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Authors

Fabbe, Kristin
Hazlett, Chad
Sinmazdemir, Tolga

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Threat perceptions, loyalties and attitudes towards peace: The effects of civilian victimization among Syrian refugees in Turkey

Kristin Fabbe,
Harvard Business School, USA

Chad Hazlett,
University of California, Los Angeles, USA

Tolga Sinmazdemir
SOAS University of London, UK

Abstract

For refugees who have fled civil conflict, do experiences of victimization by one armed group push them to support the opposing armed groups? Or, does victimization cause refugees to revoke their support for all armed groups, whatever side they are on, and call instead for peace? This paper studies the effect of civilian victimization on threat perceptions, loyalties, and attitudes toward peace in the context of Syrian refugees in Turkey, many of whom faced regime-caused violence prior to their departure. Our research strategy leverages variation in home destruction caused by barrel bombs to examine the effect of violence on refugees' views. We find that refugees who lose their home to barrel bombs withdraw support from armed actors and are more supportive of ending the war and finding peace. Suggestive evidence shows that while victims do not disengage from issues in Syria, they do show less optimism about an opposition victory.

Keywords

civil wars; civilian victimization; refugees; Syria

Introduction

For refugees who have fled civil conflict, experiences with violence before leaving are likely to intensify their fear of the armed group that perpetrated that violence. Do experiences of victimization at the hands of one armed group push civilians into the arms of the opposing armed groups? Or, does exposure to violence cause refugees to revoke their support for all armed groups, whatever side they are on, and call instead for peace? This paper studies the

Corresponding author: Tolga Sinmazdemir, Department of Politics and International Studies, SOAS University of London, 10 Thornhaugh Street, Russell Square, London, UK. ts32@soas.ac.uk.

4.These cases are France in Algeria, USA in Vietnam and Iraq, Soviet Union in Afghanistan, Russia during the first Chechen War, Britain in Afghanistan and Israel during the Lebanon War (332).

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effect of exposure to violence on refugees' threat perceptions, loyalties, and attitudes toward peace in the context of Syrian refugees in Turkey, many of whom faced regime-caused violence prior to their departure.

These questions are of interest to political scientists, first, because they are relevant to the experiences and political activities of millions of refugees from numerous recent and ongoing conflicts. They are also of interest for scholars of civil conflict, as civilian refugees who do not return and form diaspora communities remain influential through their connections to their country of origin, by providing a flow of remittances to fuel political and armed groups (e.g. Lindley, 2010), or even directly supplying arms and giving military support (Hockenos, 2003). Further, many civilians eventually do return home—and indeed many already have. According to official statistics, between 2016 and 2021, more than 300,000 Syrians have already returned to Syria (UNHCR, 2022c). Finally, while political and armed elites play key roles in decisions about peace and conflict, ultimately their ability to maintain order rests on appealing to what civilians want (Hoddie and Hartzell, 2010), including returnees.

Our study examines the Syrian civil war, focusing exclusively on the attitudes of refugees, against whom indiscriminate violence has been used extensively by a domestic incumbent government. Building from several strands in the literature on wartime experiences and civilian victimization, we are particularly interested in how exposure to violence affects refugees' threat perceptions, loyalties, and attitudes toward peace. A substantial number of Syrians have been exposed to indiscriminate violence, much of it in the form of barrel bombings. Although precise figures are not available, more than 11,000 civilians are estimated to have been killed by barrel bombs, including thousands of women and children (SNHR, 2017; Amnesty International, 2020). Still, these horrific barrel bombings have not been well studied. With the notable exception of Tyner (2016), almost no published academic work has shed light on the impact of such indiscriminate violence in Syria. What is more, we are only beginning to learn how the millions of civilian refugees who have fled such violence view the conflict and the parties fighting in it.[1]

Employing an original survey of 1,384 Syrian refugees living outside of camps in Turkey in the summer and autumn of 2016, we ask whether a particular violent harm—losing one's home to barrel bombing—turns civilians toward insurgents or away from them and how it affects their attitudes toward compromise. This harm is by no means the only or the most important harm faced, but we focus on it because it provides a rare empirical opportunity. For most harms, a comparison of outcomes among those who did and did not face that harm would be hopelessly confounded by other likely differences between these groups. However, as we describe at length below, because barrel bombs can be targeted roughly to neighborhoods but not within them, a within-neighborhood comparison of those who did and did not lose their homes to barrel bombing can avoid or, at very least, greatly mitigate such confounding. As one would expect—and as we show below—individuals who lose

[1]Recent exceptions include the Arab Barometer Survey of Syrian refugees in Jordan and Lebanon (Ceyhun, Huseyin Emre, 2017) and work by Corstange (2019, 2020) on public opinion of Syrians in Lebanon regarding the conflict. See also Mironova et al. (2019a and 2019b) who study determinants of Syrians' commitment to rebellion and risk preferences, respectively, using data from surveys conducted among Syrians both inside and outside Syria.

homes to barrel bombs are made more vulnerable to a number of other subsequent harms, such as the loss of family members and personal injury, making it important to note that the effects we attribute to house destruction by barrel bombs are inclusive of any other harms that it made more likely.

We find, first, that those who lost their home to barrel bombing perceive the regime, which perpetrated that violence, as more threatening. This supports the expectation that violence makes civilians feel more threatened by its perpetrator (Hirsch-Hoefler et al., 2016) and confirms that they know who is to blame for this violence. This could presumably motivate civilians to more strongly support the perpetrator's opponents. Yet, and to our primary question, we find that refugees who lose homes to barrel bombs do *not* show greater affinity toward the armed opposition or any other insurgent group operating in Syria. Rather, they are *less* likely to report support for the opposition, and are commensurately more likely to report that no party to the conflict represents their interests. Those who lost homes are also more approving of fellow Syrians who refuse to choose sides in the conflict and are more willing to compromise for peace. Considering possible mechanisms for these results, we find that while refugees who lost homes to barrel bombing remain engaged with events in Syria and are just as likely to say they will return to their home country, they show greater pessimism about the likelihood of an opposition victory. This last result suggests that pragmatic considerations about military effectiveness could be a plausible driver of the anti-opposition and pro-peace effects that we find.

Although we argue our conditioning strategy and the low accuracy of barrel bombs greatly reduces the scope for unobserved confounding, we also conduct sensitivity analyses (reported in the Online Appendix) that describe what strength of residual confounding would be required to alter our conclusion, and show that our conclusions are very unlikely to be driven entirely by residual confounding. Further, we consider the ways in which "selection into" the study population (refugees who came to Turkey and were there at the time of the survey) threatens the (internal) validity of our estimated effect within this group, and describe analyses that help to mitigate this concern.

Background and related literature

Case-specific considerations—Our work examines how refugees' attitudes toward combatants and peace are shaped by their experiences with violence during wartime. One relevant feature of our case is that we focus on a situation with ongoing violence at the time of the research. Unfortunately, there are very few empirical studies of civilian attitudes *toward combatants during wartime* at all,[2] and less attention still has been given to how direct exposure to incumbent-inflicted violence shapes individual perceptions about insurgent groups. Undoubtedly, the paucity of studies examining actual effects of individual-level exposure to indiscriminate violence during conflict is partly due to the logistical and security challenges associated with such research. As such, there is a heavy reliance on remote, aggregate measures, such as territorial control and death counts, which fail to take civilian attitudes into account.

[2]·Some notable exceptions are Lyall et al. (2013) in Afghanistan, Fair et al. (2018) in Pakistan and Hazlett (2019) in Darfur.

A second relevant feature of the particular case we study is our focus on a certain type of indiscriminate violence and one that, as we illustrate below, was perpetrated solely by the incumbent regime. Categories of violence are sometimes contentious, but scholars of civil conflict routinely draw a conceptual distinction between "selective violence"—instances when combatants and/or the civilians suspected of supporting combatants are targeted based on personalized information about their actions (Kalyvas, 2006)—and "indiscriminate violence", which targets everyone in a particular area with no effort to determine guilt or innocence (Downes, 2007). Straus (2015) usefully introduces the term "group-selective violence", where one can say *groups* are targeted but violence is effectively indiscriminate within those targeted groups or areas. The terms "categorical violence" (Goodwin, 2006; Fortna et al., 2018) and "collective targeting" (Steele, 2017) have also been used to describe similar patterns of violence.[3] These terms capture well the phenomenon of barrel bomb attacks, which we study here: the Assad regime dropped barrel bombs in opposition-controlled areas of Syria without any targeting *within* those areas for a number of reasons, which we discuss in detail below. Our focus on a case where the regime is the perpetrator of violence also constitutes a contribution, as most existing studies of indiscriminate violence focus on cases involving violence perpetrated by external actors. For instance, all the cases of indiscriminate artillery shelling cited in Lyall (2009) are by foreign actors.[4] Recent published work on other instances of indiscriminate violence similarly focus on cases with external counter-insurgents, such as aerial bombardment by the US in Vietnam (Kocher et al., 2011; Dell and Querubin, 2017) or collateral damage by Coalition forces in Iraq (Condra and Shapiro, 2012).

A third and a final feature of our case is that we focus on refugees who have escaped the conflict zone. This differentiates our study from a major thread of the literature on civil conflict to date, which has theorized and studied the responses of civilians remaining in the conflict zone, with implications for the strategic choices made by armed actors (see e.g., Kalyvas, 2006; Christia, 2012). By focusing on refugees—and particularly on the effect of experiencing home-destruction for those within this group of displaced individuals—we contribute to emerging work on the consequences of civilian victimization (Balcells and Stanton, 2021). Understanding displaced civilians' views of the regime and insurgent groups is also important for several reasons. The refugees we sampled remain involved in Syrian affairs—e.g. 90% report that they expect to return to Syria, 91% have family members there, and at least 11% have returned to Syria to visit their homes at least once already. These descriptive results suggest that the population of displaced individuals that we study is likely to play a significant role in the future of Syria, whether as returnees or as a diaspora group with familial—and possibly financial–connections to the homeland.

Beyond these case specific considerations, our work engages a rich and growing literature on the consequences of civilian victimization and exposure to violence, which finds that not all civilian responses to violence are uniform (Balcells and Stanton, 2021). Below we review the relevant studies that inform our expectations about how exposure to violence can shape civilians' threat perceptions (Hirsch-Hoefler et al., 2016), their political allegiances

[3]Kalyvas calls all such violence "indiscriminate", whereas Gutiérrez-Sanín and Wood (2017) astutely observe that "collapsing identity-based targeting and indiscriminate violence blurs variation in how armed organizations target civilians" (p. 22).

and loyalties (Wood, 2008; Balcells, 2012; Hadzic et al., 2020; Villamil, 2021), and their attitudes toward peace and compromise (Hall et al., 2018; Hirsch-Hoefler et al., 2016).

The consequences of civilian victimization: Threat perceptions, loyalties, and attitudes towards peace—First, and perhaps unsurprisingly, the literature on exposure to violence finds that victimization leads to an increased threat perception of the perpetrators of violence (Hirsch-Hoefler et al., 2016). Perceptions of threat relate to the appraisal of danger that the perpetrator poses to the security and well-being of the individual and, in some instances, the broader group with which that individual identifies (Canetti-Nisim et al., 2009; Huddy et al., 2002). Others who have studied the consequences of indiscriminate violence during counterinsurgency campaigns—albeit violence carried out by external actors—have indeed found that incumbent-inflicted indiscriminate violence makes civilians feel more threatened and less sympathetic toward its perpetrators (Anderson, 2005; Hashim, 2006). In our case, the perpetrator of the violence is the Assad regime, and we thus expect that civilians who lost a home owing to barrel bombing will find the regime more threatening, both individually and to Syria as a whole.

Second, existing research demonstrates that violence against civilians has consequences for their loyalties and allegiances, although there is still considerable debate about precisely what those consequences are (Cederman et al., 2020). According to Kalyvas (2006), a regime that perpetrates violence indiscriminately (at the individual level) may push civilians to support the insurgents, either because these civilians become more vengeful toward the perpetrators of violence (Anderson, 2005; Hashim, 2006) or because they turn to the opposition in search of protection (Goodwin, 2001). A diverse set of empirical studies using evidence from Iraq, Vietnam, Afghanistan, and Gaza have all shown that indiscriminate violence can turn civilians away from the perpetrators of violence and toward adversarial insurgent groups (Condra and Shapiro, 2012; Benmelech et al., 2015; Kocher et al., 2011; Dell and Querubin, 2017; Schutte, 2017). Critically, these studies examine the behaviors of civilians in the conflict zone, where a security-seeking logic more readily suggests this result. In contrast, where civilians have fled the conflict zone, such a logic—and pro-opposition effect—may no longer hold, and this is, in part, the subject of our study. Researchers, however, have begun to unpack intra-case variation in civilian responses to indiscriminate violence, finding, for example, that the backlash against the perpetrators can be stronger when civilians perceive them to be “outsiders” (Lyall et al., 2013) and that civilians are only driven toward the adversary when they are located at a safe enough distance to do so (Schutte, 2017). Other relevant work finds that civilian victimization can produce moral outrage and leads individuals to side with the opposition (Wood, 2003, 2008), that it can solidify ethnic polarization (Hadzic et al., 2020), that it can influence post-conflict elections (Costalli and Ruggeri, 2015), and that its effects can span entire generations (Balcells, 2012).

Still, some scholars point out that indiscriminate violence perpetrated by an incumbent may make civilians feel that opposition groups are incapable of providing protection or are even responsible for provoking violence (Lyall, 2009; Souleimanov and Siroky, 2016). Such violence may thus cause civilians to reduce support toward the party holding or operating in the territory that was attacked (Downes, 2007). For example, Schubiger (2021) finds that in

Peru in the 1980s civilians responded to government-inflicted violence by rallying *against* insurgents in an effort to signal their opposition to them and thereby avoid future state targeting. Furthermore, as work by Pechenkina et al. (2019) demonstrates, the consequences of civilian victimization may be contingent on one's proximity to the atrocities, with those who only experience the violence indirectly (as opposed to directly) more likely to view indiscriminate attacks as a response to rebel provocation. How civilian victimization will shape the loyalties of refugees who have fled the conflict zone thus remains an open question.

Our study also enables us to learn more about the relationship between exposure to violence and attitudes toward peace. On one side of the ledger, scholars have found that experiences with violence can render civilians more hostile and war prone. For example, Hirsch-Hoefler et al. (2016) finds that experiencing violence "hardens the hearts" against peace efforts, Canetti et al. (2017) find that exposure to violence provokes an "ethos of conflict" that hinders support for compromise, and Vinck et al. (2007) trace a link between victimization, post-traumatic stress disorder and depression, and decreased support for non-violent compromise. Similarly, work in the realm of transitional justice indicates that victimized individuals can be more likely to hold retributive preferences toward the perpetrators of violence (Hall et al., 2018; Kao and Revkin, 2023), although this may not always be the case, as shown by Dyrstad and Binningsbø (2019) and Nussio et al. (2015). Indeed, other relevant literature suggests that it is equally possible that the dominant reaction to civilian victimization is either no effect at all (Liendo and Braithwaite, 2018) or even a "pro-peace" effect, by which exposure to violence may generate more pacific attitudes and increase the desire for settlement and compromise. Several recent studies provide evidence of this pro-peace response at the individual level (Bakke et al., 2009; Hazlett, 2019; Tellez, 2019) and earlier works such as Levy and Morgan (1986) discuss country-level notions of war-weariness.[5]

In summary, the research cited above illustrates the active debates around both (i) whether civilian victimization perpetrated by one side leads to increased support for its adversary and (ii) whether experiences of civilian victimization lead to a pro- or anti-peace attitudinal response. Since existing theory and empirical research could reasonably point in either direction, our aim is not to pose directional hypotheses but to provide an additional data point toward our future understanding, empirically assessing the effects of civilian victimization on support for the opposition and on support for peaceful settlement in the context of Syrian refugees who have fled to Turkey.

In addition to these empirical estimates, we consider suggestive evidence for two possible mechanisms behind our results. First, given that other research has found that exposure to violence can potentially lead to certain types of disengagement and social apathy (Pham et al., 2009), we examine whether those who lose a home also report decreased levels

[5]·Here it is worth noting that there is also a related and robust literature on how exposure to violence makes people more altruistic (Voors et al., 2010) and effects various types of "civic" behaviors and attitudes, including participation in civil society, political engagement and altruistic actions and beliefs—although these apparently altruistic positions are in some cases parochial and so may not suggest improved altruism towards out-groups. We refer the reader to Bauer et al. (2016) for an extensive review of this work, some of it quasi-experimental, on cooperation and other potentially pro-social reactions to violence.

of engagement with the homeland more generally, measured by whether they follow the news in Syria, volunteer with the Syrian community, and intend to return home to Syria (Alrababa'h et al., 2023). Second, we consider if losing a home to barrel bombing makes refugees more pessimistic about the possibility of an opposition victory. Prior work has shown that indiscriminate violence by an incumbent can lead to skepticism about the opposition (Lyall, 2009; Souleimanov and Siroky, 2016). Accordingly we test whether losing one's home decreases belief in the likelihood of an opposition victory, which could trigger pragmatic calculations whereby refugees withdraw support from an opposition that they think is unlikely to win and have an increased interest in reaching a peaceful compromise.

The Syrian civil war and displacement

The Syrian civil war was sparked by protests that began in March 2011, when a group of children were detained and reportedly tortured for writing graffiti denouncing the Assad regime on the walls of their school in Der'a (McHugo, 2014). Soon, the protests spread to other cities throughout Syria and were promptly met with a harsh response from the regime (Hokayem, 2013). By July 2012, the initial protests, which were largely semi-urban and peaceful, had spiraled into a brutal civil war, fought between Syrian government forces on one side and multiple rebel factions, including both secular and Islamist groups, on the other (McHugo, 2014). As the conflict escalated, the Assad regime began aerial bombardments of opposition-controlled areas, and in mid-2013, regime forces in Aleppo began using barrel bombs (Amnesty International, 2015). In response, the UN Security Council adopted Resolution 2139, which explicitly demanded an end to the victimization of civilians through the use of indiscriminate weapons, including barrel bombs (UNSC, 2014). This resolution, however, was not at all effective in curbing barrel bomb attacks. The regime continued to use barrel bomb attacks extensively throughout the war, dropping them on a range of other opposition-controlled areas of Syria, including Idlib, Hama, Homs and the suburbs of Damascus (SNHR, 2017).

By 2019 the war was slowly coming to an end and the Assad regime emerged victorious, thanks in large part to heavy support from Russia and Iran. The human costs of the conflict have been devastating: close to 600,000 people are estimated to have died (SOHR, 2020), including more than 11,000 civilian deaths because of barrel bomb attacks (Amnesty International, 2020). More than 13 million Syrians have been displaced. Among those displaced, more than 6 million had to leave Syria and have become refugees in other countries (UNHCR, 2022a). Turkey hosts the largest number of Syrian refugees (UNHCR, 2022b) and is the primary destination for Syrians exposed to indiscriminate violence, and especially to barrel bombs. According to the statistics provided by the Turkish Directorate General of Migration Management, as of 1 December 2022, 3,570,234 registered Syrian refugees resided in Turkey. Less than 2% of these refugees are currently settled in the seven camps run by the Turkish government, and the vast majority live among the Turkish population in urban areas. About half of all refugees are living in four provinces of Turkey: İstanbul, Gaziantep, Hatay and Şanlıurfa.[6]

[6]The province-level numbers of registered Syrian refugees in Turkey are available at https://www.goc.gov.tr/gecici-koruma5638.

Research design and methods

We focus on estimating the effect of a particular type of of civilian victimization—losing one's home to barrel bombing—on threat perceptions, support for the opposition, and attitudes toward compromise. The key assumption behind our research strategy is that because barrel bombs are inaccurate weapons, they may be targeted to particular geographic areas (neighborhoods, defined in Section "Survey sampling and location data") but within these areas they cannot be effectively targeted to a certain building rather than others. If there is exactly zero ability to preferentially hit one building rather than another within a neighborhood, then a within-neighborhood comparison of those whose homes were destroyed with those whose homes were not would allow us to estimate a causal effect with zero confounding bias. We thus adopt a research strategy whereby we rely on within-neighborhood estimates, estimating our effects by comparing those who did and did not lose their homes to barrel bombs *within* each neighborhood. Below in Section "Estimation: Matching and regression with sensitivity", we describe how such within-neighborhood (and gender) comparisons are realized by matching on neighborhood and gender. Although we have reason to believe that targeting within neighborhoods is highly unreliable, one can always doubt that such assumptions hold precisely or contemplate that some degree of partial targeting is possible. Thus, thinking more conservatively, we also examine how hypothetical non-zero amounts of within-neighborhood targeting (and thus confounding) would influence the results through sensitivity analyses (Section F in the Online Appendix).

Here we emphasize that our goal in this analysis is "internal validity", i.e. estimating the effect within the sample in hand. However, in Online Appendix, Section E.2, we describe how the conditions whereby individuals "select into" our sample (i.e. by choosing to come to Turkey and to stay in Turkey until the time of the survey) can bias even our estimate of the effect within this group. We also provide analyses that help mitigate this concern in Section "Selection into the sample and internal validity".

In what follows, we describe the arguments for barrel bombs' inaccuracy and discuss other relevant features of our research design and survey.

The inaccuracy of barrel bombs—Barrel bombs are improvised explosive devices typically made from oil barrels, fuel tanks, gas cylinders or other large metal containers packed with explosives and metal fragments like nails and machine parts to increase their lethality. The lack of within-neighborhood targeting of barrel bombs is supported by two arguments: technical limitations and strategic purpose. Regarding technical limitations to targeting, notwithstanding efforts reportedly made by the Syrian military to predict where barrel bombs may land by considering wind speed and other factors,[7] such strategies appear to be insufficient to direct bombing below the neighborhood level. As SNHR (2017) reports at length, helicopters drop these bombs, weighing between 50 and 1000 kg, while still moving and from an altitude of 3–5 km in order to minimize exposure to man-portable air defense surface-to-air missiles. In evidence of their inaccuracy, although one helicopter

[7]·Gibbons-Neff (2015). We thank an anonymous reviewer for noting this.

frequently drops multiple bombs (generally two to four) within a few seconds, the individual bombs may land 500 meters apart from one another (SNHR, 2017, 14).

The second argument for the indiscriminate nature of barrel bomb attacks derives from the Assad regime's objective in using them: to make certain areas inhospitable to civilians so they either withdraw support for the opposition or leave the area. The goal of these instances of bombing was not to kill rebel fighters. In fact, barrel bombings did not focus on the front lines where active fighting was occurring and where rebels were known to be operating. Rather, areas away from the front line were most heavily targeted, in an effort to clear them of civilian communities. As one member of the Civil Defense, a voluntary group of rescue workers, in Aleppo told Amnesty International in 2015, "The people who have been killed are not the people who were fighting". Furthermore, we know from interviews and the reporting of humanitarian organizations that civilians on the ground can see and hear a barrel bomb fall, yet they cannot know exactly where it will ultimately strike. This inability to discern where destruction will occur prevents civilians from effectively avoiding harm. A shopkeeper in Aleppo remarked, "After you see the barrel falling you don't know where to go … Sometimes we accidentally run towards the barrel" (Amnesty International, 2015).

Survey sampling and location data—In the summer and fall of 2016, we surveyed 1,384 out-of-camp Syrian refugees in the four Turkish provinces with the highest number of Syrian refugees: İstanbul, Hatay, Şanlıurfa and Gaziantep. A detailed description of our survey design, sampling strategy, and the ethical procedures we followed are available in the Online Appendix, Section A.

In practice, obtaining the location of respondents' homes in Syria presented logistical challenges, as only 18% were able to locate their homes using Google Maps on their enumerator's smart device to obtain GPS coordinates. Instead, the most accurate method we were able to employ began by asking participants to identify the governorate, city and neighborhood in which they used to live. If they were from a rural area, we then asked which village they were from. Using this information about respondents' original homes, we matched each respondent to one of the administrative units in Syria, using the list provided by United Nations Cartographic Section and United Nations Office for Coordination of Humanitarian Affairs.[8] For our respondents from the capital cities of governorates such as Aleppo or Ar-Raqqa, these administrative units are neighborhoods in these cities. For our respondents from outside the cities, these administrative units are either small provincial towns or villages.[9]

The mean and the median area of the 27 urban neighborhoods included in our post-matching sample (see below, Section "Estimation: Matching and regression with sensitivity") are 1.18 and 0.92 km^2, respectively. The mean and the median area of non-urban neighborhoods are 5.92 and 3.82 km^2, respectively. Note that a circle with an area of 1 km^2 has a radius of 564 meters. If two bombs dropped together can land 500 meters apart, as reported—and there is further inaccuracy in timing and positioning of the drop itself relative to a given

8. See https://data.humdata.org/dataset/syrian-arab-republic-administrative-boundaries-populated-places

9. Overall, we were not able to match 135 respondents to a unit because either the respondent failed to provide any information or we were not able to match respondent's answer to the available list of administrative units.

target—this leaves little hope for even approximate targeting of blocks or buildings within a given neighborhood, particularly in urban neighborhoods. Conditioning on neighborhoods of this size therefore helps considerably in ensuring individuals within these units have similar risks of having their homes destroyed. As we describe below, our results hold when we limit our analysis to urban neighborhoods, or to neighborhoods below the median size.

Home destruction—To study the effects of civilian victimization, our analyses focus narrowly on whether individuals' homes were destroyed by barrel bombs as the harm in question.[10] This measure is uniquely well suited to the inferential challenges at hand because whether a person's house is destroyed (or not) is based only on its location relative to where barrel bombs happen to strike. That is, the inability to target barrel bombs within a neighborhood alone implies that the probability of a home being destroyed does not vary within neighborhood—regardless of factors such as how risk tolerant a person is, their attitudes, their support for the opposition, the behavior of their family members, etc. We emphasize that suffering harms from violence beyond having one's home destroyed clearly matters, both in human terms and in terms of their effects on civilian attitudes, even if we have no means to examine their causal effects. A complete description of the concerns that prevent us from using measures other than *House destroyed due to barrel bomb* is given in Section D in the Online Appendix.

An important assumption we require is that our respondents know with reasonable accuracy whether their homes were destroyed by barrel bombing, despite them possibly having left before this occurred. Refugees that we interviewed prior to the survey relayed confidence that they and others know the nature of the attacks their neighborhood experienced. They know whether their neighborhood was damaged or not, near the front line or not, and indeed whether or not barrel bombs were used.[11] If one witnessed their home's destruction, they knew for certain the cause. If any neighbors witnessed the destruction, again refugees often find out about the extent of the damage and the cause of the destruction, as they are understandably highly motivated to seek out this information through their social networks and any other resources available to them.[12]

Available eyewitness accounts of attacks that involve both barrel bombs and missiles also indicate that witnesses were able to distinguish between these different types of attacks and the damage they cause. For instance, an eyewitness account of multiple airstrikes on and around a Red Crescent center in Urm al-Kubra in Western Aleppo in 2016 describes it as follows: "I stopped about 200 meters away from the Red Crescent center when I heard the sound of the helicopters attacking the location. I saw two helicopters drop four barrel bombs at approximately 7:12. A few minutes later, another strike was carried out

10. The exact wording of the question is: "Was your home at that time destroyed or damaged so badly as to make it unlivable?", with the answer categories "yes" or "no".

11. As one interviewee described it, "The type of damage can reveal the source of the damage and since the explosive barrels tend to have a similar effect range it can be determined through simple observation at the location". Interview conducted on 2 July 2018.

12. We later came to realize that in the context of our survey, it is possible for participants to have mistakenly thought we were asking if their house was destroyed only prior to when they left. It is unlikely that this is the case for most respondents, owing to the relatively large proportion of respondents saying their house was destroyed by barrel bombs (22% in our sample), despite many leaving in the earlier part of the violence. However if this did occur, it would cause a fraction of those whose homes were destroyed to report otherwise, mitigating the effect we find towards zero.

by two Russian warplanes which targeted the same location with two thermobaric missiles that caused a huge explosion and fires. We couldn't see anything in the darkness of the night but the flames. After that, the helicopters came back and dropped another four barrel bombs" (SNHR, 2016).[13] Similarly, one Syrian interviewee working with children who had witnessed bombings told us that even they were able to discern between barrel bombings and other types of airstrikes based on the sounds that accompanied such acts of violence.[14] Consistent with the purpose of driving civilians out, barrel bombing largely occurred in neighborhoods that were not yet emptied, and thus where witnesses were present.[15]

We note that to the degree there may be non-random measurement error—with some individuals more likely to "over-report" their home being destroyed than others—we would expect that it is the more pro-opposition/anti-regime refugees who are more likely to report their home being destroyed by barrel bombs. If true, this would suggest a bias toward higher opposition support among those who lose their home, but our finding is in the opposite direction. Finally, regarding the context and who civilians hold responsible for these attacks, it is widely known that these barrel bombs have only been used by the Syrian regime, and not by Russian or international coalition forces (SNHR, 2017).

Outcome and mechanism measures—Here we briefly describe our outcomes and mechanisms of interest and the names of the variables (italicized) that we construct. The full wording of the questions from the survey and the description of how the variables are constructed are in the Online Appendix, Section B.

Outcomes.: Our first two primary outcomes are designed to measure threat perception, with the expectation that individuals who lost homes to barrel bombing will find the Assad regime to be a greater threat to themselves and to the country. Using the answers to two different questions in which individuals choose the group that they consider as the biggest threat to themselves and to Syria, we constructed two variables: *Top threat to Syria: Assad*; *Top threat to you: Assad*.

The next and arguably most important outcome measure assesses loyalties, looking at the degree of support for the warring parties, using the answers to an open-ended question in which respondents were free to name any party to the conflict they wished: *Support opposition*; *Support no party*. Our other primary outcomes assess attitudes toward compromise, neutrality and peace: *Compromise for peace*; *Fight until victory*; *Neutrality acceptable*; *Support peace if family does*.

Mechanisms.: We consider evidence for two possible mechanisms behind our results: first, a reason victimized individuals may report being less supportive of the opposition or continued fighting might be simply that they are less socially engaged and active overall, or have little intention of ever returning to Syria, and therefore are indifferent about the actors

13. Several other eyewitness accounts of barrel bomb attacks in different governorates of Syria are available in SNHR (2017).
14. Interview conducted in Kilis, Turkey on 8 October 2015.
15. In our sample, when asked if their home was barrel bombed, only 9% of our respondents from barrel bombed neighborhoods chose "don't know" or "no response". In another survey conducted by the Turkish Disaster and Emergency Management Authority (AFAD) among 2,461 Syrian households in Turkey, only about 16% of respondents did not know the status of their house (AFAD, 2017).

in the conflict. To consider this general issue of engagement, we focus on respondents' intention to return to Syria (*Will likely return*), how closely they follow the news from Syria (*Follow Syria news*), and whether they do volunteer work for other refugees (*Volunteer for refugees*).

Second, we examine respondents' assessment of the opposition's ability to achieve victory (*Opposition could win*), as this could potentially alter considerations about the benefits and drawbacks of supporting the opposition and favoring peace.

Estimation: Matching and regression with sensitivity—As mentioned above, our research strategy requires conditioning on neighborhood, i.e. comparing those who did and did not lose their homes to barrel bombs *within* each neighborhood. Furthermore, we also make comparisons only within gender, both in the interests of conducting separate analyses by gender, and because we note a moderate (but insignificant) tendency for more men than women to report losing their homes to barrel bombs. We note that a larger percentage of men also report large-scale damage to their homes than women in the survey conducted by the Turkish Disaster and Emergency Management Authority in 2013 (AFAD, 2013). Conditioning on neighborhood and gender is straightforwardly achieved by exact matching, using the Matching package for R (Sekhon, 2011). As employed here, this produces an average treatment effect on the treated (ATT) estimate, as each treated unit is matched to control units, or otherwise dropped if no control is available. The Abadie–Imbens standard errors for matching (Abadie and Imbens, 2006) are used to construct 95% confidence intervals.

Finally, we additionally present results from a regression (ordinary least squares) model, which includes available pre-treatment covariates, with an indicator for gender and fixed effects for neighborhood. This regression model is then used in the sensitivity analyses to determine what bias would be suffered owing to confounders of varying strengths, described in Section F in the Online Appendix.

Results

Descriptive results

The diverse geographic distribution of our sample of 1,384 respondents is given in Figure 1, by Syrian governorate. While 67% of the respondents are from Aleppo, 10% are from Ar-Raqqa, and 9% are from Idleb. Among those from Aleppo, 24% lost their homes to barrel bombs. In Ar-Raqqa and Idleb, 6% and 30% of the respondents lost their homes to barrel bombs, respectively.

Our sample is relatively well balanced on gender with 37% being female, despite the difficulty of interviewing Syrian refugee women that has affected other surveys of Syrians, in which the gender ratio is highly imbalanced.[16] The descriptive statistics for additional variables are shown for the full sample in Table 1.

16.See e.g. Giebler (2015). The share of women in Corstange (2020) is similar to ours, 40%.

While we do not seek to make claims about the external validity of our findings, in the Online Appendix, Section G, we provide detailed descriptive statistics that compare our sample with the Syrian population before the war, with another survey of Syrian refugees in Turkey, and with surveys of Syrian refugees in neighboring Lebanon and Jordan. These comparisons show that the composition of our sample is not very different than the Syrian population before the war, or the broader Syrian refugee population in Turkey and in the other neighbouring countries of Lebanon and Jordan.

Distribution of violence

Out of 1,384 participants in our survey, 303 (22%) report losing their homes to barrel bombs.[17] In the matching analyses below, we can only use participants who provided accurate information on their neighborhood of origin, which reduces the numbers to 264 who lost their homes to barrel bombs and 832 who did not.

The violence experienced by those in our sample is almost entirely due to the regime and its supporters, and not the opposition or other insurgent groups. Fewer than 0.4% of respondents reported having a family member or even a neighborhood member injured by insurgent violence. Likewise, a predominant form of violence people would be likely to experience owing to insurgents is sniper fire, and again only 0.4% of respondents report having a family member injured or killed in sniper fire. This is consistent with our understanding of the violence faced in the areas our respondents came from at the time we surveyed: massive violence owing to the Assad regime and its supporters, mostly through aerial forms of bombardment.

Balance

Before proceeding to effect estimates, an empirical implication of our “no within-neighborhood targeting” assumption is that within a given neighborhood, we would expect those whose homes were destroyed to be similar to those whose homes were not destroyed in terms of their pre-treatment characteristics. That is, we expect “conditional balance”, although this is insufficient to ensure the identification strategy holds, as it is blind to unobserved confounders.

To test for conditional balance, we simply use the same matching approach that we use for effect estimation (exact matching on neighborhood and gender), but consider each pre-treatment covariate as if it were an outcome. We hope to find no (placebo) “effect” of having one’s house destroyed on these covariates if losing one’s home to barrel bombing is indeed random within each neighborhood–gender stratum.

We use this procedure to check conditional balance on covariates available to us in the survey that are effectively “pre-treatment”, i.e. unaffected by barrel-bombing. These include the (log) number of rooms in the house (*rooms in house (log)*), whether the respondent

[17]While our identification strategy requires focusing narrowly on one type of violence, for descriptive purposes we report the levels of violence experienced by participants in Table D.2 in the Online Appendix. We inquired about various forms of violence, including injury or death owing to insurgent violence, either in their family or in their neighborhood. We also asked about torture and injury or death owing to sniper fire. Rates on all of these forms of violence were extremely low, and thus they are not reported in the table.

spoke Kurdish (*Kurdish*), whether the person worked prior to leaving (*employed before attack*), number of children prior to the crisis (*children*), and age in years, which we standardize to improve visualization (*age (std.)*). To test whether houses that were destroyed tended to be closer to schools, markets, or hospitals (which might be expected if there is effective within-neighborhood targeting that defies our no within-neighborhood targeting assumption), we check balance on the approximate distances from each participant's home to the nearest market (*km to market*), school (*km to school*), or hospital (*km to hospital*).[18] We also include education, with indicators for completing primary school (*primary education*), secondary school (*secondary education*), and any college (*any college*).[19] Note that balance is irrelevant for neighborhood-level features, such as urban/non-urban or neighborhood size, since the matching approach conditions on neighborhood. Further, some variables that may at first seem to be of interest for balance testing are post-treatment, such as self-reported socioeconomic status, which would very probably be influenced by having one's home destroyed.

The conditional balance as visualized in Figure 2 is imperfect. While some variables such as age, number of children, and employment in Syria are relatively well balanced, we also see some notable imbalances. Perhaps the most striking imbalance is on *km to hospital*. This imbalance is relatively small in real terms, at 0.22 km (or a standardized imbalance of 0.20 SD), and notably, not in the anticipated direction of concern: had it been possible to target barrel bombs, knowing that hospitals were a target in general, we would worry that those losing their homes to barrel bombs would be nearer to hospitals, but we find they are slightly farther. It is possible that hospitals were effectively targeted by other weapons such as rockets or mortars, and that barrel bombing was then less concentrated in these areas.[20] On the other hand, we see imbalance in the opposite direction on *km to market*, again with a small magnitude (0.11 km or a standardized imbalance of 0.13 SD). Additional imbalances include that those with secondary or college education are slightly less likely to have lost their home, and homes with more rooms were more likely to be destroyed. The latter imbalance is mechanically sensible, simply because homes with more rooms are larger and thus more likely to be hit. This could in principal generate a bias owing to socioeconomic differences between those whose homes were and were not destroyed. These imbalances reinforce that while one would ideally estimate effects under an assurance of zero confounding bias, we must also consider how varying degrees of confounding might impact the result and particularly how much confounding would be required to alter the conclusion through sensitivity analysis (reported in Section F in the Online Appendix).

18. The distance variables are approximations constructed as follows: we asked individuals about the walking time to each of these locations, giving options of 0–5 min, between 5 and 15 min, 15–30 min, or more than 30 min. We then replace the answer with a numerical value using the middle of each interval (i.e. 2.5 min for the 0–5 min category), using 45 min for the "over 30" category. We then divide this by 15 to achieve approximate distances in kilometers.

19. All participants in the survey were 18 or over when surveyed, but could have been 14–15 years old in 2012. Thus, for a small fraction of younger participants, it is possible that *any college* or even *education secondary* could be influenced by exposure to barrel bombs. However, since this pertains to only a small portion of the sample, we decided to consider them pre-treatment.

20. We thank an anonymous reviewer for raising this possibility.

Main results

As is often the case with matching estimators, the estimate is not an average effect for everybody, but rather the average among those who lost their homes (i.e. an average treatment effect among the treated, or ATT). The post-matching sample contains 227 individuals whose homes were destroyed by barrel bombs, after dropping 37 individuals from the "treated" group for whom a match could not be found. The "control" group is drawn from 488 unique observations. The total number of unique observations found in each geographic location is shown in Figure 3.

Urban neighborhoods, mostly in Aleppo, make up 27 of the 43 neighborhoods in the post-matching sample, while the remaining 16 neighborhoods are in small provincial towns. About 83% of the unique observations after matching come from Aleppo, and out of these, 97% are from the city of Aleppo. The map in Figure 4 shows the number of (unique) individuals contributing to the estimate falling in various neighborhoods of Aleppo city. The proportion of refugees in the matched sample from Aleppo is large because among all governorates in Syria, Aleppo suffered the most concentrated number of barrel bombings.[21] Twelve percent of the unique observations after matching come from Idleb, and 3% are from Ar-Raqqa. The neighborhoods of Aleppo included in our sample are known to be mostly Sunni, while none of them are Alawite, the sect of the president Bashar Assad (CAERUS, 2014: 91–93).[22]

Figure 5 shows effect (ATT) estimates for losing one's home to barrel bombs, having matched on neighborhood and gender. Whiskers show 90% (thick) and 95% (thin) confidence intervals, using the Abadie and Imbens (2006) standard errors. Numerical results are available in Online Appendix Table C.1.

The first two results regard the effects on perceived threats. Those who lost homes to barrel bombing are 20 percentage points more likely to find Assad to be the number one threat to the country, and 15 percentage points more likely to say Assad is the number one threat to them personally ($p < 0.001$). Given the paper's theoretical motivation to understand whether civilian victimization turns people toward or away from the opposition, it would also be interesting to see the effect on naming the opposition as the primary threat to Syria. However, fewer than 1% do so in the entire sample.

The remaining results shown in Figure 5 are about loyalties and attitudes toward compromise and peace. Regarding loyalties, support for the opposition is 26 percentage points *lower* among those who lost homes to barrel bombs ($p < 0.001$). No other party appears to gain that lost support. Instead, a corresponding increase is seen for "no party": those who lost homes to barrel bombs are 26 percentage points *more* likely to say that "no party" represents their views ($p < 0.001$).[23] With respect to attitudes toward compromise and

[21]According to an interview with a representative of the Violation Documentation Center, Aleppo suffered 3,124 barrel bomb related deaths between January 2014 and March 2015, with the most intense campaigns occurring in the fall of 2014. Barrel bombing in Aleppo subsided in February 2015. Interview conducted on 1 October 2015 in Istanbul, Turkey.

[22]The only neighborhoods in our sample that are mixed with Muslim and Christian or Yazidi residents are Ash-Sheikh Maqsoud, Ashrafiyeh and Tareq ben Ziyad.

[23]As readers will recall, this was an open-ended question. Since fewer than 1% said Assad most closely represents them, we do not show effects for this.

peace, when asked if it is acceptable for other civilians to refuse to take a position in the current conflict, those who lost homes to barrel bombs are actually 12 percentage points ($p < 0.001$) *more* likely to report that neutrality is acceptable. This group is also 7 percentage points ($p < 0.001$) less likely to demand that the opposition fights until an outright military victory. Perhaps most notably, those who lose homes to barrel bombing are a surprising 28 percentage points more likely to support plans that call for compromise in order to achieve peace ($p < 0.001$). Finally, individuals who lost homes to barrel bombs were 13 percentage points (SE = 0.003) more likely to agree or strongly agree to call for peace made by a family member under this condition compared with those who did not lose their home to barrel bombing ($p < 0.001$).[24] Collectively this is evidence of a pro-peace effect of losing one's home to barrel bombing. We note that this set of findings runs contrary to the biases that would most naturally be expected if the "no within-neighborhood targeting" assumption fails: within neighborhood, if there is variation in the risk of having one's home destroyed, one would expect it was those who were more militant and resistant to peace who would be targeted, whereas we find the opposite.

Several additional analyses have been reserved for the Online Appendix. While the above analyses have conditioned at the finest geographic level available, the size of these units can vary considerably. Limiting our analysis only to the urban areas (removing the 16 non-urban units that make it through the matching process) therefore allows finer conditioning that makes targeting within these units even more difficult. As shown in Online Appendix Figure E.5, the results are very similar, supporting the same substantive conclusions. Similarly, limiting the analysis to the neighborhoods at or below the median size again produces similar results (Figure E.6). We note that we might have reasonably focused only on the urban areas in order to maximize the credibility of the no within-neighborhood targeting assumption, but chose to use the more inclusive estimates as our main results, particularly since they do not materially differ. Given the composition of the opposition has changed over time, we also look at whether the effect of home loss varies by the respondents' year of departure from Syria (Figure H.9 in the Online Appendix). Our results are remarkably similar across different windows of time. Finally, we also conduct sensitivity analyses (Cinelli and Hazlett, 2020) and find that unobserved confounding strong enough to overturn the conclusion is arguably unlikely (Section F in the Online Appendix).

Selection into the sample and internal validity

One concern to keep in mind in this study, as in any study of selected populations such as refugees, is the role of "selection into the sample". Here, the selective nature of sampling encompasses a number of choices and characteristics besides agreeing to participate in the survey once asked: our participants are drawn from a group for whom every member (i) *remained alive* at the time of the survey, (ii) opted to *leave Syria, and specifically to come to Turkey* at some point prior to the survey and (iii) opted to *remain in Turkey* at least until the survey was conducted. Such selection forces are certainly in play, so the question is what this means for the inferences we seek to make about the sample in hand. Specifically,

[24]The purpose of this question was to disarm a possible social prohibition against calling for peace in this community, by proposing that a family member already supports the idea.

the concern is whether selection into the sample results only in changing the population *about whom we make an inference*, or if it also threatens the internal validity of the effect we estimate within this population. While we cannot rule out the threat to internal validity entirely, in Online Appendix E.2, we discuss several scenarios in which seemingly plausible selection processes would or would not bias our estimate and the possible directions of these biases.

A related analysis we conduct to rule out threats to internal validity begins with the supposition that, if selection into the sample biases the effect estimate, it quite possibly does so in different ways for women than for men, since women and men face very different reasons and pressures in deciding whether to leave Syria and stay in Turkey.[25] In Figure 6, we split the sample by gender and conduct the same analysis in both subsets. Some variation and loss of statistical power are expected, but the pattern of results is very similar across genders. This suggests that if selection into the sample is biasing our estimates of the effects within this group, it either does so very little, in the same ways for men and women, or in ways that happen to perfectly counteract existing differences in the true effects between the genders, across all eight outcomes.

Mechanisms: Disengagement and pessimism about an opposition victory

Why might refugees react to regime-caused destruction in this way, turning against perpetrators and not only failing to show increased support for the opposition, but showing *reduced* support for them and an increased desire for peace?

First, note that we can rule out that individuals were directly attacked by the opposition (see Section “Distribution of violence”). Second, a key question is whether we are measuring here the effect of only losing one’s home to barrel bombs, or the combined effect of that loss together with any other losses that it makes more likely as a consequence. In Online Appendix D.1, we show the estimated effect of losing one’s home to barrel bombing on a range of other experienced harms. As might be expected, losing one’s home to barrel bombs makes it more likely that civilians will experience other barrel bomb-related harms, namely having family members killed or injured by barrel bombs, and being injured oneself by barrel bombs. These increases are fairly small, all falling in the range of 5–10 percentage points. Moreover, the fraction of the sample experiencing these harms remains quite low (see Figure D.2 in the Online Appendix), with only 2% being injured by barrel bombs and 4–6% experiencing the other harms. In this way, while losing one’s home to barrel bombs can be linked to these other harms, on the whole very few people experience them, and thus mechanically they can explain very little of the variation in the outcomes.

We next consider two other possible explanations for our results. First, civilians who lose homes could disengage from community concerns or political events in their homeland, perhaps but not necessarily owing to social apathy, withdrawal, or even psychological consequences such as depression and PTSD (see e.g. Pham et al., 2009).

25. See e.g. Pearlman (2016). For a report that looks at the composition of Syrian refugees travelling to Europe in 2015, and shows that the majority of these refugees are young and male, see REACH (2015). Based on about 170 interviews conducted in Turkey, Schon (2019) argues that Syrian men and women exhibit different migration timing patterns, possibly because of forced conscription in Syria.

Such disengagement could lead individuals to feel indifferent toward or unrepresented by any party to the conflict and, what is more, those who lose homes might simply be less likely to report wanting to return to Syria. Second, victimized civilians could become pessimistic about the likelihood of an opposition victory, leading them to pragmatically withdraw support from the opposition and develop a preference for peace and non-violent compromise.

Figure 7 shows the estimated effects of losing one's home to barrel bombs on a series of intermediate outcomes related to the mechanisms just described. These are estimated using the same procedure—matching on gender and neighborhoods—as the main effect estimates, and for the same reasons.

We find little to no evidence of disengagement. Those who lost homes to barrel bombs are just as likely to say they will return to Syria as those who did not. They also report following what is happening in Syria "very closely" or "somewhat closely" in the news 21 percentage points *more* often, and are 30 percentage points more likely to report supporting their fellow refugee community through volunteer work, compared with those who did not lose their homes to barrel bombs. We thus find no evidence for a loss of interest in what is happening in Syria among those who lost their homes, and further see an apparently pro-social response toward other fellow refugees. The latter result is consistent with a burgeoning literature on the potentially pro-social consequences of exposure to violence, at least parochially, as reviewed in Bauer et al. (2016).

Turning to the second mechanism, we find that losing one's home to barrel bombing does appear to diminish faith in the opposition's ability to win the war (Figure 7).[26] Those who lost their homes to barrel bombs were 11 percentage points less likely to say that they felt the opposition had at least an even chance of achieving a military victory.[27] This reduction in optimism is seen against a high level of average optimism at the time, with 90% of the matched sample believing that the opposition had at least an even chance of victory. This suggests the possibility that those who lost their homes turn away from the opposition in part because of this loss of faith in their chances for victory. Such a mechanism differs from those identified in the literature, which has largely focused on the opposition's inability to provide protection (Lyall, 2009) and a belief that opposition activity provoked regime bombings (Schubiger, 2021; Pechenkina et al., 2019). That said, we cannot distinguish among the various causal orderings: reduced optimism about the opposition's chances of success could lead to withdrawal of support, withdrawal of support could occur first by another means and then get retrospectively justified by claims that the opposition were not going to win anyway, or both the withdrawal of support and the diminished faith in their chances of success could be the results of some other process, without one causing the other.

26. We thank an anonymous reviewer for raising this point.
27. We get similar results when we look at the effect of losing home on alternative codings of this dependent variable with cutoffs at "somewhat likely" or "very likely".

Discussion

Among refugees, the experience of regime-caused violence before leaving is expected to increase antipathy toward the regime. Like others who have studied the consequences of violence during counterinsurgency campaigns—albeit violence carried out by external actors (Anderson, 2005; Hashim, 2006)—we find the expected evidence that incumbent-inflicted violence makes civilians feel more threatened by its perpetrators.

In contrast, the consequences of regime-inflicted violence on attitudes toward the opposition are more difficult to predict. We could reasonably expect either that losses owing to regime bombing fuel support of the opposition, or that civilians who lose homes from regime-inflicted violence choose to turn away from the opposition as well. We find strong evidence of the latter in this case. Among Syrian refugees we surveyed in Turkey, those who lost their homes owing to regime-led barrel bombing were far less supportive of the opposition, with a concomitant increase in the proportion saying that “no party” represents their views. Those refugees who lose their homes to barrel bomb attacks are also more open to compromise, want fighting to end, are accepting of other community members who wish to remain neutral and are less adamant that they take a side—all of which points to a pro-peace response to experiencing the type of violence we study. All of these estimates are very similar by gender. While we argue there is relatively little room for confounding given our reliance on within-neighborhood comparisons and the inaccuracy of barrel bombs, even confounding as strong as any of the observed variables, such as distance to the nearest hospital, would not substantially change the estimate.

Further, two main mechanisms we anticipated could generate this response were a lack of engagement and pessimism about the opposition’s chances for victory. We find no evidence that our effects are driven by social withdrawal or apathy, as individuals who lost their homes are also reportedly more likely to follow the conflict in the news, to volunteer to help refugees locally, and have similar intentions of returning to Syria. Pessimism about an opposition victory, however, does seem to provide a plausible explanation for the anti-opposition effect of exposure to regime-caused violence. For those who lose a home, the opposition’s failure to protect their property and person may ignite pragmatic calculations about the opposition’s lack of military efficacy, which then leads them to withdraw their support from the opposition and become more open to compromise and peace.

Here, it is worth noting that although losing a home to barrel bombing does appear to lead to a greater desire for peace and compromise, it does not necessarily translate into pro-social attitudes toward members of the regime itself. We note here that those who lose homes to barrel bombs also prove less willing to provide life saving support to a regime member in need, by 11 percentage points ($p < 0.003$). As this result suggests, there will likely be steep hurdles when it comes to fully reconciling relations between the victims and perpetrators of violence and to successfully reintegrating the refugee population back into Syrian society.

Conclusions, limitations and next steps

Civilians, including displaced civilians, play a key role in conflict dynamics. Indeed, as is well established in the literature, most of the people who support insurgencies are

civilians, not combatants (Kao and Revkin, 2023; Petersen, 2001; Arjona, 2016). As our work highlights, practitioners of peace thus potentially face an uncomfortable trade-off when confronted with widespread violence against civilian populations by incumbent regimes: allowing or assisting people to leave the conflict zone is the life-saving option, but it does mean that the perpetrators of violence can be "successful", both in removing the population from the war zone and in weakening support for armed opposition. This finding serves as an important reminder that violence does sometimes achieve its intended purposes, making it all the more important for the advocates of peace to seek a timely end to violence, especially violence directed at civilians.

This study is not without its shortcomings. First, we have endeavoured to minimize the scope for confounding through both our research design and sensitivity analysis but we cannot rule it out entirely. Furthermore, our results do not speak directly to how other civilian groups, such as those who have remained in Syria, or who have gone to places other than Turkey, might react to regime-inflicted indiscriminate violence. Related, while we have sought to examine the threats posed by selection into our sample, not all concerning possibilities can be entirely ruled out. Finally, our analysis was made simpler by the fact that the refugees we worked with faced violence almost entirely committed by or on behalf of the regime, and not the opposition. Cases where individuals face violence from multiple sides (as seen in other areas of the Syrian conflict) may generate a different type of response, and would be equally worth examining.

Nevertheless, our findings provide an additional building block in our knowledge of how civilians respond to violence. For refugees who have left the war zone, civilian victimization may have a more ambiguous impact on the formation of loyalties than is found in much of the existing civil conflict literature, which focuses almost exclusively on civilians captive in the war zone. Among those who have fled, our results show that exposure to violence leads to a decreased propensity for side-taking and an increased preference for compromise, potentially driven by pessimism about the likelihood of an opposition victory. Particularly interesting avenues for future work could include other cases of conflict in which civilians were able to and did flee the conflict zone. Indeed, the enormous numbers of refugees around the world—many forced out of their homes by civil conflict and civilian victimization—demand that we begin to better understand the dynamics of conflicts in which civilians flee. We hope this work stimulates further theoretical and empirical work on questions such as how porous borders or other conditions favoring mass displacement alter the strategic logic of violence during conflict, and how refugees, many of whom seek to return home eventually, respond to such atrocities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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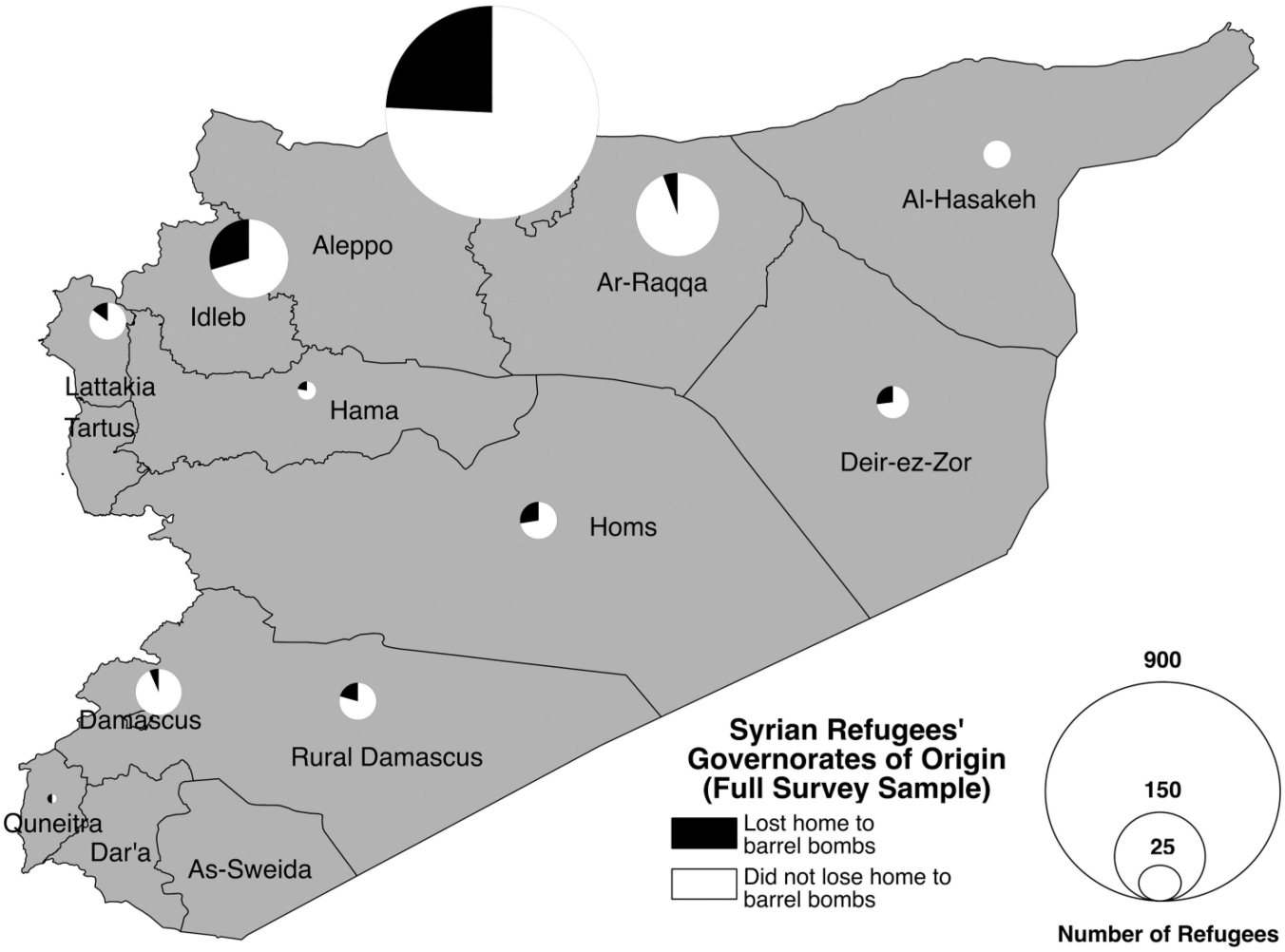

Figure 1.
Survey sample.

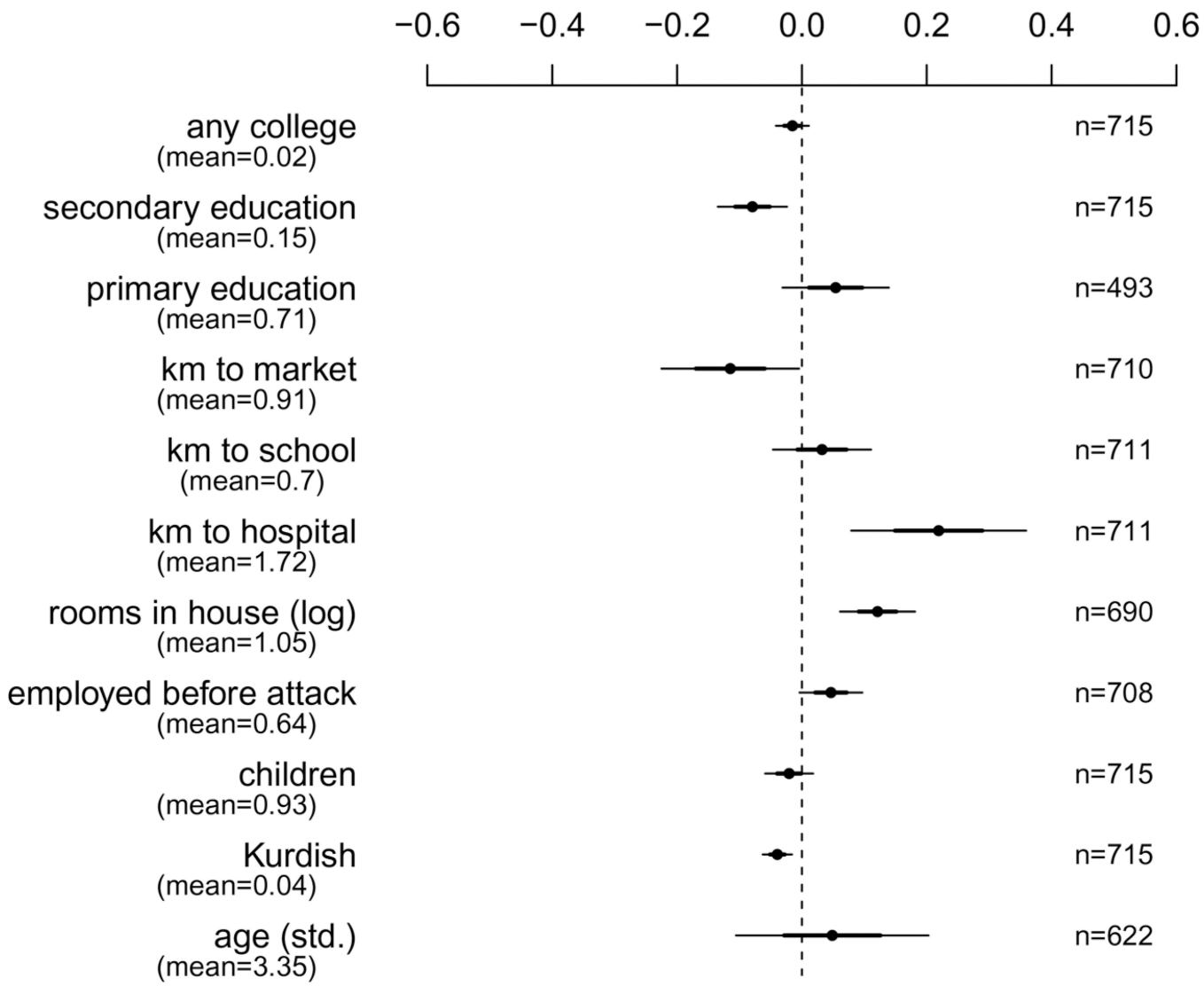

Figure 2.

Conditional balance/placebo test. *Note:* Plots showing conditional balance, given neighborhood and gender. Each pre-treatment covariate is treated as if it were an outcome variable, and the "effect" (imbalance) of the treatment is estimated on each via exact matching on neighborhood and gender. The *n* shown gives the number of unique treated units plus unique control units contributing to each estimate. Whiskers show the 90% (thick) and 95% (thin) confidence intervals using Abadie–Imbens standard errors.

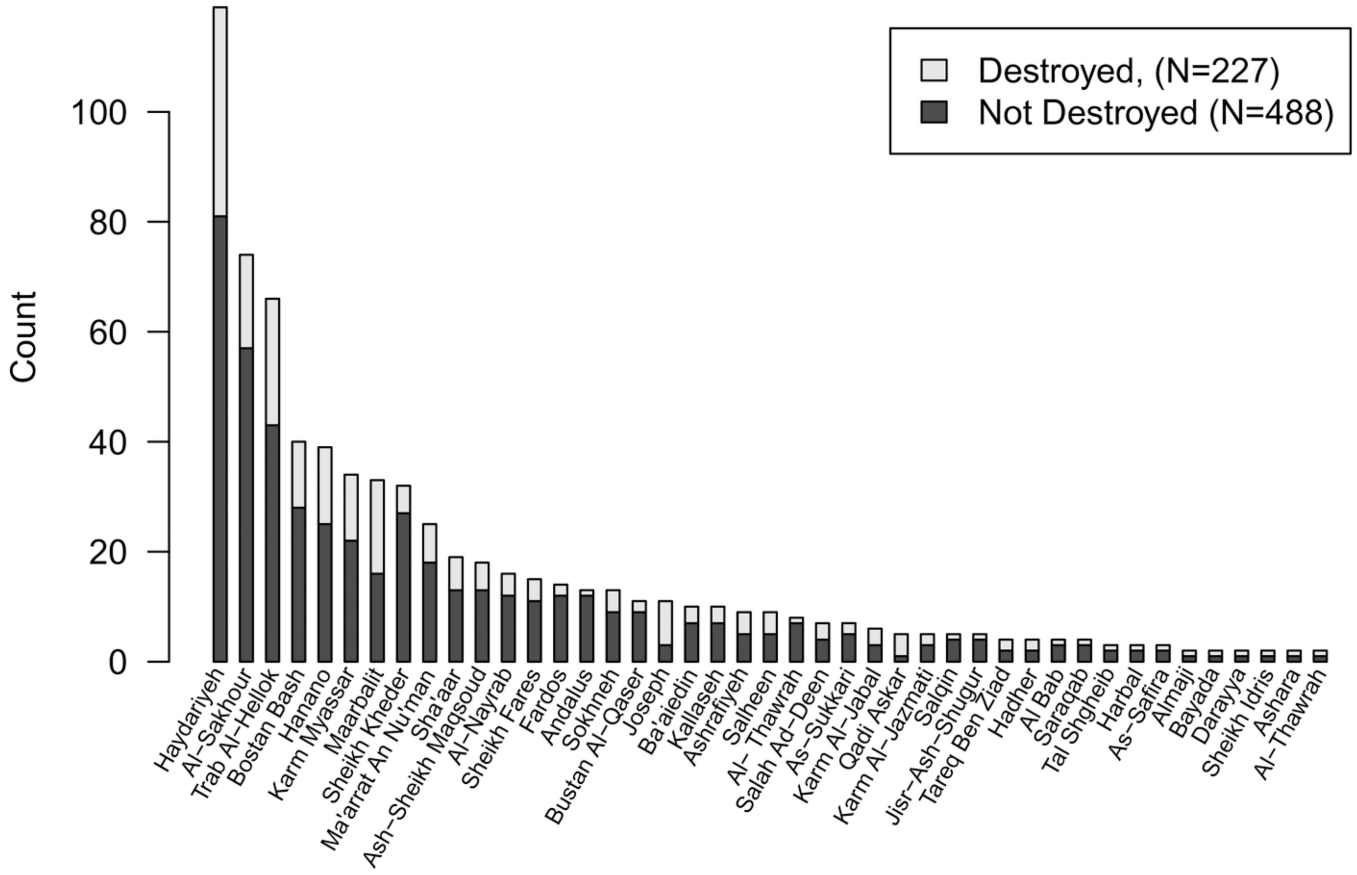

Figure 3.

Respondents by neighborhood after matching. *Note:* Barplot showing number of (unique) respondents included in the data from each neighborhood, after matching on location and gender, for those who lost homes (grey) or did not (black) owing to barrel bombing.

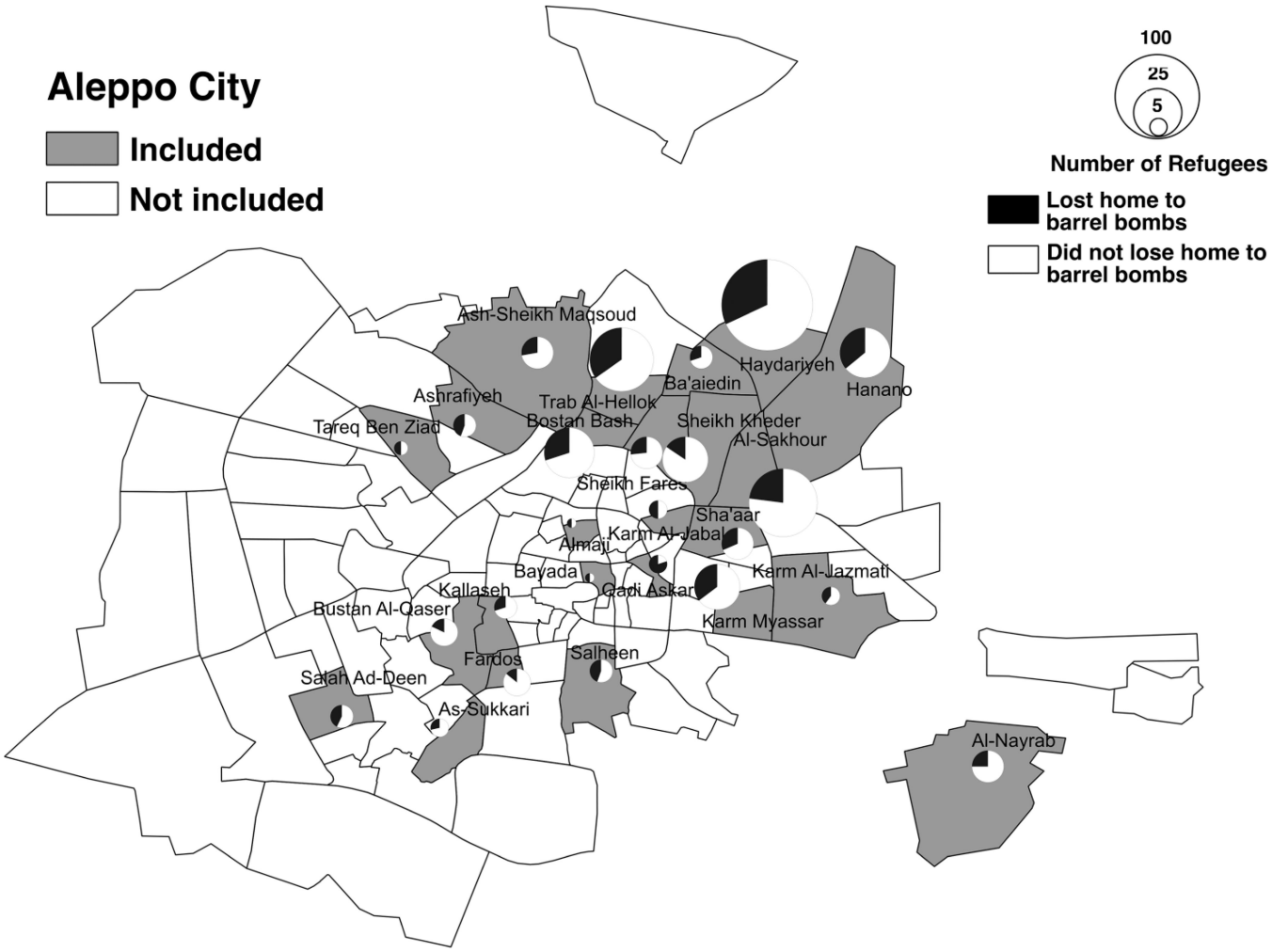

Figure 4.
City of Aleppo: Locations included in matched sample.

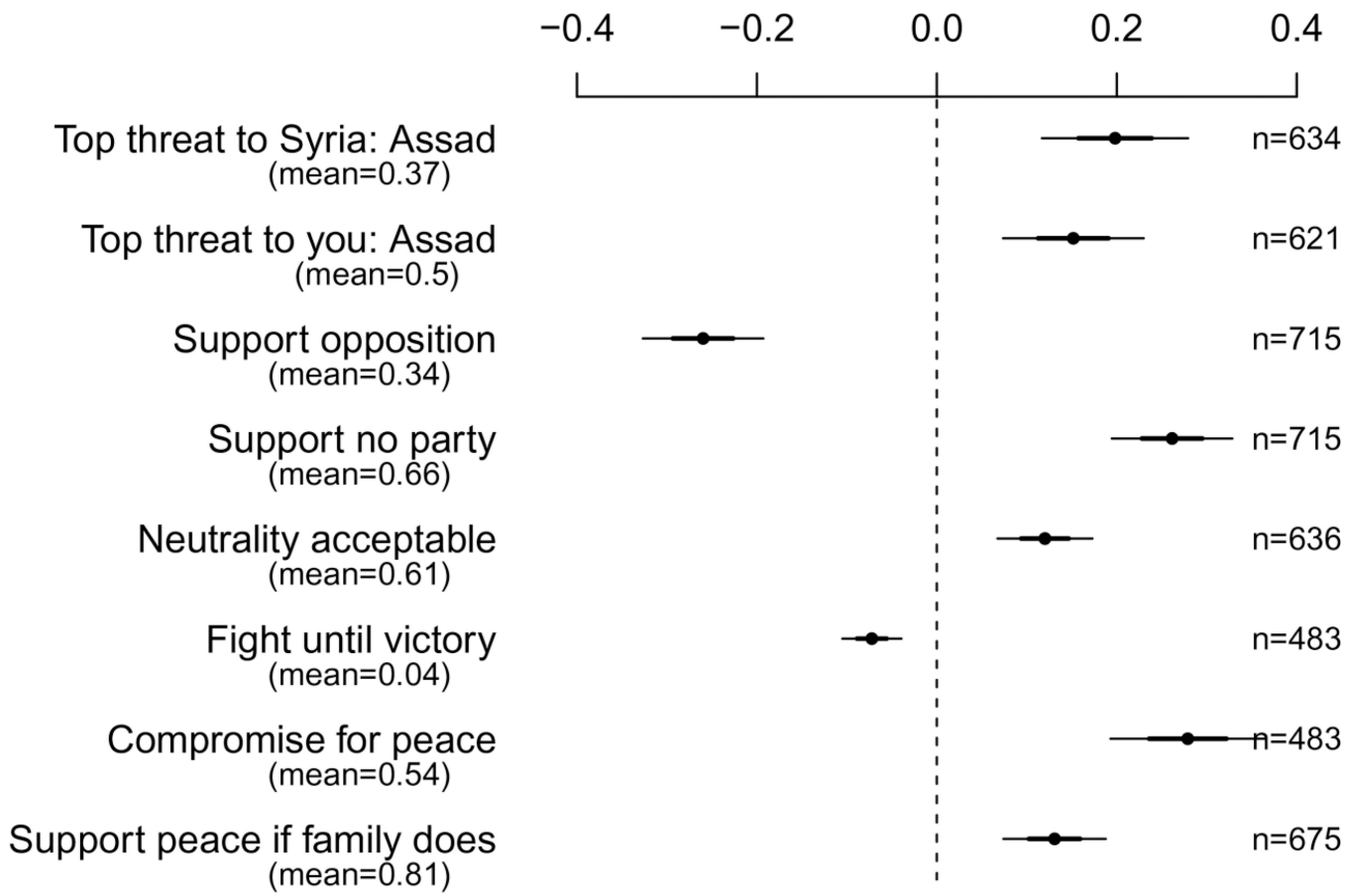

Figure 5.

Main estimates: effects of home destroyed by barrel bombing. *Note:* average treatment effect on the treated (ATT) estimates for the effect of having house destroyed on attitudes related to perceived threat and security. Conditioning on neighborhood and gender is done by exact matching. Whiskers show the 90% (thick) and 95% (thin) confidence intervals using Abadie–Imbens standard errors.

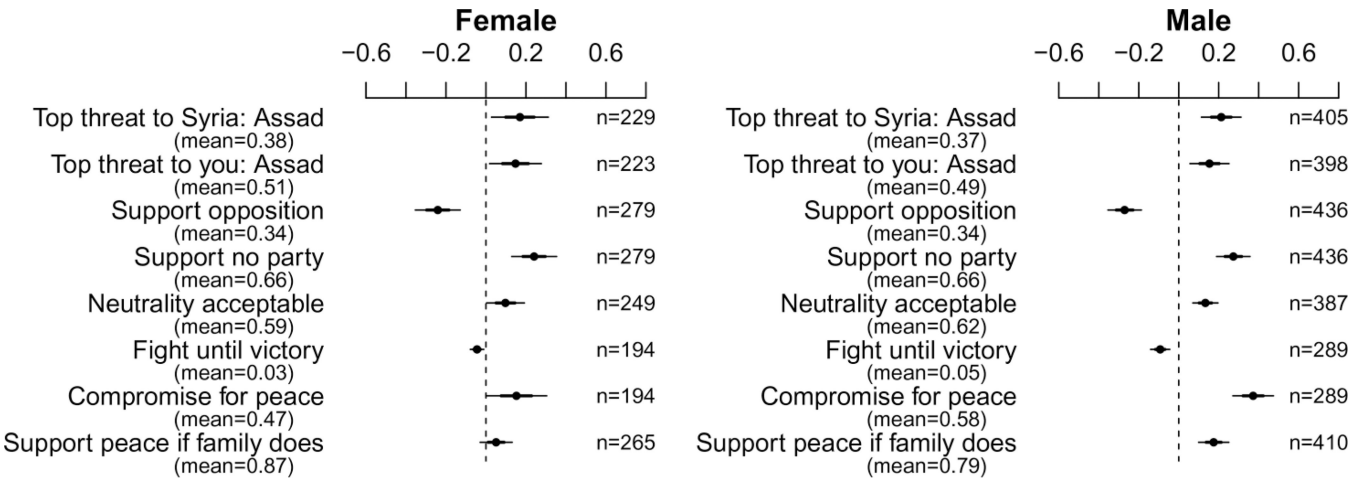

Figure 6.

Effect estimates by gender. *Note:* ATT estimates for the effect of having house destroyed on attitudes related to security, by gender. Conditioning on neighborhood is done by exact matching. Whiskers show the 90% (thick) and 95% (thin) confidence intervals.

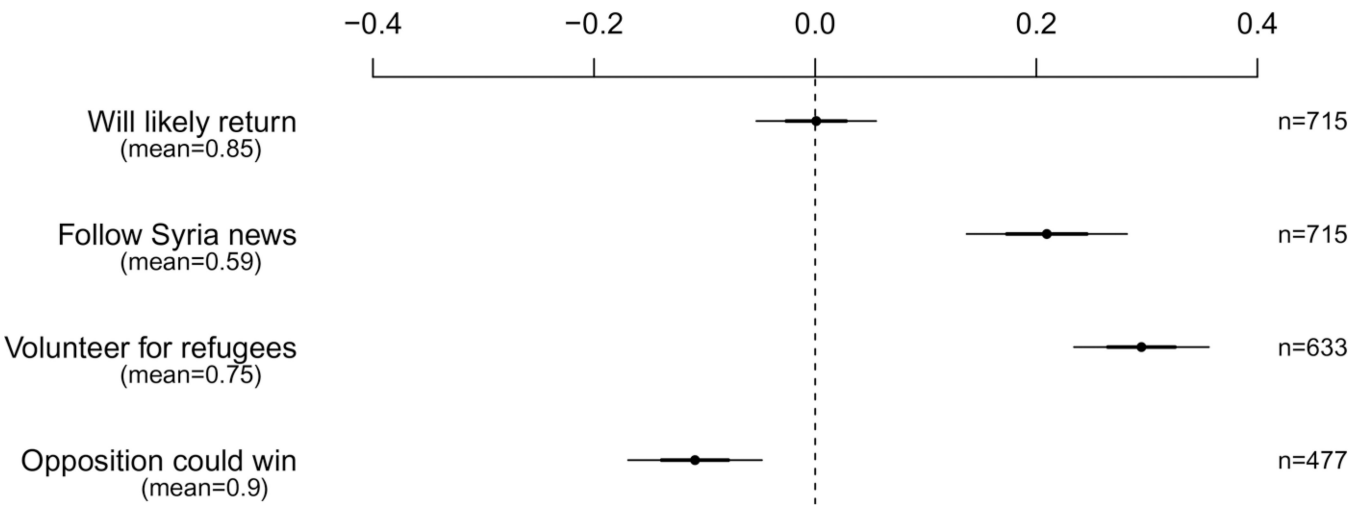

Figure 7.

Effect of barrel bomb home destruction on mechanism variables. *Note:* ATTestimates for effects of losing one's home to barrel bombs on engagement with events in Syria and views on opposition victory. All procedures are identical to those used to estimate the main effect estimates above; only the outcome variables differ.

Table 1.

Descriptive characteristics of sample.

	Mean	Standard deviation	*N*
Demographics			
Male	0.63	0.48	1384
Age	38.61	11.86	1260
Employed before attack	0.54	0.50	1366
Kurdish	0.13	0.33	1384
Education	1.59	1.03	1102
Children	0.92	0.27	1384
Rooms in house	3.10	1.61	1334
Lived in an urban area in Syria	0.67	0.47	1353
Has family members in Syria	0.90	0.30	1384
No. km to market	0.94	0.88	1376
No. km to school	0.65	0.58	1379
No. km to hospital	1.56	1.08	1375
Year left Syria	2013.62	1.27	1383
Outcome variables			
Top threat to Syria: Assad	0.35	0.48	1267
Top threat to you: Assad	0.48	0.50	1258
Support opposition	0.50	0.50	1384
Support no party	0.49	0.50	1384
Neutrality acceptable	0.60	0.29	1290
Compromise for peace	0.43	0.50	1072
Fight until victory	0.08	0.28	1072
Support peace if family does	0.78	0.42	1328
Mechanism variables			
Follow Syria news	0.50	0.50	1384
Volunteer for refugees	0.64	0.48	1225
Will likely return	0.84	0.36	1384
Opposition could win	0.89	0.31	1056

Note: Descriptive statistics on key demographic statistics, on each outcome variable used, and on variables that we examine regarding potential mechanisms.