DIW Berlin: IAB-BAMF-SOEP Survey of Refugees in Germany." https://www.diw.de/en/diw_01.c.538695.en/projects/iab_bamf_soep_survey_of_refugees_in_germany.html.

Echebarria-Echabe, Agustin and Emilia Fernández-Guede. 2006. "Effects of Terrorism on Attitudes and Ideological Orientation." *European Journal of Social Psychology* 36(2):259–265.

Executive Order 13780. 2017. "Executive Order Protecting The Nation From Foreign Terrorist Entry Into The United

States." https://www.whitehouse.gov/presidential-actions/executive-order-protecting-nation-foreign-terrorist-entry-united-states-2/.

Frey, Arun. 2020. "'Cologne Changed Everything'—The Effect of Threatening Events on the Frequency and Distribution of Intergroup Conflict in Germany." *European Sociological Review* .

Friedman, Jed. 2012. "Whether to Probit or to Probe It: In Defense of the Linear Probability Model." https://blogs.worldbank.org/impactevaluations/whether-to-probit-or-to-probe-it-in-defense-of-the-linear-probability-model.

Geller, Amanda, Jeffrey Fagan, Tom Tyler and Bruce G. Link. 2014. "Aggressive Policing and the Mental Health of Young Urban Men." *American Journal of Public Health* 104(12):2321–2327.

Gelman, Andrew. 2008. "Scaling Regression Inputs by Dividing by Two Standard Deviations." *Statistics in Medicine* 27(15):2865–2873.

Gill, Sarah C., Peter Butterworth, Bryan Rodgers and Andrew Mackinnon. 2007. "Validity of the Mental Health Component Scale of the 12-Item Short-Form Health Survey (MCS-12) as Measure of Common Mental Disorders in the General Population." *Psychiatry Research* 152(1):63–71.

Hainmueller, Jens. 2012. "Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies." *Political Analysis* 20(1):25–46.

Hopkins, Daniel J. 2010. "Politicized Places: Explaining Where and When Immigrants Provoke Local Opposition." *American Political Science Review* 104(01):40–60.

Jäckle, Sebastian and Pascal D König. 2018. "Threatening Events and Anti-Refugee Violence: An Empirical Analysis in the Wake of the Refugee Crisis during the Years 2015 and 2016 in Germany." *European Sociological Review* 31(6):265.

Jakobsson, Niklas and Svein Blom. 2014. "Did the 2011 Terror Attacks in Norway Change Citizens' Attitudes Toward Immigrants?" *International Journal of Public Opinion Research* 26(4):475–486.

Johnston, David W. and Grace Lordan. 2012. "Discrimination Makes Me Sick! An Examination of the Discrimination–Health Relationship." *Journal of Health Economics* 31(1):99–111.

Kessler, Ronald C., Kristin D. Mickelson and David R. Williams. 1999. "The Prevalence, Distribution, and Mental Health Correlates of Perceived Discrimination in the United States." *Journal of Health and Social Behavior* 40(3):208.

Kliem, Sören, Thomas Mößle, Thimna Klatt, Stephanie Fleischer, Dominic Kudlacek, Christoph Kröger, Elmar Brähler, Manfred E. Beutel and Jörg Wiltink. 2016. "[Psychometric Evaluation of an Arabic Version of the PHQ-4 Based on a Representative Survey of Syrian Refugees]." *Psychotherapie, Psychosomatik, Medizinische Psychologie* 66(9-10):385–392.

Kroenke, Kurt, Robert L. Spitzer, Janet B. W. Williams and Bernd Löwe. 2009. "An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ-4." *Psychosomatics* 50(6):613–621.

Kühne, Simon, Jannes Jacobsen, DIW Berlin and Martin Kroh. 2019. "Sampling in Times of High Immigration: The Survey Process of the IAB-BAMF-SOEP Survey of Refugees." *Survey Methods: Insights from the Field* p. 9.

Larsen, Erik Gahner, David Cutts and Matthew J. Goodwin. 2019. "Do Terrorist Attacks Feed Populist Eurosceptics? Evidence from Two Comparative Quasi-experiments." *European Journal of Political Research* 59(1):182–205.

Legewie, Joscha. 2013. "Terrorist Events and Attitudes toward Immigrants: A Natural Experiment." *American Journal of Sociology* 118(5):1199–1245.

Legewie, Joscha. 2016. "Racial Profiling in Stop-and-Frisk Operations: How Local Events Trigger Periods of Increased Discrimination." *American Journal of Sociology* 122(2):379–424.

Legewie, Joscha and Jeffrey Fagan. 2019. "Aggressive Policing and the Educational Performance of Minority Youth." *American Sociological Review* 84(2):220–247.

Lickel, Brian, Norman Miller, Douglas M Stenstrom, Thomas F Denson and Toni Schmader. 2006. "Vicarious Retribution: The Role of Collective Blame in Intergroup Aggression." *Journal of Personality and Social Psychology* 10(4):372–390.

Light, Michael T., Ellen Dinsmore and Michael Massoglia. 2019. "How Do Criminal Courts Respond in Times of Crisis? Evidence from 9/11." *American Journal of Sociology* 125(2):485–533.

Löwe, Bernd, Inka Wahl, Matthias Rose, Carsten Spitzer, Heide Glaesmer, Katja Wingenfeld, Antonius Schneider and Elmar Brähler. 2010. "A 4-Item Measure of Depression and Anxiety: Validation and Standardization of the Patient Health Questionnaire-4 (PHQ-4) in the General Population." *Journal of Affective Disorders* 122(1-2):86–95.

Monk, Ellis P. 2015. "The Cost of Color: Skin Color, Discrimination, and Health among African-Americans." *American Journal of Sociology* 121(2):396–444.

Muñoz, Jordi, Albert Falcó-Gimeno and Enrique Hernández. 2019. "Unexpected Event during Survey Design: Promise and Pitfalls for Causal Inference." *Political Analysis* pp. 1–21.

Neumayer, Eric. 2006. "Unequal Access to Foreign Spaces: How States Use Visa Restrictions to Regulate Mobility in a Globalized World." *Transactions of the Institute of British Geographers* 31(1):72–84. https://www.jstor.org/stable/3804420.

Noelle-Neumann, E. 2002. "Terror in America: Assessments of the Attacks and Their Impact in Germany." *International Journal of Public Opinion Research* 14(1):93–98.

Nübling, Matthias, Hanfried H. Andersen, Axel Mühlbacher, Jürgen Schupp and Gert Wagner. 2007. "Computation of Standard Values for Physical and Mental Health Scale Scores Using the SOEP Version of SF12v2." *Schmollers Jahrbuch : Journal of Applied Social Science Studies / Zeitschrift für Wirtschafts- und Sozialwissenschaften* 127(1):171–182. https://econpapers.repec.org/article/aeqaeqsjb/v127_5fy2007_5fi1_5fq1_5fp171-182.htm.

Pascoe, Elizabeth A. and Laura Smart Richman. 2009. "Perceived Discrimination and Health: A Meta-Analytic Review." *Psychological bulletin* 135(4):531–554.

Pearlin, Leonard I. 1989. "The Sociological Study of Stress." *Journal of Health and Social Behavior* 30(3):241–256.

Pearlin, Leonard I. 1999. The Stress Process Revisited. In *Handbook of the Sociology of Mental Health*, ed. Carol S. Aneshensel and Jo C. Phelan. Handbooks of Sociology and Social Research Boston, MA: Springer US pp. 395–415.

Peters, Benedikt and Markus Mayr. 2016. "Merkel: Terror von Flüchtlingen "verhöhnt das Land"." https://www.sueddeutsche.de/politik/pressekonferenz-merkel-wir-schaffen-das-und-haben-bereits-sehr-sehr-viel-geschafft-3098808.

Pischke, Jörn-Steffen. 2012. "Probit Better than LPM?" http://www.mostlyharmlesseconometrics.com/2012/07/probit-better-than-lpm/.

Qian, Zhenchao and Daniel T. Lichter. 2007. "Social Boundaries and Marital Assimilation: Interpreting Trends in Racial and Ethnic Intermarriage." *American Sociological Review* 72(1):68–94.

Rabby, Faisal and William M III Rogers. 2010. "The Impact of 9/11 and the London Bombings on the Employment and Earnings of U.K. Muslims." *IZA Discussion Papers* 4763:1–31.

Ratcliffe, Anita and Stephanie von Hinke Kessler Scholder. 2015. "The London Bombings and Ethnic Prejudice: Evidence from the Housing and Labour Market." *Economic Inquiry* 53(1):276–293.

Sawyer, Pamela J., Brenda Major, Bettina J. Casad, Sarah S. M. Townsend and Wendy Berry Mendes. 2012. "Discrimination and the Stress Response: Psychological and Physiological Consequences of Anticipating Prejudice in Interethnic Interactions." *American Journal of Public Health* 102(5):1020–1026.

Schmidt, Janek, Kate Connolly and Emma Graham-Harrison. 2016. "Munich shooting: killer was bullied teen loner obsessed with mass murder." *The Guardian* . https://www.theguardian.com/world/2016/jul/23/munich-shooting-loner-facebook-ali-sonboly-bullied-killer.

Schüller, Simone. 2016. "The Effects of 9/11 on Attitudes toward Immigration and the Moderating Role of Education." *Kyklos* 69(4):604–632.

Smith, Jeffrey A., Miller McPherson and Lynn Smith-Lovin. 2014. "Social Distance in the United States: Sex, Race, Religion, Age, and Education Homophily among Confidants, 1985 to 2004." *American Sociological Review* 79(3):432–456.

Sniderman, Paul M, Louk Hagendoorn and Markus Prior. 2004. "Predisposing Factors and Situational Triggers: Exclusionary Reactions to Immigrant Minorities." *American Political Science Review* 98(01):35–49.

Stekhofen, Daniel J. and Peter Bühlmann. 2012. "MissForest—Non-Parametric Missing Value Imputation for Mixed-Type Data." *Bioinformatics* 28(1):112–118.

Stuart, Elizabeth A., Brian K. Lee and Finbarr P. Leacy. 2013. "Prognostic Score–Based Balance Measures Can Be a Useful Diagnostic for Propensity Score Methods in Comparative Effectiveness Research." *Journal of Clinical Epidemiology* 66(8):S84–S90.e1.

Sugie, Naomi F. and Kristin Turney. 2017. "Beyond Incarceration: Criminal Justice Contact and Mental Health." *American Sociological Review* 82(4):719–743.

Szaflarski, Magdalena and Shawn Bauldry. 2019. "The Effects of Perceived Discrimination on Immigrant and Refugee Physical and Mental Health." *Advances in medical sociology* 19:173–204.

Van de Vyver, Julie, Diane M. Houston, Dominic Abrams and Milica Vasiljevic. 2016. "Boosting Belligerence: How the July 7, 2005, London Bombings Affected Liberals' Moral Foundations and Prejudice." *Psychological Science* 27(2):169–177.

Van Hauwaert, Steven M. and Robert A. Huber. 2020. "In-group Solidarity or Out-group Hostility in Response to Terrorism in France? Evidence from a Regression Discontinuity Design." *European Journal of Political Research* pp. 1475–6765.12380.

Vilagut, Gemma, Carlos G. Forero, Alejandro Pinto-Meza, Joseph M. Haro, Ron de Graaf, Ronny Bruffaerts, Vivanne Kovess, Giovanni de Girolamo, Herbert Matschinger, Montserrat Ferrer and Jordi Alonso. 2013. "The Mental Component of the Short-Form 12 Health Survey (SF-12) as a Measure of Depressive Disorders in the General Population: Results with Three Alternative Scoring Methods." *Value in Health* 16:564–573.

Wagner, Sander and Ivaylo D. Petev. 2019. "The Economic Penalty of Terrorism: Increase in Discrimination Against Arabs and Muslims after Paris Attacks." *Working Paper* pp. 1–40. https://doi.org/10.31235/osf.io/vra4b.

Walther, Lena, Lukas M. Fuchs, Jürgen Schupp and Christian von Scheve. 2019. "Living Conditions and the Mental Health and Well-Being of Refugees: Evidence from a Large-Scale German Panel Study." *SOEPpapers on Multidisciplinary Panel Data Research* 1029. https://www.econstor.eu/handle/10419/195293.

Welle, Deutsche. 2019. "Germany: 2016 Munich Attack Had 'radical Right-Wing' Motives, Say Police." https://www.dw.com/en/germany-2016-munich-attack-had-radical-right-wing-motives-say-police/a-50991641.

Williams, David R., Jourdyn A. Lawrence and Brigette A. Davis. 2019. "Racism and Health: Evidence and Needed Research." *Annual Review of Public Health* 40:105–125.

Williams, David R. and Selina A. Mohammed. 2009. "Discrimination and Racial Disparities in Health: Evidence and Needed Research." *Journal of Behavioral Medicine* 32(1):20–47.

Zorlu, Aslan and Paul Frijters. 2019. "The Happiness of European Muslims Post-9/11." *Ethnic and Racial Studies* 42(16):23–44.

# Appendices

# A Number of Asylum Applications in Germany

As Figure A.1 details, the number of asylum application in Germany drastically increased following the influx of asylum seekers into the country in 2015 and 2016, before tempering off in later years alongside the decline in refugee arrivals following the EU-Turkey agreement on March 18th, 2016.

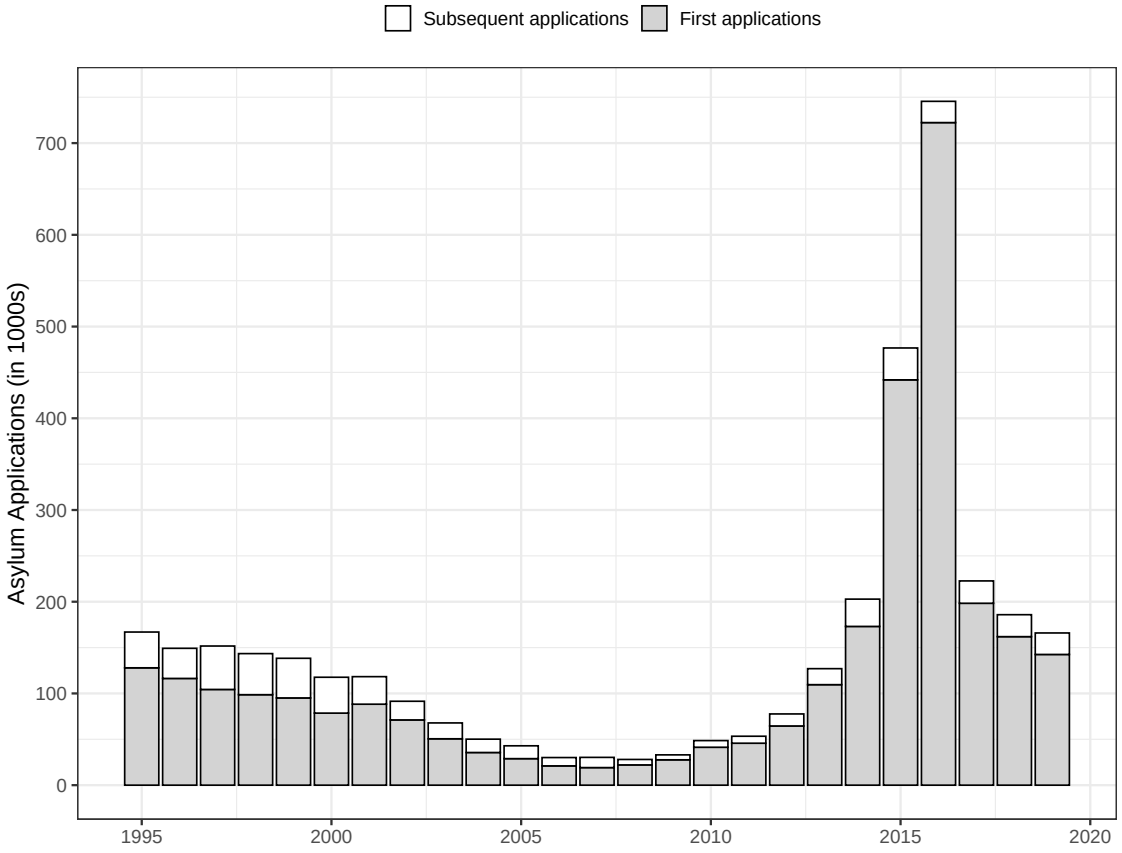



Figure A.1: Number of Asylum Applications in Germany, 1995–2019

# B The 2016 Munich Shooting

On 22 July 2016, an Iranian-German adolescent opened fire near a mall in Munich, killing nine people and wounding thirty-six others. However, unlike with the other cases considered in this analysis, it was more difficult to identify the motivations of the perpetrator in the aftermath of the attack. Journalistic enquiries in the following days revealed that the 18-year-old perpetrator had been a victim of bullying at school and attempted to lure fellow classmates to the site of the shooting (Schmidt, Connolly and Graham-Harrison 2016). Accordingly, officials suspected "revenge" to be the main motive behind the massacre, and registered the attack as a "revenge crime". However, later reporting also revealed that the perpetrator exhibited xenophobic tendencies and sympathised with right-extremist ideals.[16] Finally, following long deliberation, the Bavarian Police declared in October 2019 that the Munich shooting was being reclassified from a "revenge-" to a "politically motivated crime", since 'the radical right-wing and racist views of the perpetrator should not be ignored' (Welle 2019). However, this decision was still far in the future during the period of analysis considered here, so that I do not expect the events in Munich to have had an impact on Germans' or refugees' attitudes and well-being.

To examine whether the event radically changed the coefficient estimates, I also run a regression where I differentiate between each treatment week. The Munich shootings occurred on July 22nd, 8 days after the first terrorist attack on July 14th, 2016, so that the "Week 1" dummy conveniently captures the treatment effect *prior* to the events in Munich. If the Munich shooting affected how Germans' felt towards refugees and vice versa, responses in the aftermath of the Munich shooting should differ systematically from previous responses. In particular, Germans' anti-refugee sentiment would be expected to decline in the aftermath of the Munich shooting, given that other xenophobic attacks have temporarily improved natives' sentiment towards minority groups (e.g. Jakobsson and Blom 2014). As Figures B.1 and B.2 however highlight, treatment coefficient estimates in the first week (i.e. among those who were interviewed prior to the Munich shootings) do not differ substantially and systematically to those in following weeks (i.e. those interviewed after the Munich shootings) across the regression models, increasing my confidence in the assumption that the Munich shootings did not bias the effect estimates.

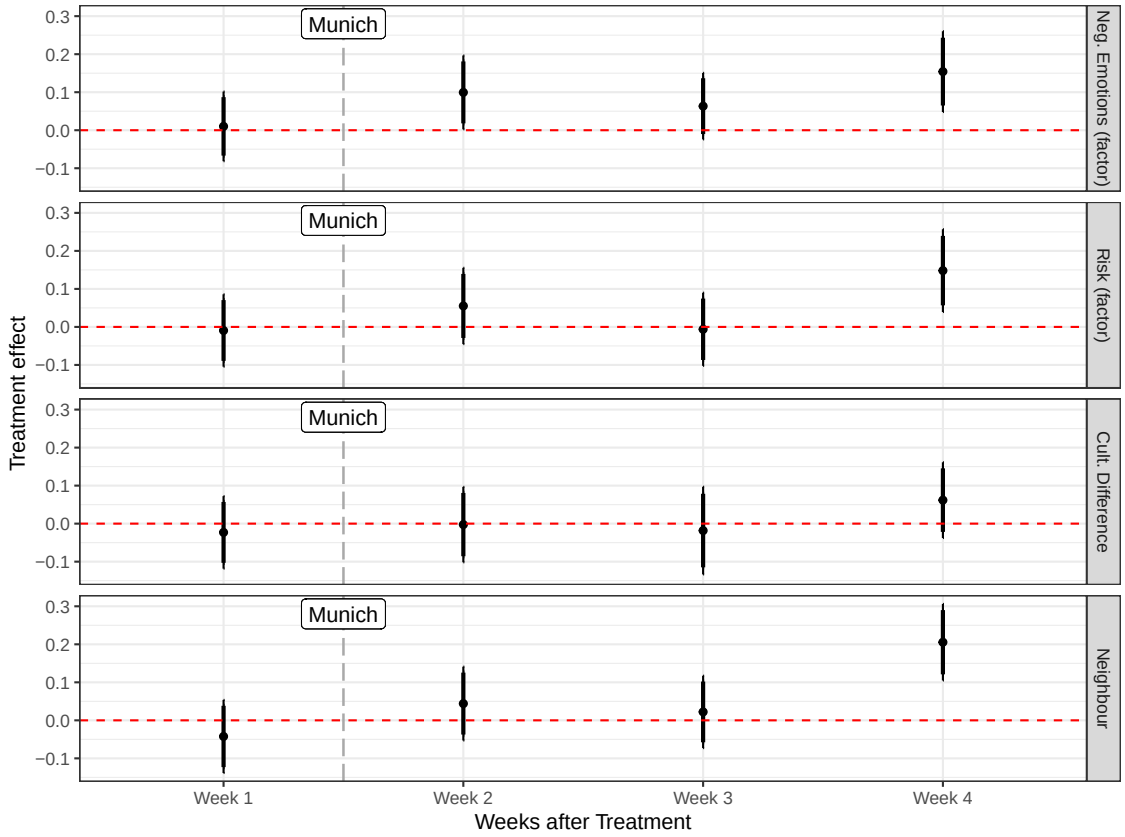



Figure B.1: Treatment effect of the July 2016 terrorist attacks on Germans' anti-immigrant attitudes, weekly estimates.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, education, marriage and employment status, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

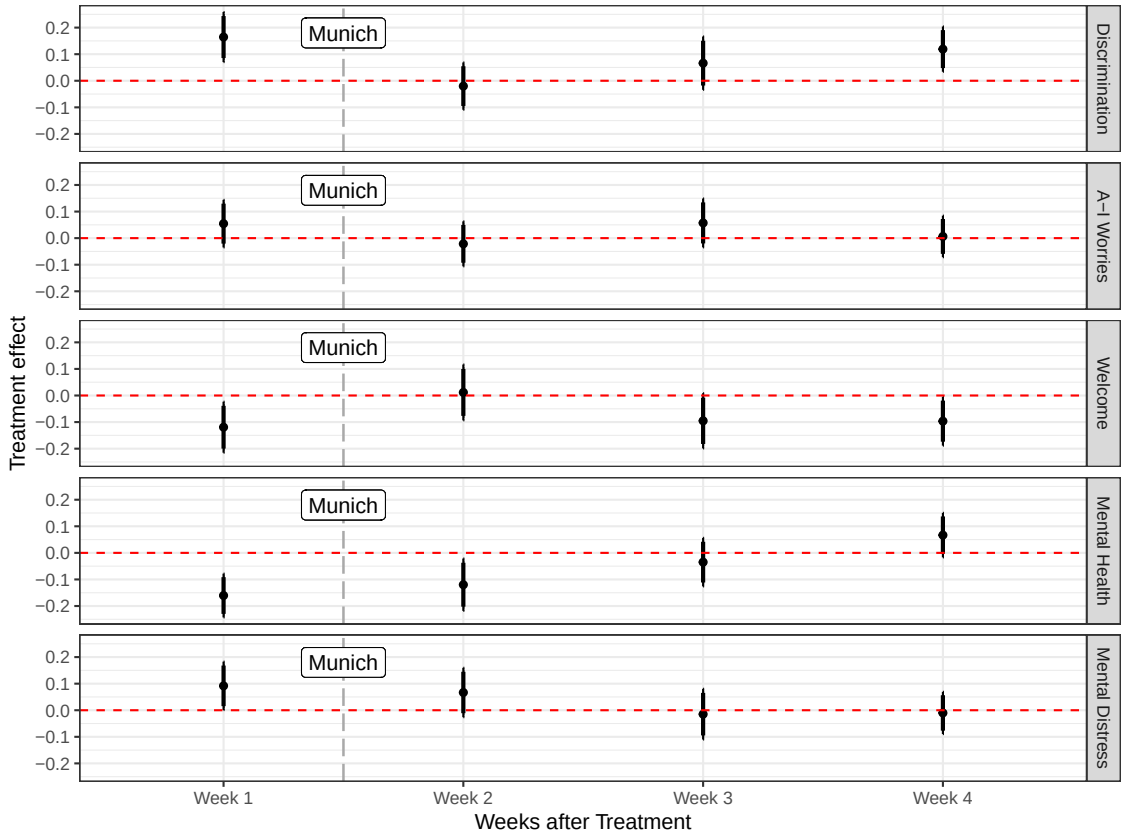



Figure B.2: Treatment effect of the July 2016 terrorist attacks on refugees, weekly estimates.

*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, refugee status, country of origin, type of refugee shelter, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

# C Questionnaire Items

Table A.1: Description of used items from the Survey of German citizens (ALLBUS)

| Description | Range |
|---|---|
| **Emotions** | |
| *What about asylum seekers/Turkish people/Italian people/Jewish people/Polish people living in Germany? To what extent do the following statements apply:* | |
| ...I feel sorry for them. | 1 (Applies completely) to 4 (Does not apply at all). |
| ...They annoy me. | 1 (Applies completely) to 4 (Does not apply at all). |
| ...I find them likeable. | 1 (Applies completely) to 4 (Does not apply at all). |
| ...They scare me. | 1 (Applies completely) to 4 (Does not apply at all). |
| **Perceived risks** | |
| *If you think about the development of German society in the next few years: Do you think that, in the following areas, there will be more opportunities, more risks or neither of these as a result of the refugees?* | |
| ...As regards the welfare state. | 1 (Considerably more risks) to 5 (Considerably more opportunities). |
| ...As regards public security. | 1 (Considerably more risks) to 5 (Considerably more opportunities). |
| ...As regards people living together in society. | 1 (Considerably more risks) to 5 (Considerably more opportunities). |
| ...As regards the economic situation in Germany. | 1 (Considerably more risks) to 5 (Considerably more opportunities). |
| **Social Distance** | |

*Continued on next page*

Table A.1 – *Continued from previous page*

| Description | Range |
|---|---|
| How pleasant or unpleasant would it be to for you to have an asylum seeker/Turkish person/Italian person/Jewish person/Polish person as your neighbour? | 1 (Very pleasant) to 7 (Very unpleasant). |
| How strongly, in your opinion, do asylum seekers/Turkish persons/Italian persons/Jewish persons/Polish persons who live in Germany differ from Germans in their lifestyles? | 1 (Not at all) to 7 (Very strongly). |

Table A.2: Description of used items from the Survey of Refugees and Asylum Seekers (SOEP)

| Description | Range |
|---|---|
| **Hostility** | |
| How often in the last 24 months have you personally experienced being disadvantaged in Germany because of your origin? | 1 (Frequently) to 3 (Never) |
| *How often do you worry about...* | |
| ...your own economic situation? | 1 (A lot) to 3 (Never). |
| ...your health? | 1 (A lot) to 3 (Never). |
| ...anti-foreigner sentiment and xenophobia in Germany? | 1 (A lot) to 3 (Never). |
| ...the result of your asylum application? | 1 (A lot) to 3 (Never). |
| ...being unable to stay in Germany? | 1 (A lot) to 3 (Never). |
| ...being unable to return to your country of origin? | 1 (A lot) to 3 (Never). |
| Did you feel welcome in Germany at arrival/now? | 1 (Totally) to 5 (Not at all) |
| **PHQ-4: Patient Health Questionnaire** | |
| *Over the last two weeks, how often have you been bothered by the following problems?* | |
| ...Little interest or pleasure in your activities | 0 (Not at all) to 3 (Nearly every day) |
| ...Low spirits, melancholy or hopelessness | 0 (Not at all) to 3 (Nearly every day) |
| ...Nervousness, anxiety or tension | 0 (Not at all) to 3 (Nearly every day) |

*Continued on next page*

Table A.2 – *Continued from previous page*

| Description | Range |
|---|---|
| ...Unable to stop or control worrying | 0 (Not at all) to 3 (Nearly every day) |
| **MCS: Mental Health Component Summary** | |
| How would you describe your current state of health? | 1 (Very well) to 5 (Poor) |
| If you have to climb stairs, i.e. walk up several floors: Does your state of health restrict you a lot, a little, or not at all? | 1 (A lot) to 3 (Not at all) |
| And what about other strenuous activities in everyday life, e.g. when you have to lift something heavy or need to be mobile:Does your state of health restrict you a lot, a little or not at all? | 1 (A lot) to 3 (Not at all) |
| *How often in the last four weeks...* | |
| ..did you feel in low spirits and melancholy? | 1 (Very often) to 5 (Never) |
| ...did you feel full of energy? | 1 (Very often) to 5 (Never) |
| ...did you feel full of energy? | 1 (Very often) to 5 (Never) |
| ...did you suffer from severe physical pain? | 1 (Very often) to 5 (Never) |
| ..., due to health problems of a physical nature, did you achieve less in your work or everyday activities than you actually intended? | 1 (Very often) to 5 (Never) |
| ..., due to health problems of a physical nature, have you been restricted in the type of tasks you can perform in your work or everyday activities? | 1 (Very often) to 5 (Never) |
| ..., due to psychological or emotional problems, did you achieve less in your work or everyday activities than you actually intended? | 1 (Very often) to 5 (Never) |
| ..., due to psychological problems or emotional problems, did you perform your work or everyday activities less carefully than usual? | 1 (Very often) to 5 (Never) |
| ..., due to health or psychological problems, have you been restricted in terms of your social contact to for example friends, acquaintances or relatives? | 1 (Very often) to 5 (Never) |

# D Full Tables

Table A.3: Impact of July attacks on Feelings towards Asylum Seekers

| | Neg.Emotions | Fear | Anger | Pity | Affection |
|---|---|---|---|---|---|
| Treatment | 0.078** | 0.082*** | 0.058** | −0.003 | −0.084*** |
| | (0.031) | (0.031) | (0.028) | (0.027) | (0.032) |
| Female | −0.026 | 0.091*** | −0.022 | 0.055** | 0.098*** |
| | (0.031) | (0.030) | (0.028) | (0.027) | (0.031) |
| Age | 0.001 | −0.00001 | 0.0002 | −0.001 | −0.003*** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| East | 0.172*** | 0.024 | 0.121*** | −0.130*** | −0.168*** |
| | (0.033) | (0.032) | (0.031) | (0.030) | (0.033) |
| Int. Contacts | −0.011 | 0.002 | −0.030 | −0.0002 | 0.047 |
| | (0.029) | (0.030) | (0.027) | (0.026) | (0.031) |
| Secondary | −0.189 | −0.053 | −0.102 | −0.037 | 0.287 |
| | (0.253) | (0.185) | (0.232) | (0.187) | (0.185) |
| Tertiary | −0.385 | −0.189 | −0.261 | 0.055 | 0.419** |
| | (0.254) | (0.186) | (0.233) | (0.187) | (0.186) |
| Married | 0.004 | 0.048 | −0.020 | 0.034 | −0.018 |
| | (0.034) | (0.033) | (0.030) | (0.030) | (0.034) |
| Unempl. | 0.012 | 0.051 | 0.011 | 0.005 | 0.035 |
| | (0.039) | (0.036) | (0.034) | (0.032) | (0.038) |
| Constant | 0.132 | 0.293 | 0.409 | 0.833*** | 0.237 |
| | (0.258) | (0.195) | (0.239) | (0.197) | (0.194) |
| Observations | 959 | 959 | 959 | 959 | 959 |
| $R^2$ | 0.073 | 0.043 | 0.054 | 0.039 | 0.069 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table A.4: Impact of July attacks on Risks associated with Asylum Seekers

| | Risk perception | Safety | Social Cohesion | Welfare State | Economy |
|---|---|---|---|---|---|
| Treatment | 0.045 | 0.069** | 0.066** | 0.037 | 0.031 |
| | (0.032) | (0.030) | (0.033) | (0.032) | (0.032) |
| Female | −0.009 | 0.009 | −0.013 | 0.052* | −0.003 |
| | (0.031) | (0.029) | (0.032) | (0.031) | (0.031) |
| Age | 0.004*** | 0.002** | 0.002 | 0.003** | 0.002** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| East | 0.079** | 0.060* | 0.076** | 0.019 | 0.037 |
| | (0.033) | (0.031) | (0.035) | (0.033) | (0.033) |
| Int. Contacts | −0.018 | 0.001 | −0.020 | −0.001 | −0.004 |
| | (0.032) | (0.030) | (0.033) | (0.032) | (0.032) |
| Secondary | −0.214 | 0.082 | −0.151 | −0.200 | −0.023 |
| | (0.353) | (0.207) | (0.210) | (0.211) | (0.209) |
| Tertiary | −0.343 | −0.013 | −0.194 | −0.352 | −0.069 |
| | (0.353) | (0.208) | (0.211) | (0.212) | (0.210) |
| Married | 0.010 | 0.017 | −0.011 | −0.047 | 0.067** |
| | (0.033) | (0.031) | (0.035) | (0.035) | (0.034) |
| Unempl. | −0.022 | −0.029 | −0.006 | −0.021 | −0.008 |
| | (0.038) | (0.037) | (0.039) | (0.037) | (0.038) |
| Constant | 0.044 | 0.485** | 0.553** | 0.487** | 0.505** |
| | (0.356) | (0.216) | (0.221) | (0.221) | (0.219) |
| Observations | 959 | 959 | 959 | 959 | 959 |
| $R^2$ | 0.040 | 0.025 | 0.014 | 0.036 | 0.017 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table A.5: Impact of July attacks on Perceived Social Distance

| | Refugee as Neighbour | Difference to Germans |
|---|---|---|
| Treatment | 0.045 | 0.004 |
| | (0.032) | (0.032) |
| Female | $-0.063^{**}$ | 0.020 |
| | (0.031) | (0.032) |
| Age | $0.003^{**}$ | $0.005^{***}$ |
| | (0.001) | (0.001) |
| East | $0.158^{***}$ | $0.187^{***}$ |
| | (0.033) | (0.032) |
| Int. Contacts | 0.027 | $0.068^{**}$ |
| | (0.032) | (0.031) |
| Secondary | $-0.084$ | 0.257 |
| | (0.182) | (0.247) |
| Tertiary | $-0.259$ | 0.201 |
| | (0.183) | (0.248) |
| Married | 0.040 | 0.0001 |
| | (0.034) | (0.034) |
| Unempl. | 0.026 | 0.015 |
| | (0.039) | (0.039) |
| Constant | $-0.124$ | $-0.671^{**}$ |
| | (0.195) | (0.253) |
| Observations | 959 | 959 |
| $R^2$ | 0.073 | 0.070 |
| *Note:* | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

Table A.6: Impact of July attacks on Refugees and Aslum Seekers

| | Change in Welcome | Anti-Immig. Worries | Discrimination | Distress | Mental Health |
|---|---|---|---|---|---|
| Treatment | −0.068** | 0.016 | 0.070** | 0.027 | −0.054* |
| | (0.034) | (0.030) | (0.032) | (0.030) | (0.031) |
| Female | 0.026 | −0.038 | −0.033 | 0.069** | −0.134*** |
| | (0.036) | (0.030) | (0.032) | (0.031) | (0.032) |
| Age | 0.038 | −0.050* | −0.110*** | 0.138*** | −0.123*** |
| | (0.032) | (0.030) | (0.032) | (0.035) | (0.032) |
| East | 0.035 | 0.010 | 0.043 | −0.012 | 0.027 |
| | (0.044) | (0.036) | (0.040) | (0.038) | (0.037) |
| Int. Contacts | −0.021 | −0.017 | −0.005 | −0.026 | 0.032 |
| | (0.032) | (0.027) | (0.029) | (0.030) | (0.030) |
| Refugee | −0.006 | −0.026 | −0.034 | −0.039 | 0.029 |
| | (0.035) | (0.032) | (0.035) | (0.031) | (0.033) |
| Syrian | −0.122*** | −0.172*** | −0.035 | 0.035 | 0.007 |
| | (0.040) | (0.035) | (0.038) | (0.036) | (0.036) |
| Iraqi | −0.012 | −0.154*** | −0.072 | −0.058 | 0.099* |
| | (0.057) | (0.052) | (0.056) | (0.054) | (0.053) |
| Afghan | 0.118* | −0.046 | −0.003 | 0.048 | −0.089* |
| | (0.062) | (0.055) | (0.056) | (0.063) | (0.053) |
| Comm. Accom. | −0.067* | −0.033 | 0.040 | 0.167*** | −0.086*** |
| | (0.038) | (0.032) | (0.034) | (0.034) | (0.033) |
| Constant | 0.103** | 0.429*** | 0.382*** | −0.101*** | 0.091** |
| | (0.044) | (0.039) | (0.040) | (0.037) | (0.038) |
| Observations | 1,033 | 1,033 | 1,033 | 1,033 | 1,033 |
| $R^2$ | 0.032 | 0.039 | 0.028 | 0.049 | 0.048 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table A.7: Impact of July attacks on Refugees and Aslum Seekers Well-Being

| | Mental Distress (PHQ-4) | Mental Health (MCS) |
|---|---|---|
| Treatment | 0.027 | $-0.054^{*}$ |
| | (0.030) | (0.031) |
| Female | $0.069^{**}$ | $-0.134^{***}$ |
| | (0.031) | (0.032) |
| Age | $0.138^{***}$ | $-0.123^{***}$ |
| | (0.035) | (0.032) |
| East | −0.012 | 0.027 |
| | (0.038) | (0.037) |
| Int. Contacts | −0.026 | 0.032 |
| | (0.030) | (0.030) |
| Refugee | −0.039 | 0.029 |
| | (0.031) | (0.033) |
| Syrian | 0.035 | 0.007 |
| | (0.036) | (0.036) |
| Iraqi | −0.058 | $0.099^{*}$ |
| | (0.054) | (0.053) |
| Afghan | 0.048 | $-0.089^{*}$ |
| | (0.063) | (0.053) |
| Comm. Accom. | $0.167^{***}$ | $-0.086^{***}$ |
| | (0.034) | (0.033) |
| Constant | $-0.101^{***}$ | $0.091^{**}$ |
| | (0.037) | (0.038) |
| Observations | 1,033 | 1,033 |
| $R^2$ | 0.049 | 0.048 |
| *Note:* | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

# E Changes in Germans' attitudes towards all minority groups

## E.1 Negative Emotions

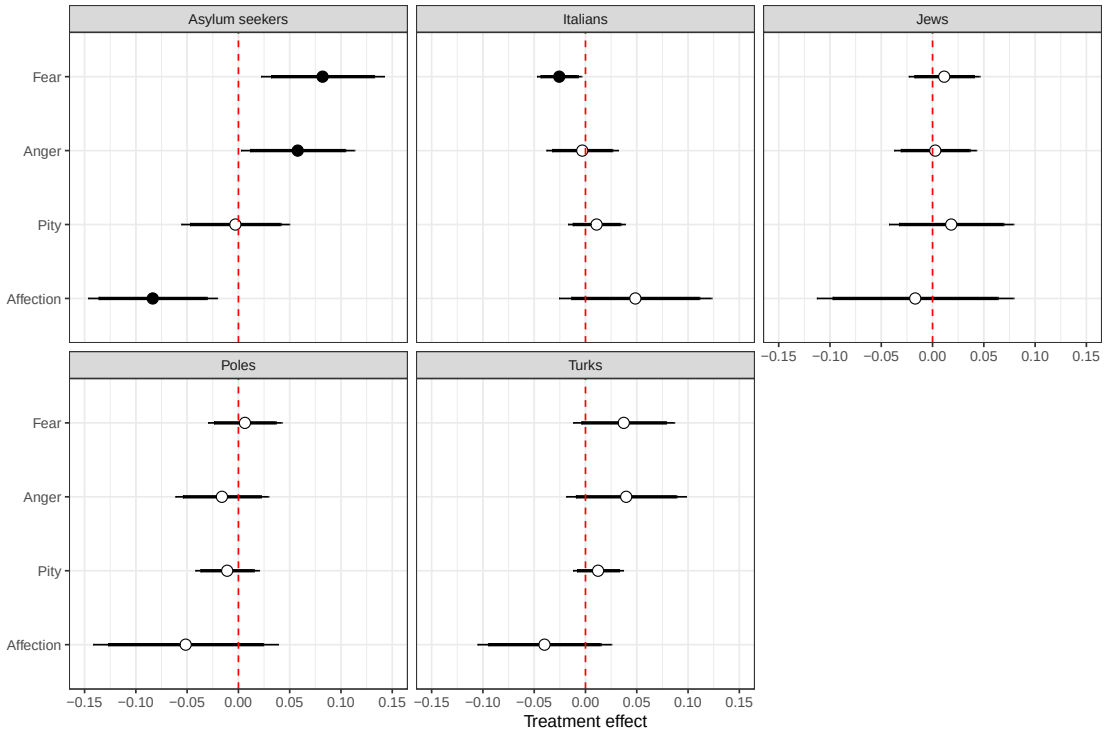



Figure E.1: Treatment effect of the July 2016 terrorist attacks on respondents' emotions towards different diaspora groups: Asylum Seekers, Italians, Poles, Turks, and Jews

*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, education, marriage and employment status, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

## E.2 Perceived social distance

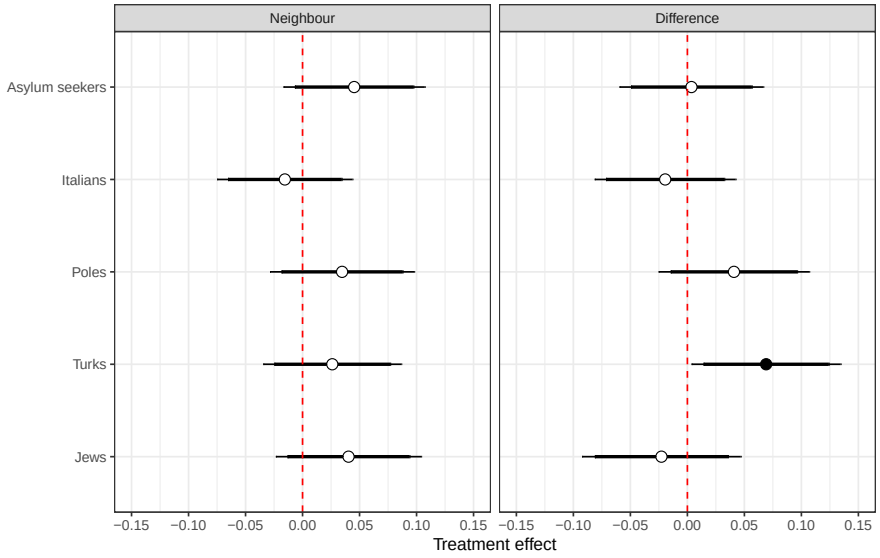



Figure E.2: Treatment effect of the July 2016 terrorist attacks on respondents' perceived social distance between Germans and different diaspora groups: Asylum Seekers, Italians, Poles, Turks, and Jews.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, education, marriage and employment status, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

# F Refugees' list of worries

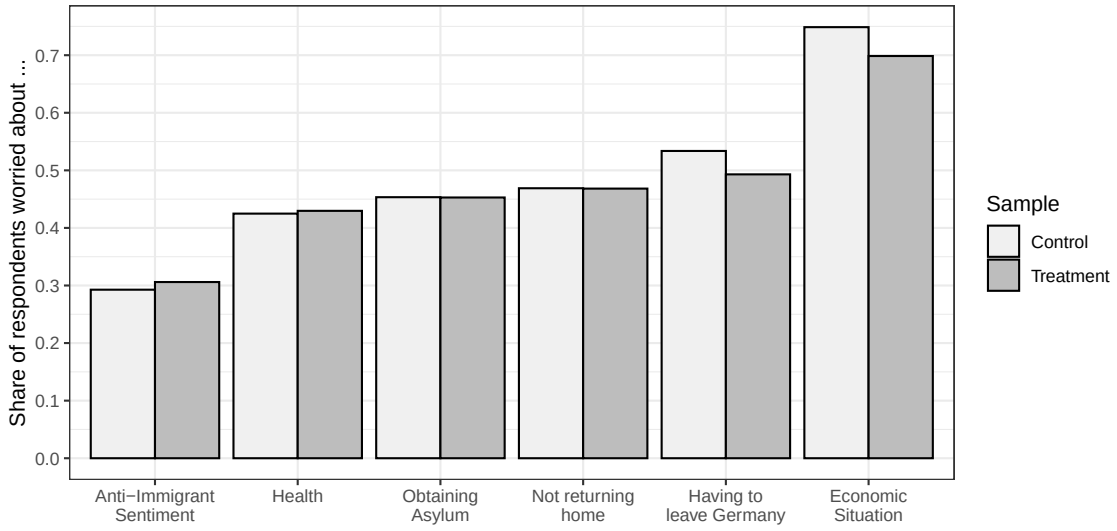
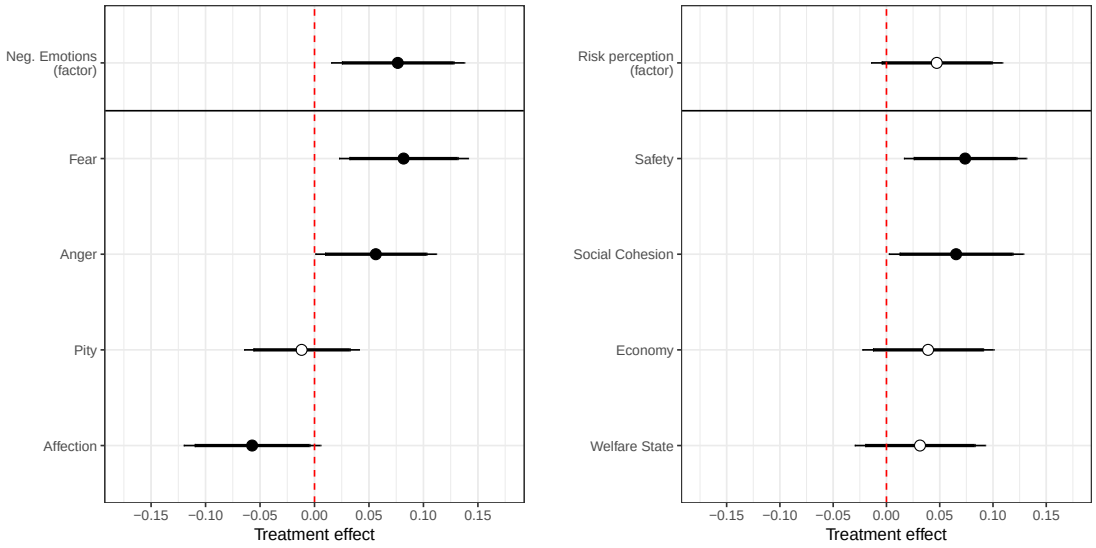



Figure F.1: Set of worries refugees are concerned about, in both treatment and control groups

# G Robustness: Entropy Balance

All estimations below use entropy-balanced weights (Hainmueller 2012), where the weights are separately re-calculated for each dependent variable. The entropy weights used here adjust for the first (mean), second (variance) and third (skewness) moment conditions of each covariate, with the exception of the variable measuring the number of prior interview attempts. Due to the considerable differences between control and treatment groups, the control group weights for this variable may be unrealistic and severely distort the estimated results. Following the advice of Muñoz, Falcó-Gimeno and Hernández (2019), this variable is excluded from the re-balancing process.

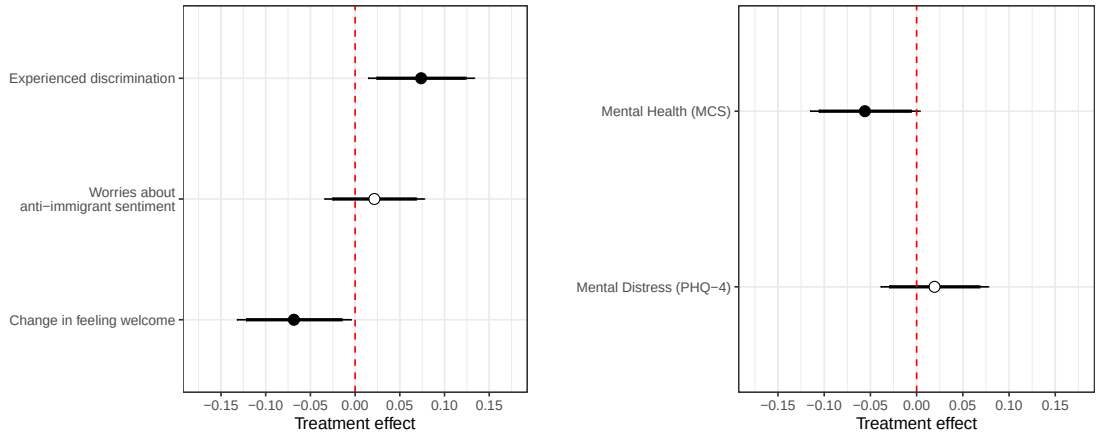
## G.1 Anti-refugee attitudes




(a) Emotions towards asylum seekers (b) Risks associated with asylum seekers

Figure G.1: Impact of the terror attacks in Nice, Ansbach, and Würzburg on feelings toward refugees and risk perceptions.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained with entropy-balancing weights. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

## G.2 Refugees' sentiment and mental health



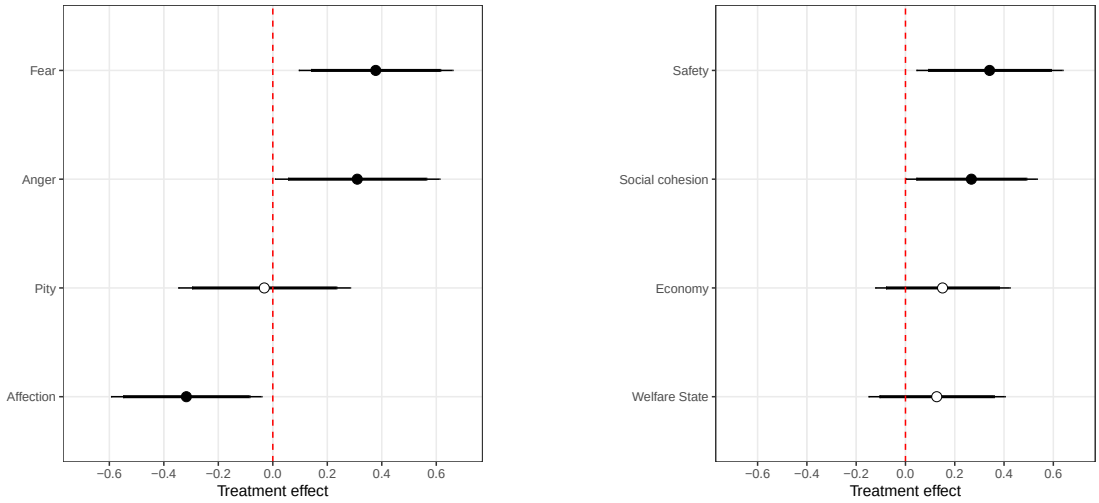

(a) Impact on refugee sentiment (b) Impact on refugee well-being

Figure G.2: Impact of the terror attacks in Nice, Ansbach, and Würzburg on (a) refugee sentiment and (b) well-being.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained with entropy-balancing weights. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

# H Robustness: Logistic Regression

The estimations below rely on logistic regression analyses to estimate the treatment effect on binary dependent variables.

## H.1 Anti-refugee attitudes




(a) Emotions towards asylum seekers (b) Risks associated with asylum seekers

Figure H.1: Impact of the terror attacks in Nice, Ansbach, and Würzburg on feelings toward refugees and risk perceptions.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using logistic regression, conditioning on age, sex, place of residence, education, marriage and employment status, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

## H.2 Refugees' sentiment and mental health

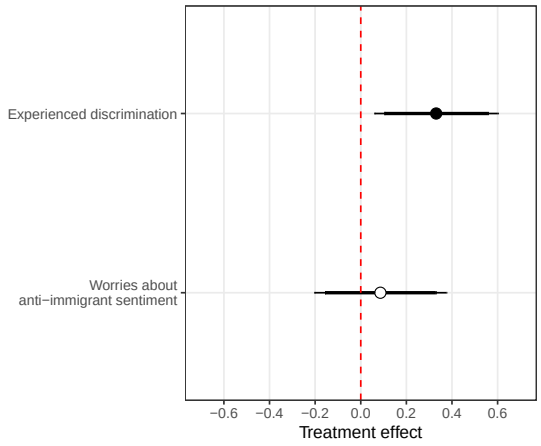


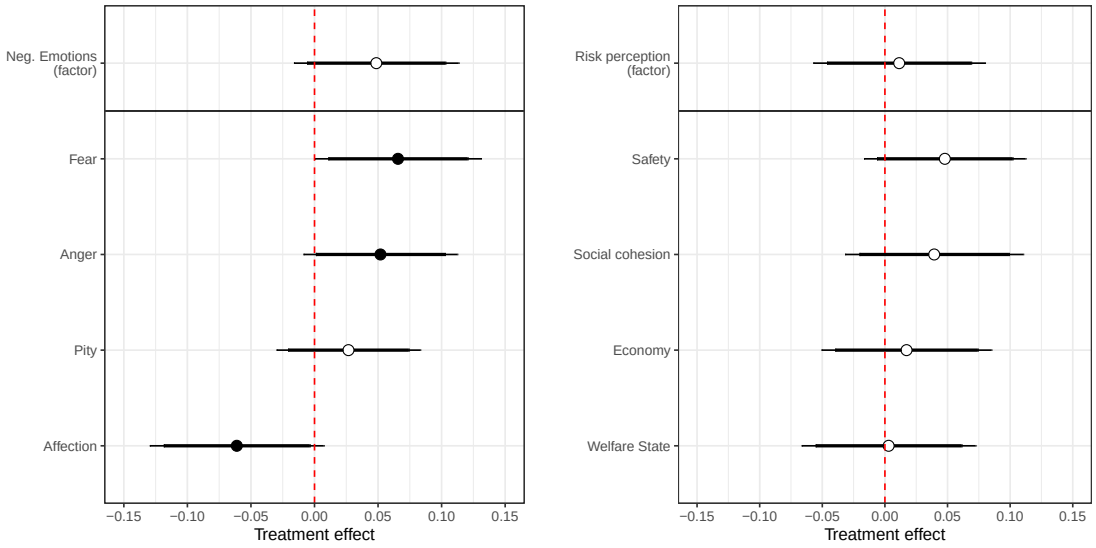

Figure H.2: Impact of the terror attacks in Nice, Ansbach, and Würzburg on refugee sentiment.
*Notes*: Black circles summarise the treatment effect estimates across each regression. Results are obtained using logit models, conditioning on age, sex, place of residence, refugee status, country of origin, type of refugee shelter and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

# I Robustness: Varying bandwidths

The estimations below are run at two different temporal bandwidths: 21 and 35 days (or 3 and 5 weeks, respectively) before and after the first attack in Nice on July 14th, 2016. All estimations are derived through OLS with heteroskedasticity-robust standard errors.

## I.1 Three weeks (21 days)

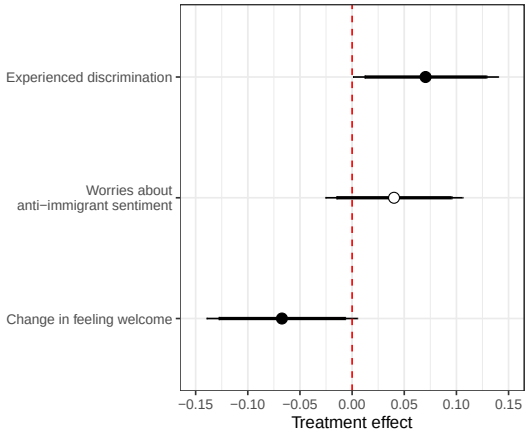
### I.1.1 Anti-refugee attitudes



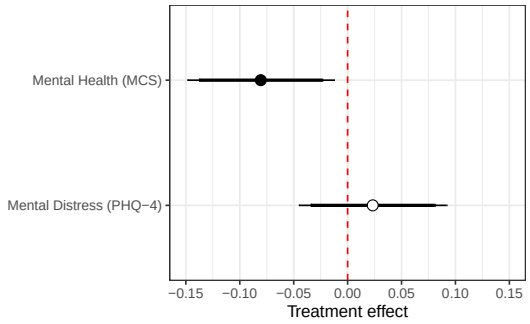

(a) Emotions towards asylum seekers (b) Risks associated with asylum seekers

Figure I.1: Impact of the terror attacks in Nice, Ansbach, and Würzburg on feelings toward refugees and risk perceptions.
*Notes*: All models are estimated using a temporal bandwidth of +/- 21 days. Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, education, marriage and employment status, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

### I.1.2 Refugees' sentiment and mental health




(a) Impact on refugee sentiment

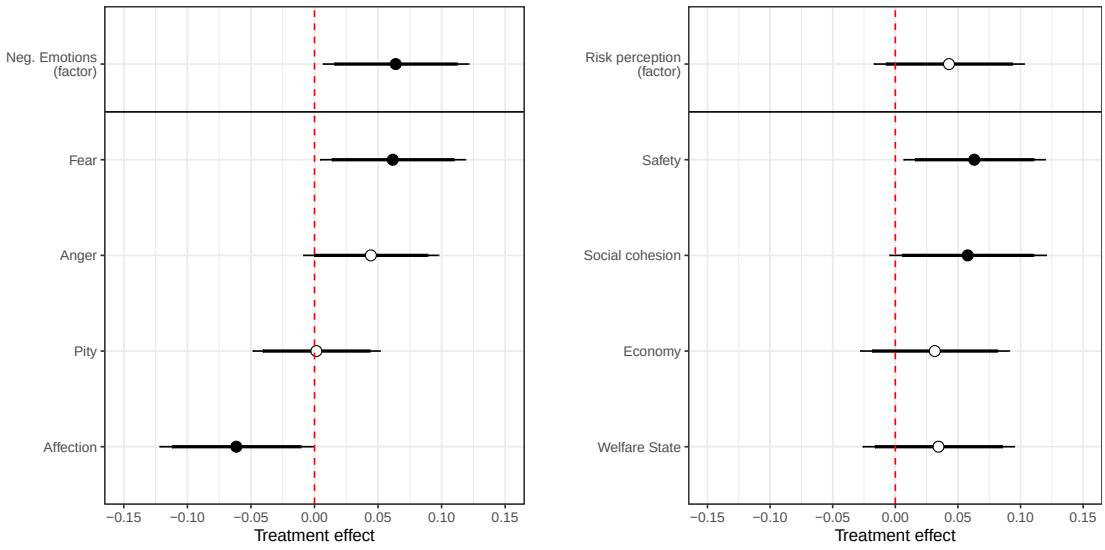



(b) Impact on refugee well-being

Figure I.2: Impact of the terror attacks in Nice, Ansbach, and Würzburg on (a) refugee sentiment and (b) well-being.
*Notes*: All models are estimated using a temporal bandwidth of +/- 21 days. Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, refugee status, country of origin, type of refugee shelter and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

## I.2 Five weeks (35 days)

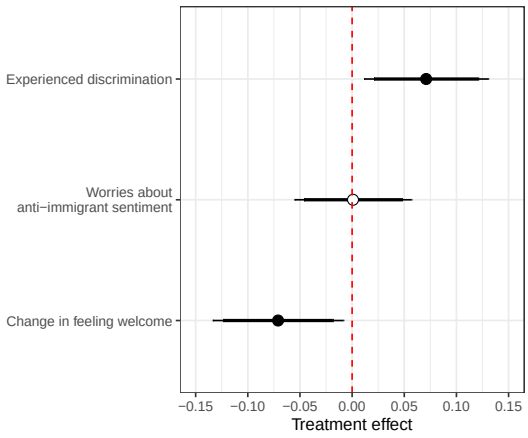
### I.2.1 Anti-refugee attitudes



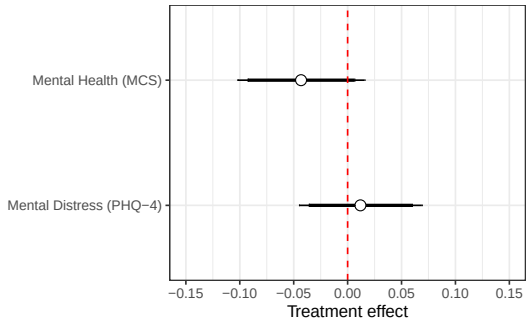

(a) Emotions towards asylum seekers (b) Risks associated with asylum seekers

Figure I.3: Impact of the terror attacks in Nice, Ansbach and Würzburg on feelings toward refugees and risk perceitons
*Notes*: All models are estimated using a temporal bandwidth of +/- 35 days. Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, education, marriage and employment status, and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.

### I.2.2 Refugees' sentiment and mental health




(a) Impact on refugee sentiment




(b) Impact on refugee well-being

Figure I.4: Impact of the terror attacks in Nice, Ansbach, and Würzburg on (a) refugee sentiment and (b) well-being.
*Notes*: All models are estimated using a temporal bandwidth of +/- 35 days. Black circles summarise the treatment effect estimates across each regression. Results are obtained using OLS with heteroskedasticity-robust standard errors, conditioning on age, sex, place of residence, refugee status, country of origin, type of refugee shelter and prior interview attempts. Thick and thin lines indicate 90% and 95% confidence intervals, respectively.