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**Working Paper**

## Religious terrorism, forced migration, and women's empowerment: Evidence from the Boko Haram insurgency

Ruhr Economic Papers, No. 1044

**Provided in Cooperation with:**

RWI – Leibniz-Institut für Wirtschaftsforschung, Essen

*Suggested Citation:* Elice, Paola; Martínez Flores, Fernanda; Reichert, Arndt R. (2023) : Religious terrorism, forced migration, and women's empowerment: Evidence from the Boko Haram insurgency, Ruhr Economic Papers, No. 1044, ISBN 978-3-96973-213-7, RWI - Leibniz-Institut für Wirtschaftsforschung, Essen, <https://doi.org/10.4419/96973213>

This Version is available at:

<https://hdl.handle.net/10419/279543>

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# RUHR

## ECONOMIC PAPERS

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### **Religious Terrorism, Forced Migration, and Women's Empowerment: Evidence from the Boko Haram Insurgency**

## Imprint

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### Ruhr Economic Papers

Published by

RWI – Leibniz-Institut für Wirtschaftsforschung

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### Ruhr Economic Papers #1044

Responsible Editor: Ronald Bachmann

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ISSN 1864-4872 (online) – ISBN 978-3-96973-213-7

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## **Bibliografische Informationen der Deutschen Nationalbibliothek**

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The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie;  
detailed bibliographic data are available on the Internet at <http://dnb.dnb.de>

RWI is funded by the Federal Government and the federal state of North Rhine-Westphalia.

<http://dx.doi.org/10.4419/96973213>

ISSN 1864-4872 (online)

ISBN 978-3-96973-213-7

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Paola Elice, Fernanda Martínez Flores, and Arndt R. Reichert<sup>1</sup>

# Religious Terrorism, Forced Migration, and Women's Empowerment: Evidence from the Boko Haram Insurgency

## Abstract

*We examine the link between violent attacks of the Islamic extremist group Boko Haram, forced migration, and the empowerment of women in host communities. We find positive effects of distant attacks on the economic well-being of women, their use of modern contraceptive methods, and rejection of traditional gender views. At the same time, however, the findings show an increase in the risk that women experience domestic violence. We then examine forced displacement as a channel and its importance relative to other possible channels for the spatial effect dispersion. The results are different for Fulani pastoralist-farmer clashes over natural resources.*

JEL-Codes: D74, J22, O12, O15, R23

Keywords: Boko Haram; Fulani; conflict; forced displacement; female labor force participation; employment; fertility; social norms; gender norms

September 2023

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<sup>1</sup> Paola Elice, The World Bank; Fernanda Martínez Flores, RWI and IZA; Arndt R. Reichert, Leibniz University of Hannover, The World Bank, and RWI. - This work is part of the program "Building the Evidence on Protracted Forced Displacement: A Multi-Stakeholder Partnership." The program is funded by the United Kingdom's Foreign, Commonwealth and Development Office (FCDO) and is managed by the World Bank Group. The program was established in partnership with the United Nations High Commissioner for Refugees (UNHCR). The aim of the program is to expand global knowledge on forced displacement by funding quality research and disseminating results for the use of practitioners and policy makers. The work was initiated by the authors while Arndt Reichert was an economist at the Development Impact Evaluation Department of the World Bank. This work does not necessarily reflect the views of FCDO, the World Bank Group, or UNHCR. We thank Georgia Christina Kosmidou Bradley, Julia Bredtmann, Tilman Brück, Catherine Marie Rose Defontaine, Marcus Holmlund, Erin Kelly, and Barbora Sedova for their comments. We also thank Henry Kwenin and David Musombi for guidance on the use of International Organization for Migration data. We also thank the participants of the 2022 German Development Economics Conference, internal seminars of the RWI - Leibniz Institute for Economic Research, the University of Duisburg-Essen research seminar, the Leibniz University Hannover Brown Bag seminar, and the International Security and Development Center's New Methods for Impact Evaluations in Conflict and Humanitarian Emergency Settings workshop for helpful comments. Lesman Ghazaryan and Duaa Kattana provided excellent research assistance. Computational reproducibility was verified by Development Impact Evaluation Analytics. All remaining errors are our own. - All correspondence to: Fernanda Martínez Flores, RWI, Hohenzollernstr. 1-3, 45128 Essen, Germany, e-mail: fernanda.martinez@rwi-essen.de

# 1 Introduction

Conflicts have reached a high in the postwar period (Pettersson and Öberg, 2020). By the end of 2021, about 90 million people worldwide were forcibly displaced (UNHCR, 2022). The majority of these people were internally displaced. One of the factors contributing to the rise in this number is the surge in violent events perpetrated by armed Islamic extremist groups (Svensson and Nilsson, 2018). Violent extremism has become especially pervasive in low- and middle-income countries and, accordingly, threatens progress toward the Sustainable Development Goals. In consequence, governments and development organizations alike are increasingly pushed to operate in contexts characterized by religious terrorism and forced displacement (Corral *et al.*, 2020).

The empirical literature on the consequences of conflict focuses on the locations directly affected by violent events (e.g., Collier, 1999; Abadie and Gardeazabal, 2003; Acemoglu *et al.*, 2004; Ichino and Winter-Ebmer, 2004; Cerra and Saxena, 2008; Wagner *et al.*, 2018). The effects on the remaining relatively safe areas within conflict-affected countries have received surprisingly little attention, even though these areas are likely to be strongly affected by the same violent events and the direction of the effects is theoretically ambiguous. For instance, on the one hand, the arrival of internally displaced people (IDPs) may bring profound changes that can be economically favorable if they, for instance, supply labor and contribute to an increase in the demand for (local) products or services (Ruiz and Vargas-Silva, 2013; Verme and Schuettler, 2021). On the other hand, disruptions to trade and degradation of infrastructure may reduce economic activity (Murdoch and Todd, 2004; Blomberg and Hess, 2006). This lack of a comprehensive characterization of the spatial dispersion of the impacts of conflict represents a particularly important challenge for policy makers, who tend to direct development efforts and resources to the remaining sufficiently safe areas within conflict-affected countries (e.g., World Bank, 2021). Moreover, the sum of these spatial spillover effects may be very meaningful in absolute magnitude and relative to the impacts in the attacked areas because the number of indirectly affected locations tends to be many times larger than the number

of attacked locations. Thus, our current understanding of the direction and extent of the overall impact of violent events is incomplete. This paper aims to fill this important void in the literature.

We analyze the spatial effects of two types of violent attacks in Nigeria: (i) those perpetrated by the jihadist group Boko Haram and (ii) those carried out by the militia of the major cattle-herding group (Fulani militias). Our primary interest lies in attacks by Boko Haram, which states its principal motive for violence is to establish an Islamic state under a version of Sharia law that promotes narrow gender roles for women: restricting their access to education and employment, enforcing strict modesty rules, and instituting other discriminatory and abusive practices against women (Jacob and Elizabeth, 2014). For comparison, we also analyze the impacts of the attacks by Fulani militias, which, in contrast, engage in conflicts between pastoralists and farmers fighting for control over natural resources.<sup>1</sup> Both types of conflict follow patterns that are observed in many parts of the world.

We investigate the effects of violent events on economic activity of women and men (employment and wealth accumulation), women’s empowerment (decision-making autonomy and fertility choices), and gender norms (attitudes toward and experience of domestic violence). Our focus on the gender dimensions of the spatial dispersion of the impacts of conflict is primarily motivated by the the surge of jihadist groups, which may have particularly strong implications for women given the misogynistic nature of their ideology and the associated combat tactics (Adeyanju, 2020). When women flee from the aggression and arrive at host communities, they may affect women empowerment in the new location in several possible ways.<sup>2</sup> First, their arrival may bring a pronounced female labor supply shock to the host labor market. Because of the gender division of work, which is reinforced through customary norms (Baker and Jacobsen, 2007), the labor of women in these communities is especially likely to be affected. Second, they may have cultural and gender norms that differ from host-community members’ norms, and, in do-

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<sup>1</sup>While the competition for resources is the main reason for clashes between Fulani and farmers, political, ethno-religious, and other economic factors are at play (UNOWAS, 2018).

<sup>2</sup>Most IDPs in Nigeria are women and children.



ing so, potentially influence the evolution of the latter norms and discrimination against women (Bredtmann *et al.*, 2020). Third, when host-community members make contact with internally displaced women and learn from them about the nature of the attacks and the underlying ideology, they may change their beliefs (e.g., about the role of women in society) and behaviors to distance themselves from the ideology of the aggressors.<sup>3</sup> Another motivation for our focus on gendered effects is that economic disruptions as a result of interrupted trade and mobility restrictions may induce households to diversify sources of income as a risk-mitigation strategy by adjusting women’s labor supply against the backdrop of a greater economic integration of men as observed in our survey data (Attanasio *et al.*, 2005).

Our empirical strategy exploits the distance from the village centroids to the location of violent attacks in Nigeria occurring during the period 2007 to 2018. Specifically, we count the number of violent events taking place beyond a radius of 50 km from a village. This distance is the largest within which, according to the literature (e.g., Bendavid *et al.*, 2021), nondisplaced women and children are still considered to be living dangerously close to armed conflict, i.e., we take a rather conservative approach. We regress different outcomes for men and women on the number of attacks happening beyond this threshold. As the attacks that we consider take place at a distance from the village clusters, we argue that the decision of the violent group to carry out those attacks is orthogonal to the characteristics of our study subjects. To further increase confidence in our estimates, the baseline specification controls for individual characteristics (e.g., education level), village characteristics (e.g., proximate attacks, distance to main road, population density), and time and local-government-area (LGA) fixed effects. We extensively probe the validity of our identification assumption and the sensitivity of our results. For example, we show that measures of poverty and individual characteristics are unrelated with the number of distant violent events. We also conduct analyses with alternative measures that aggregate distant violent events, control for proximate attacks of the other violent group, and restrict

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<sup>3</sup>For instance, US bombing intensity reduced noncommunist civic engagement during the Vietnam War (Dell and Querubin, 2017). Similarly, the 9/11 attacks affected the assimilation rate of Muslims in the US (Gould and Klor, 2016).

the sample to household that resided in the location during the past five years.

We combine different geo-referenced databases. We use cross-sectional household survey data from the Nigeria Demographic and Health Surveys conducted in 2013 and 2018. We complement this database with information on geo-referenced violent events taken from the Armed Conflict Location and Event Data Project (ACLED), which uses data gathered through text-recognition technology. In addition, we use displacement data from the Displacement Tracking Matrix data project of the IOM. We use this database to calculate the number of IDPs residing within different distance radii from village centroids.

Our findings suggest that the Boko Haram insurgency affects economic outcomes more broadly in the region, including in areas that do not directly experience violent attacks. Contrary to the devastating impacts among directly targeted communities reported in the literature (e.g., Bertoni *et al.*, 2019; Chukwuma and Ekhator-Mobayode, 2019; Ekhator-Mobayode *et al.*, 2022), we observe spatial spillover effects of Boko Haram attacks that tend to point to improved economic well-being at the household level. More specifically, we find positive spillover effects on employment prospects and asset ownership among women and men, with the caveat that the results for female employment are on the verge of statistical insignificance. We also observe a positive effect on the use of modern contraceptive methods among women. At the same time, however, distant Boko Haram attacks increase the risk that women experience domestic violence. This direction of the estimated effect on domestic violence is the same as reported elsewhere for proximate Boko Haram attacks (Ekhator-Mobayode *et al.*, 2022). All results are robust to adjustment for multiple hypothesis testing.

Our heterogeneity analysis reveals that the results are qualitatively the same in northeastern states and that various estimated impacts in our paper are primarily driven by Christian women rather than Muslim women. For this subgroup, the effects on female employment are now statistically significant. Taking into account the much greater number of attacks within a range of 50 to 200 km of the average community than the number of proximate violent events, back-of-the-envelope calculations for select outcome variables suggest that the spatial spillover effects sum to magnitudes that are comparable to the

size of the direct effects. For example, we compute the total spatial spillover effect of the Boko Haram insurgency on the propensity of domestic violence to be roughly 3.5 percentage points for the average community in our sample. In comparison, Ekhatior-Mobayode *et al.* (2022) find a 4 percentage point increase in domestic violence risk as a result of any direct Boko Haram attack in the same community.

The estimation results strongly differ when looking at the impacts of violent events involving Fulani militias, which exhibit strong similarities to the typical pastoralist-farmer clashes found across the continent. For distant Fulani attacks, we do not observe any spatial impacts on economic well-being of households. However, there seems to be a noteworthy shift from male to female employment and an increase in the decision-making autonomy of women. This is consistent with diversification of sources of income under conditions of increased economic uncertainty, potentially stemming from distant Fulani attacks that deteriorate trade and degrade infrastructure (Murdoch and Todd, 2004; Blomberg and Hess, 2006). These findings are primarily driven by women of Christian orientation. Unlike with distant Boko Haram attacks, we do not observe any effects on female contraceptive use and domestic violence. Even though the results for distant Fulani attacks display substantive heterogeneity across geographic areas, the observed differences to those obtained for distant Boko Haram attacks are robust.

In line with available evidence of favorable host-labor-market impacts following the arrival of displaced people in low-income countries (e.g., Verme and Schuettler, 2021), we argue that our finding of economically favorable spillover effects of the Boko Haram attacks can be explained, to a large extent, by forced migration. Three findings support this argument. First, we find a strong association between distant attacks and the inflow of IDPs in the case of Boko Haram attacks. Second, the spatial spillover effects of Boko Haram attacks are concentrated in host areas. Third, contrary to distant Boko Haram attacks, those conducted by the Fulani militia have no effect on the economic well-being of households and also do not influence the number of IDPs residing in a community. Hence, IDPs seem to be an important mechanism for the spatial spillover effects of distant Boko

Haram attacks.<sup>4</sup>

The male-female difference in point estimates of distant Boko Haram attacks for employment and asset ownership are not statistically different. Yet, we find important positive spillover effects on women’s control over their fertility as the use of contraceptive methods increases. Investments in line with the preferences of female household members are indicative of improved economic empowerment of women because earlier evidence suggests a differential demand for contraceptives between men and women (e.g., Ashraf *et al.*, 2014). We also report a highly relevant increase in domestic violence as a result of distant Boko Haram attacks. We conduct various plausibility checks that argue against the possibility that the finding for domestic violence is an artefact of altered reporting behavior of more empowered women. Consistent with existing empirical literature, this surge in domestic violence may be explained by sanctioning behavior against women for neglecting children and burning food when these expand time spent on economic activities at the expense of time devoted to domestic tasks (e.g. Guarneri and Rainer, 2021; Anderson and Genicot, 2015; Deschênes *et al.*, 2020). We therefore conclude that the results on women’s empowerment are mixed.

Our finding that hosting IDPs rewards households with economic prosperity represents a silver lining against the backdrop of a rising trend in violent events perpetrated by armed Islamist extremist groups and the alarming increase in domestic violence that women report. The causal increase in domestic violence is a serious concern that calls for concentrated policy action that we discuss in our conclusion.

The paper makes various important contributions to the literature. First, it provides the first estimates of the impact of conflict on relatively safe, geographically proximate

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<sup>4</sup>The sole finding that equally holds for Boko Haram and Fulani attacks concerns the spillover impacts on women’s rejection of traditional gender views on domestic violence. The findings show that after distant attacks, independently of the type of attack, women are less likely to justify domestic violence. These effects are not concentrated in areas hosting IDPs, which suggests that the inflow of IDPs is unlikely to be an important driver of the effects on this outcome. Instead, we partially rationalize the finding as due to an increased general awareness of violence when women see on television the suffering resulting from events that occur near enough for them to relate to the events (e.g., because they are familiar with the place or have business or personal connections with it) (Alsan and Wanamaker, 2017; Tabellini, 2008). In fact, we observe that the spatial spillover effects of Boko Haram attacks on the rejection of domestic violence are more pronounced in communities with access to television. For men, we find no significant change in attitudes toward violence.

areas within the same country on a range of measures relevant for economic development. The thin body of available empirical research examines the spillover effects of conflict from one country to another (Murdoch and Todd, 2002, 2004; Blomberg and Hess, 2006) but not within countries. Yet, most forcibly displaced people stay within their home country (UNHCR, 2022).

Second, we close an important evidence gap on the gender dimension of the spillover effects of conflict. By adding to the evidence base on the determinants of gender dynamics within societies (e.g., Akerlof and Kranton, 2000; Bisin and Verdier, 2000; Bertrand *et al.*, 2015), we aim to inform policies of national governments and international organizations targeting gender imbalances and promoting gender equality. While gender equality is widely recognized as a fundamental human right, efforts at achieving it are often also motivated by a growing body of empirical work showing its high relevance for improvements in several development outcomes (e.g., Heymann *et al.*, 2019; Hsieh *et al.*, 2019).<sup>5</sup> In addition, by advancing knowledge of the implications of external shocks for intrahousehold relations, we aim to complement two large strands of literature. On the one hand, this knowledge adds to studies of the demand for reproductive-health services, the determinants of domestic violence, safe sexual behavior, and fertility choices (e.g., Björkman Nyqvist *et al.*, 2018). On the other hand, it informs analyses of partners' decision-making and the role played by gender norms and intimate partner violence in determining couples' choices about consumption bundles and fertility (e.g., Munshi and Myaux, 2006; Rooth, 2009; Ashraf *et al.*, 2014; Hill *et al.*, 2019; Anderson and Genicot, 2015; Deschênes *et al.*, 2020; Weber *et al.*, 2019; Ashraf *et al.*, 2020; Cassidy *et al.*, 2021; Donald *et al.*, 2023).

Third, the distinction between the primary motives of the violent attacks (namely, establishing an Islamic state versus gaining control over natural resources) is a further novel addition to the existing literature on the (direct) impact of specific conflicts within a country (e.g., Bundervoet *et al.*, 2009; Richard *et al.*, 2012; Kraehnert *et al.*, 2019;

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<sup>5</sup>For example, more decision-making power by mothers over the use of financial resources has been shown to be favorable for family health (e.g., Thomas, 1990; Besnier, 2019) and contraceptive use, with a consequent reduction in unwanted pregnancies (Ashraf *et al.*, 2014).

Phadera, 2021) or on one specific type of aggressor group (e.g., Miguel and Roland, 2011; Adelaja and George, 2019; Bertoni *et al.*, 2019; Manian, 2021). An increased understanding of the relevance of the motive of violent incidents can provide insights into the link between trends in armed conflict and the spatial effects of conflict. For this purpose, we additionally provide, to our knowledge, first evidence of possible heterogeneous impacts of events associated with religious extremism by distinguishing between individuals' religious affiliations.

A further contribution is the use of novel geo-localized displacement data collected by the International Organization for Migration (IOM) that allow us to examine the arrival of IDPs in host communities as a channel through which the spatial spillover effects of conflict potentially operate. The literature on the effects of forced displacement on host communities has studied labor market outcomes (Ruiz and Vargas-Silva, 2013; Ruiz, Isabel and Vargas-Silva, Carlos, 2015; Alix-Garcia *et al.*, 2018; Ayenew, 2021; Verme and Schuettler, 2021), rent and food prices, and overall well-being of host-community members (Verme and Schuettler, 2021). A more recent literature seeks to better understand the extent to which displacement accentuates gender vulnerabilities among the IDPs themselves—for example, by looking at risks of gender-based violence and intimate partner violence among displaced people (Kelly *et al.*, 2021a; Ekhatior-Mobayode *et al.*, 2021; Kelly *et al.*, 2021b). It also examines the role of gender norms in shaping outcomes such as school enrollment and the prevalence of domestic work among refugees (Krafft *et al.*, 2021), and it analyzes how gender norms themselves may change with displacement (Rubiano Matulevich, 2021). Our paper differs from this literature by elucidating the influence of IDPs on gender outcomes of host-community members.

This paper is structured as follows. The next section presents a literature review and the background on violent events in Nigeria. Section 3 describes the data sources used in the empirical analysis and provides descriptive statistics. Section 4 outlines the identification strategy and sensitivity checks. Section 5 presents the results. Section 6 discusses the possible channels that explain our main results. Finally, Section 7 concludes.

## 2 Background

### 2.1 Existing Literature

Direct exposure to conflict affects a wide spectrum of outcomes, from human capital accumulation to economic activity, women’s empowerment, and social cohesion, both in the short and long term.

In the short term, conflict has devastating direct impacts on people’s lives by causing death, injury, and trauma (Wagner *et al.*, 2018), compromising child development (see, e.g., Bundervoet *et al.*, 2009; Akresh *et al.*, 2011), and disrupting economic activity (Abadie and Gardeazabal, 2003). Conflict also has lasting adverse impacts on a country’s economic output (see, e.g., Cerra and Saxena, 2008; Miguel and Roland, 2011), labor market participation and wages, with differential impacts for men and women (e.g., Acemoglu *et al.*, 2004; Adelaja and George, 2019).

Several studies show that conflict also has long-term impacts on health indicators of adults (Ghobarah *et al.*, 2003), children (e.g., Richard *et al.*, 2012; Bundervoet *et al.*, 2009), and mothers (Chukwuma and Ekhaton-Mobayode, 2019). Several studies focus on the impact of conflict on women, with a special emphasis on social norms. Some find that women’s decision-making autonomy is worsened in areas affected by conflict (see, e.g., Ekhaton-Mobayode *et al.*, 2022; La Mattina, 2017) and that women may experience significant increases in domestic violence in conflict settings (see, e.g., La Mattina, 2017). Conflict is further associated with changes in fertility choices such as child replacement after the death of a child and with lower fertility rates for individuals who experienced conflict as children (Kraehnert *et al.*, 2019).

Some studies document some positive effects of conflict on gender indicators. For example, a study of post-genocide Rwanda compares women living in high-violence villages during the genocide and after the genocide and finds that the former women hold more decision-making power and are healthier, better educated, wealthier, and less likely to justify and experience domestic violence (Thorsten and Zárate-Barrera, 2020). These findings are presumably explained by the gender imbalance in villages that experienced

more violence, as women had to step in as household heads and in local political roles. Another study finds reduced prevalence of risky sexual transactions among female sex workers as a result of violence, presumably in response to increased insecurity (Manian, 2021).

Regarding the indirect effects of conflict, the literature to date has focused on the impacts across generations (e.g., Phadera, 2021). Much less is known about the impacts on distant areas. A few cross-country panel studies show that conflict can have spillover effects on economic growth in neighboring countries (Murdoch and Todd, 2002, 2004).<sup>6</sup> We add to the literature by focusing on spatial spillover effects of conflict on both individual economic and non-economic outcomes within the same country. Also, to the best of our knowledge, we are the first to examine the spatial spillover effects of conflict on women’s empowerment.

This study also relates to previous evidence on the impact of the arrival of IDPs or refugees on host communities. Most of the literature focuses on how the arrival of refugees affects labor market outcomes of the local population (see, e.g., Ruiz and Vargas-Silva, 2013; Ruiz, Isabel and Vargas-Silva, Carlos, 2015; Verme and Schuettler, 2021). In general, studies find small impacts on employment and wages and some studies find short-term adverse effects on young women working in the informal sector.

More recent studies analyze the impact of the displaced population on other outcomes beyond labor market outcomes. These studies find that the arrival of displaced people has adverse effects on health outcomes (Soazic Wang Sonne and Verme, 2019) and consumption by host-community members (Ayenew, 2021). Other studies find no impact on overall poverty indicators for the host population (Azevedo *et al.*, 2016) but an improvement in access to services and infrastructure due to investments being directed to refugee-hosting areas (Zhou *et al.*, 2023). Still other studies find that hosting refugees can lead to price changes favorable for local producers due to the increase in demand (Alix-Garcia *et al.*, 2018). To the best of our knowledge, causal estimates of the effects of forced migration

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<sup>6</sup>Bendavid *et al.* (2021) estimate the effects on the health of women and children living within 50 km of conflict, which they interpret as indirect effects because the subjects are not directly involved in violent events. In our paper, we consider these individuals to be directly affected.



on empowerment of female host-community members are missing in the literature. We add to these studies by looking at the presence of IDPs as a mechanism through which the spatial spillover of conflict potentially operates.

## **2.2 Violence and Forced Displacement in Nigeria**

According to the Global Terrorism Index 2020, Nigeria was the country third most affected by terrorism, after Afghanistan and Iraq. Nigeria accounts for almost half of all deaths caused by organized violence in Africa (Pettersson and Öberg, 2020). Together Boko Haram and Fulani extremists account for almost 80 percent of terror attacks and roughly 90 percent of terror victims in Nigeria.

Nigeria is the seventh country in the world ranked by number of people who are internally displaced, with 2.73 million in 2020 (IDMC, 2021). Most of the displacement is due to violent conflict, in particular the Boko Haram insurgency. The Islamist group was founded in 2002 to counter Western education and democracy. Its Hausa name translates to “Western education is forbidden.” The group’s focus on forbidding Western education is unique among jihadist groups. The group has been responsible for much of the surge in terrorist activity in Nigeria and for thousands of attacks and deaths in the Chad Basin region. Since 2011, Boko Haram activity has led to over 20,000 terrorism-related deaths and 37,500 combat-related deaths. To date, Boko Haram is the deadliest terrorist group in Sub-Saharan Africa and the fourth-deadliest group worldwide (IEP, 2020).<sup>7</sup>

Attempts of the Nigerian government to neutralize the group started in 2012, after which the conflict escalated quickly and peaked in 2014–15. In 2014, the group kidnapped almost 300 schoolgirls from the town of Chibok, more than 100 of whom were still missing as of 2020 (Strochlic, 2020). In the same year, the group was responsible for the first attack on the capital of Abuja, targeting a bus park where more than 70 people were killed. After 2014, the number of displaced people originating from Borno State increased rapidly. The group pledged allegiance to the Islamic State of Iraq and Syria (ISIS) in 2015 and since then has broken into factions.

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<sup>7</sup>After Al-Shabaab, the Taliban, and the Islamic State of Iraq and the Syrian Arab Republic.

Boko Haram militants were notorious for conducting highly lethal suicide bombings. At the peak of the conflict, in 2014–15, almost 46 percent of attacks were suicide bombings, killing, on average, 15 people per attack. After 2016, levels of violence declined, following a major campaign by the Nigerian military to recover the occupied territories. Despite the decrease in violence, the terrorist group is still active and now functions largely in the Lake Chad region, the region bordering Nigeria, Cameroon, Chad, and Niger (Afzal, 2020; Campbell and Harwood, 2018; Zenn, 2020).

Figure 1 shows the location of violent attacks by Boko Haram for the periods 2008–12 (Panel A) and 2013–17 (Panel B). It shows a large increase in the number of attacks and in the lethality of the attacks over time, which are highly concentrated in the northeastern region, specifically in Borno. More recently, Boko Haram shifted its strategy to armed assault and hostage takings, leading to a decrease in the lethality of attacks to four deaths per attack.

A second relevant conflict in Nigeria is the ongoing clash between Fulani militias and community militias (a pastoralist-farmer conflict). The main trigger for this conflict is disputes over access to land and water. Traditional herders, 90 percent of whom are nomadic or seminomadic Fulani, have been driving their cattle across the Sahel region for centuries. Tensions and violence have recently increased because of population growth, desertification, and erratic rainfall (IEP, 2019).

Beyond competition for natural resources, there are other political and economic factors involved. The conflict has acquired an ethno-religious connotation (UNOWAS, 2018). Figure 2 shows the location of violent events in which at least one of the actors involved was Fulani. The conflict has been mainly concentrated in Nigeria’s Middle Belt as well as the Southeast and Southwest.

The two figures also show an increase in violent activity for the periods 2008–12 (Panel A) and 2013–17 (Panel B). Both farmers and pastoralists are affected by violent conflict involving the Fulani militia. On one side, villages are vulnerable to the attacks of pastoralists. On the other side, pastoralists are killed by hostile farmers. As disputes escalate, sexual and gender-based violence are becoming more frequent and extreme on

both sides. Since 2001, 60,000 people have been killed in clashes with the Fulani militias in Nigeria.

Table A1 in the appendix shows descriptive statistics of the displacement data that are available for the northeastern states. In January 2018, the IOM’s Displacement Tracking Matrix (DTM) registered over 1.7 million IDPs, of which 80.8 percent are female or under 17. The main reason listed for displacement is the Boko Haram insurgency (96 percent), followed by communal clashes (3.8 percent) and natural disasters (0.2 percent).<sup>8</sup> Figure 3 shows the location of IDP sites—i.e., locations where IDPs reside, including both camps and host communities. The size of the bubbles is larger the greater the number of IDPs residing in the site. The figure shows that the majority of the IDPs reside in Borno, followed by Adamawa, Yobe, Taraba, Bauchi, and Gombe.

### 3 Data and Sample

We first describe our data sources and then present descriptive statistics.

#### 3.1 Data Sources

We combine data from different sources to identify the impact of distant violent events on economic and non-economic indicators for men and women. All databases are geo-referenced.

*Household survey data.* We use data from the Nigeria Demographic and Health Survey (DHS). The DHS is conducted on a nationally representative sample of households. For the main analysis, we focus on the female roster and restrict our sample to married women between the ages of 15 and 49 who are not residing in Borno. We restrict the sample to married women because many questions related to violence and fertility are only asked of this subsample.<sup>9</sup> We have data on 25,451 married women for the 2013 wave and 27,043

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<sup>8</sup>The main reasons listed for not returning are lack of safety (68.7 percent) and property damage (17.6 percent). Among these IDPs, 48.4 percent report having worked in activities related to agriculture, followed by 26.2 percent that worked as day laborers (construction, transportation maintenance) and 25.2 percent in petty trade (sales or trade) (IOM, 2020).

<sup>9</sup>The propensity of women to be married is neither significantly connected with distant Boko Haram

married women for the 2018 wave. In one-third of the sample, all men aged 15–49 were also eligible to be interviewed. For consistency, we also restrict the sample of men to married men. The DHS surveys provide geo-referenced information on the centroids of village/household clusters.<sup>10</sup>

*Conflict data.* We use data from the Armed Conflict Location and Event Data Project (ACLED). ACLED collects data about political violence and protests from secondary sources on the date, location (GPS coordinates), actors involved, event type, and number of fatalities.<sup>11</sup> We aggregate attacks in five-year intervals to merge them with the DHS data. Therefore, we use attacks from 2008 to 2012 for the 2013 DHS wave and attacks from 2013 to 2017 for the 2018 wave.

For the analysis of jihadist attacks, we restrict the data to attacks from 2008 to 2018 in which at least one of the actors involved belonged to Boko Haram or Islamic State. The ACLED data register 2,359 violent events between 2008 and 2017 in which at least one of the actors involved belonged to Boko Haram. Forty-seven percent of events are related to battles, 30.4 percent to violence against civilians, and 17.5 percent to explosions and remote violence, while 5 percent are classified as “strategic developments.” During this period, the ACLED data register 28,001 deaths that resulted from attacks involving Boko Haram. A large percentage of all events occur in the Northeast region (Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe). For instance, 71 percent of events take place in Borno, 9.2 percent in Yobe, and 8.1 percent in Adamawa (these statistics are not displayed in any table).

We use these data to build variables that count the number of Boko Haram attacks

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attacks nor distant Fulani attacks. Results are available upon request.

<sup>10</sup>In order to ensure that respondent confidentiality is maintained, the GPS latitude/longitude points are randomly displaced in the DHS. Urban clusters are displaced from 0 to 2 km while rural clusters are displaced from 0 to 5 km, with an additional 1 percent displaced from 0 to 10 km (<https://dhsprogram.com/Methodology/GPS-Data.cfm>). Given that the displacement of household clusters is orthogonal the number of distant attacks, it does not cause inflated results. It may, however, introduce measurement error in our key explanatory variables which can yield to attenuation bias—i.e., conservative point estimates.

<sup>11</sup>There are other data sources for violent events—for example, the Uppsala Conflict Data Project. For the purposes of this study, however, ACLED has the advantage of collecting data on violent events perpetrated by communal militias (specifically, Fulani) that other sources do not. Further, in our study interval, the ACLED data set has better coverage than that of the Uppsala Conflict Data Project, in terms of both number of events recorded and geographic coverage (Clionadh and Roudabeh, 2019).

that occur within different distance radii of the DHS household-cluster centroid. We count all events that occur within different distance belts—for example, 0–50 km or 51–100 km. We take a threshold of 50 km to define distant events, but we conduct sensitivity analyses increasing and decreasing this threshold. We also build a continuous indicator that counts all events that occur beyond 50 km from the household cluster and weighs these events using the inverse of the distance. For example, all attacks within a radius of 51 km of the household cluster are assigned a weight of 1, and attacks farther away receive weights smaller than 1. We also consider the number of deaths as an alternative measure of violence.

We also use information on attacks conducted by the Fulani. Between 2008 and 2018, the ACLED data register 1,038 violent events in which at least one of the agents involved was Fulani. About 70 percent of these events are classified as violence against civilians and 25 percent as battles, while the remainder are explosions or remote violence. These events led to 7,236 registered fatalities. Most of the violent Fulani events are concentrated in the north central region. About 25 percent of the events occurred in Benue State, followed by 22 percent in Plateau State, and 9 percent in Taraba State (these statistics are not displayed in any table).

*Displacement data.* We use data on the number of displaced people from the IOM’s DTM project, particularly the site- and location-assessment databases. We use these data to calculate the number of IDPs who live near the household cluster. To do so, we count the number of IDPs residing within a 10 km radius of the DHS household cluster. In addition, we build binary indicators at the LGA level indicating the presence of IDPs.

Since July 2014, the IOM has been collecting displacement data from key informants (such as village chiefs and religious leaders) at IDP-hosting locations. These data include the count of IDP households, the estimated number of IDP people, and key information on the host location such as the presence, type, and conditions of essential infrastructure such as health facilities, water sources, and hand-washing stations. The data collection is conducted quarterly in all locations known to host IDPs in the six northeastern states in Nigeria. According to conversations and email exchanges with IOM experts, the focus

on the northeastern states was motivated by the strong concentration of displaced people in this part of the country during our study period, while in parts of the country other than the Northeast displacement was not dominant. Thus, this focus is unlikely to be a limiting factor for the interpretation of the results presented below.

Information on the roster of host locations to be surveyed in every round is derived from information collected on a daily basis by key informants on the ground (the Emergency Tracking Tool). Our data comprise 3,444 unique locations.<sup>12</sup> Section 6 provides additional descriptive statistics and information about these data.

*IDP profiling data.* We also use data from the Nigeria IDP Survey project *Profile of Internally Displaced Persons in North-East Nigeria 2018* to calculate descriptive statistics for the displaced population and the population of host communities. These survey data were collected between June and August 2018, with the objective of obtaining a socioeconomic profile of IDPs and host communities in northeastern Nigeria. The survey contains information on poverty level, education, access to essential services, employment, livelihoods, and perceptions. The total sample contains 1,510 host households and 1,437 IDP households. The sample excluding Borno includes 270 host and 250 IDP households. The survey was conducted in 111 enumeration areas randomly selected from the six northeastern states in a number proportional to the size of the displaced population in each state, and it covers displaced households living in both camps (48 enumeration areas) and host communities (77 enumeration areas). The sampling frame was derived from data on IDP counts collected by the IOM as part of the DTM 2017 project.

### 3.2 Descriptive Statistics

Table 1 shows descriptive statistics by survey year for women and men. It shows the main outcome variables used for this analysis, which we classify as financial and nonfinancial outcomes (see Table A2 in the appendix for an overview of the outcome variables). We restrict the sample to married men and women to analyze how conflict could impact gender

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<sup>12</sup>We use the site and location data from round 13 (June 2017), the round in which the data collection was expanded beyond camps to host communities, to round 30 (March 2020).

roles within the household across space. This restriction is also important given that some sensitive variables are only collected for individuals who are married—specifically, domestic violence and fertility indicators. In addition, we exclude all individuals residing in Borno, the state most directly affected by conflict in Nigeria, as our interest is studying the spatial effects of conflict. Figures A1 and A2 in the appendix provide a geographic overview of our sample households and the extent to which they are exposed to violent events.

Some indicators differ for women and men. The DHS questionnaires are different because of the aim to capture household information from different perspectives. However, we construct variables that are as comparable as possible. For this reason, we present all results for men and women separately instead of pooling the sample.

The financial indicators include variables associated with (self-)employment, asset ownership, and decision-making autonomy. These outcomes are (i) a binary variable indicating whether the individual is employed,<sup>13</sup> (ii) a binary indicator for whether an individual reports that they own a house or land, (iii) a dummy variable for whether the individual participates in or has autonomy regarding household and personal decisions.<sup>14</sup>

For women, the descriptive statistics show small improvements in financial outcomes from 2013 to 2018, with the exception of asset ownership, which worsens slightly (Columns I and III of Table 1). We observe a small increase in the proportion of women who work, from 68 to 69 percent, and a modest increase in the proportion of women who report they independently make decisions concerning their own health care, large household purchases, and family visits, from 2.5 to 3.1 percent. However, the table also shows a decrease in the proportion of women who report sole ownership of their homes or land from 12 to 9 percent. For men, we observe an increase in employment from 96 to 98 percent, a modest increase in the proportion of men who report independently making decisions about their own health care and large household purchases from 42 to 46 percent, and a decrease in

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<sup>13</sup>The individual reported she or he is currently working. Throughout the paper, we use the term *employment* but acknowledge that individuals can engage in work for their own consumption, volunteer work, and unpaid-trainee work.

<sup>14</sup>Using alternative definitions of asset ownership and decision-making to include co-ownership and co-decision-making leads to similar results.

sole asset ownership from 64 to 51 percent.

For nonfinancial indicators, we focus on the following variables for women: (i) the number of children; (ii) a binary variable indicating whether the woman currently uses modern contraceptives; (iii) a binary variable indicating whether the woman justifies her husband's beating her for going out without permission, neglecting children, arguing with the husband, refusing sex, or burning food; and (iv) a binary variable indicating whether the woman has experienced physical violence at the hands of her husband. The last variable takes the value 1 if the woman reported ever being pushed, slapped, punched, or ever had an arm or hair pulled by her husband/partner.<sup>15</sup>

The descriptive statistics displayed in Table 1 show no changes in the average number of children from 2013 to 2018, with four children on average, a slight increase in the use of modern contraceptives (from 10.2 to 12.4 percent), a decrease in the proportion of women who justify domestic violence (from 38.3 to 31.0 percent), and an increase in reported experience of domestic violence (from 13.6 to 17.2 percent).

For men, we focus on the following nonfinancial indicators: (i) a dummy variable indicating whether the man justifies beating his wife (for the same reasons listed above); (ii) a binary indicator indicating whether the couple uses any contraceptive method; (iii) a binary variable indicating whether the chosen contraceptive method is condoms; and (iv) a dummy variable for whether the man has negative views toward women who use contraceptive methods.

Columns V and VII of the table show a decrease in justifying domestic violence (from 23 to 17 percent), a small increase in the proportion of men who report that the couple uses contraceptive methods including condoms (from 7 to 8 percent), and a strong decrease in the proportion of men who report negative views about women who use contraceptives (43 versus 36 percent). It further shows that the number of violent events in the five-year period before the survey was conducted increased for all distance radii considered (except for 0–50 km). The number of violent events perpetrated by Boko Haram and weighted by

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<sup>15</sup>Only a subsample of women are selected for the domestic-violence module, and the number of observations is smaller when focusing on this outcome.



the inverse of the distance increased from 0.96 to 1.7. The respective weighted number of fatalities rose from 0.93 to 5.2.

For 2018, the descriptive statistics show that the women in our sample are, on average, 31.8 years old, 58 percent are Muslim, and 41 percent are Christian. About 44 percent have no formal education. The education level of the husbands is distributed in a similar way, with the exception of the percentage of men who report having no formal education, which is 25 percent. We observe similar descriptive statistics for men. The main differences are that men are about eight years older, a larger share of men are Muslim (52 percent), and a smaller share of men report having no formal education (25 percent).<sup>16</sup> The average household size is six. Finally, 60 percent of women in the sample reside in rural clusters with a population density of 1,640 inhabitants within a 10 km radius.

## 4 Identification Strategy

To examine spatial spillovers of violent conflict, we regress the outcome variables on the number of distant violent attacks in the five-year period before the DHS wave in 2013 and the wave in 2018. Our empirical strategy exploits the fact that the violent attacks take place at a distance from the study subjects and so the decision of a violent group to carry out those attacks is likely independent of the characteristics of the individuals included in our study. We set up the following model:

$$Y_{iclt} = \alpha + \beta \mathbf{W}_{cj} \mathbf{VE}_{\text{dist}}^g_{jt} + \delta' \mathbf{C}_{ct} + \theta' \mathbf{X}_{it} + \sigma_l + \gamma_t + \epsilon_{iclt} \quad (1)$$

Here,  $Y_{iclt}$  indicates the outcome variable of individual  $i$  from DHS household cluster (that is, village)  $c$  located in local government area (that is, district)  $l$  at time  $t$ .

For the outcome variables, we focus on different financial indicators (employment, asset ownership, and decision-making autonomy) and nonfinancial indicators (fertility

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<sup>16</sup>For men, we do not report the education level of their partners. Although it is possible to identify the partner in some cases, the information is missing for a large proportion of the sample, which means including this variable as a control would reduce the size of the sample considerably. Therefore, we refrain from including this variable.

choices, attitudes toward violence, and violence experience). We run all regressions for women and men separately because the majority of indicators (e.g., concerning violence and contraceptive use) are not fully comparable, i.e., the questions for men and women in the DHS survey are different.

The coefficient  $\beta$  is of primary interest, capturing the impact of distant violent events recorded in the ACLED data. The key explanatory variable  $\mathbf{VE}_{\text{dist}}^g_{jt}$  captures the number of violent attacks over the last five years that occurred in location  $j$  and were conducted by group  $g$ —i.e., either Boko Haram or Fulani. We conduct regressions looking at violent attacks conducted by each of these groups separately. To ensure that these are distant attacks, we restrict the set of locations to those that lie outside of the 50 km radius of the centroid of a household cluster. This spatial threshold is the largest within which, according to the literature (e.g., Bendavid *et al.*, 2021), nondisplaced women and children are still considered to be living dangerously close to armed conflict.

We use a time-invariant spatial-weight matrix  $\mathbf{W}_{cj}$  based on an inverse function of the distance between violent events and population clusters (see e.g., Agrawal *et al.*, 2017; Kelejian *et al.*, 2013). This choice is consistent with results from alternative specifications that count all events that occur within different radii from the household cluster—i.e., 0–50 km, 51–100 km, 101–50 km, and 151–200 km—without weighting these events. In particular, we observe a dose-response relationship between the size of the spillover effects and the distance of the attacks that appears to roughly follow a linear function with a negative slope parameter, i.e., the farther the event, the smaller the impacts, in absolute terms (see Table A3 for Boko Haram violent events and Table A4 for Fulani violent events). Thus, giving higher weights to geographically close events is arguably a reasonable empirical specification.<sup>17</sup>

$\mathbf{C}_c$  is a vector of control variables at the cluster level. It includes characteristics that may simultaneously correlate with the probability that attacks occur closer to the house-

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<sup>17</sup>Specifically, we first calculate the distance  $d_{cj}$  from the centroid of each household cluster to the geo-location of each violent event that occurred in the past five years. Second, we restrict attacks to locations with a distance to the cluster centroid of more than 50 km. Third, we weigh each event by the inverse distance, i.e.,  $\frac{1}{d_{cj}^p}$  with  $p = 1$ . Eventually, for every household cluster, we sum all weighted events.

hold cluster and the outcome variables. We control for the safety level in the proximity of the village by controlling for the (unweighted) number of Boko Haram (Fulani) attacks within the 0 to 50 km of the cluster. We further control for whether the cluster is rural and for the population density. In addition, we control for geographic characteristics such as distance to the main road, altitude, distance to the border, and proximity to water bodies to proxy accessibility to the village.  $\mathbf{X}_i$  is a vector of individual characteristics that are likely associated with the outcome variables. It includes age, religious orientation, education level, education level of the partner,<sup>18</sup> and household size.

We further include LGA fixed effects  $\sigma_l$  to capture time-invariant characteristics at this geographic level. These fixed effects capture, for instance, how conservative the LGA is, whether the LGA has implemented Sharia law, and the level of its enforcement.  $\gamma_t$  controls for year fixed effects to account for common shocks at the yearly level that capture, for example, overall trends in economic conditions for all individuals in our sample.  $\epsilon_{clt}$  is the error term. We cluster the standard errors at the DHS-household-cluster level.

To give credence to our empirical approach, we show that measures of poverty (e.g., propensity of survival of the first child) and individual characteristics (e.g., body height) are unrelated with the number of distant violent events.<sup>19</sup> Of the twenty four checks, we find only the variable age to be significantly associated with the number of distant Boko Haram attacks (Table A5 in the Appendix). Proportionally, a significant relationship for one of the several tests is statistically expected. The variable age is included as a covariate in our main specification and the point estimates remain qualitatively the same without including this variable as a control in the estimations (results available upon request).

The first concern of our baseline specification is whether our spillover estimates capture the direct effects of proximate attacks. We aim to examine whether the results are driven by the specific distance threshold of 50 km by using alternative definitions of the main variable of interest. We start by decreasing the radius of attacks to violent events that occur beyond the 25 km distance radius of the household cluster (Specification A) and

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<sup>18</sup>This information is only available for women.

<sup>19</sup>We run regressions using the baseline specification without individual level control variables and examine the coefficient of distant violent events in each of the estimations.

also present the results for a wider radius considering attacks beyond the 75 km distance (Specification B). Second, we use as control variable the inversely weighted number of proximate attacks instead of the unweighted number of proximate attacks (Specification C). Third, our results could be biased if we do not simultaneously control for the attacks of the other aggressor group. Therefore, we control for both types of attacks in the same regression model (Specification D). The third concern is that the results may be driven by endogenous sorting of the local population. On the one hand, the population residing in areas closer to conflict may decide to relocate to safer areas. On the other hand, Boko Haram attacks led to the displacement of over 2 million people; thus, the results could be driven by the responses of displaced households included in the DHS sample, which may have different gender norms (e.g., regarding employment, fertility choices, or violence within the household). As the DHS data do not contain a variable that indicates whether a household is displaced, we use as a proxy variable the number of years of residence in the cluster, taking five years or more—the highest category—as a threshold. We conduct the analysis focusing on households that have resided in the cluster for at least five years (Specification E).

## 5 Results

### 5.1 Boko Haram and Fulani Violent Events

We start by providing the results on Boko Haram violent attacks in Table 2 for women (top panel) and men (bottom panel). This table displays the results of the estimated effects according to the baseline specification and the four alternative specifications.

Concerning the financial outcomes, we observe a positive effect of distant Boko Haram attacks on the employment of women and men for all regression models (Column I). The coefficients are statistically significant at the 5 percent level, except in various model specifications for the estimated effect on female employment, in which they appear statistically significant at the 10 percent level. Consistent with this overall increase in economic activ-

ity at the household level, the point estimates of the effects on the probability of independently owning a house or land are positive and statistically significant among women and men (Column II).<sup>20</sup> Yet, while we observe statistically significant improvements in autonomy concerning household and personal decisions among men, decision-making autonomy among women appears to remain unaffected by distant Boko Haram attacks (Column III). The respective point estimates do not substantially vary across model specifications. The findings remain unchanged when adjusting the significance levels for multiple hypothesis testing (Table A6 in the appendix).

With respect to the nonfinancial outcomes, we observe a large positive and statistically significant effect on the probability of women reporting use of modern contraceptive methods. In addition, the coefficients on the probability of women reporting domestic violence and the likelihood that women report that being beaten by their husband is acceptable are statistically significant (Columns VI and VII in the top panel).<sup>21</sup> An increase in domestic violence experienced by married women is paired with a lower acceptance of being beaten by their husband. The estimated effect on the number of children is statistically insignificant (Column IV in the top panel).<sup>22</sup> These findings are confirmed by the results of the various model specifications. Distant Boko Haram attacks hardly exert any effect on men. We only observe a relatively small but statistically significant effect at the 10 percent level for men reporting that the couple uses contraceptive methods (Column V in the bottom panel of the table). This effect seems to be driven by relatively proximate attacks (compare the results for Specifications A and B in Column V of the bottom panel of the table). Again, the significant point estimates remain statistically significant when following a multiple testing procedure that controls the false discovery rate (Table A6 in the appendix).

All in all, the results for distant Boko Haram attacks are evidence of improved eco-

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<sup>20</sup>We further test the results focusing on co-ownership of assets and find them to remain robust. These results are available upon request.

<sup>21</sup>We also estimate the results for verbal violence and find no significant effects. The results are available upon request.

<sup>22</sup>The results remain unchanged if we focus on the actual number of children or the difference between the actual and desired numbers of children.

economic well-being at the household level. They appear to translate into the economic empowerment of women. Specifically, women more often report independently owning property and using modern contraceptive methods. However, this favorable change for women is not paired with improved decision-making autonomy. Women tend to experience more domestic violence and, at the same time, are more likely to reject (traditional) gender views in the form of tolerance toward domestic violence against women. Hence, distant Boko Haram attacks appear much more of a double-edged sword for women than for men.

For the interpretation of the effects in quantitative terms, for simplicity, we turn to the aforementioned alternative specification that counts all Boko Haram events that occur within a radius of 51–100 km from the household cluster (see Column II of Table A3 in the appendix). An increase of one unit in the number of Boko Haram attacks increases the employment propensity of men by 0.04 percentage points (Panel B of the table), the likelihood of female asset ownership by 0.04 percentage points (Panel A), and the propensity of women using modern contraceptives by 0.08 percentage points (Panel A), respectively. Moreover, each Boko Haram attack within a radius of 51–100 km increases the propensity of a woman reporting to be a victim of domestic violence by 0.18 percentage points and reduces the likelihood of women accepting being beaten by their partner by 0.19 percentage points (Panel A), respectively.

Considering the conservative estimate for the exposure of the average household of between 5 and 10 Boko Haram attacks in the 51–100 km interval in the same time frame (Columns III and VII of Table 1), the spatial spillover effects sum to an increase in the employment propensity of men, for instance, of between 0.2 and 0.4 percentage points. The respective effects on the risk of women reporting domestic violence amount to about 1 to 1.5 percentage points. Taking into account that an average community is, at the same time, exposed to roughly 15 and 20 Boko Haram attacks within radii of 101–50 km and 151–200 km, respectively, back-of-the-envelope calculations suggest that the spatial spillover effects on the employment probability of men sum to about 1.8 percentage points and on the risk of domestic violence roughly 3.5 percentage points (Columns II, III, and

IV of Table A3 in the appendix). These absolute figures correspond to an increase over the baseline rates of approximately 2 percent in employment and 9 percent in domestic violence. They seem within the range of plausible parameters and comparable to the estimated magnitude of the effects, in absolute terms, reported in previous literature concerning the direct effects of attacks of terrorist groups. For instance, Brodeur (2018) finds a 2 percent reduction in employment. Ekhatior-Mobayode *et al.* (2022) report that, as a result of any Boko Haram attack happening within 10 km, women have an increased propensity of 4 percentage points of experiencing physical or sexual violence at the hands of the partner. Thus, even though Boko Haram attacks by themselves exert small spatial spillover impacts in absolute terms, because of their relatively large number—as the back-of-the-envelope calculations for the two outcome dimensions (i.e., male employment and domestic violence) suggest—together they potentially have a relevance that is comparable to that of an incident directly occurring in the community.

For comparison, we next report the results focusing on distant violent Fulani attacks in Table 3. Among both women and men, we observe statistically significant effects across the various model specifications on employment probability (Column I) and acceptance of domestic violence (Column VII). While the latter is unambiguously reduced as a result of distant Boko Haram attacks, the coefficients for employment go in opposite directions for women and men. Specifically, male employment appears to be substituted by female employment (compare top and bottom panels). In addition, we observe a positive and statistically significant effect of distant Fulani attacks on the decision-making autonomy of women (Column III in the top panel of the table) but not that of men (Column III in the bottom panel). This effect is stable across model specifications, although it appears most robust for relatively distant attacks (compare results of Specifications A and B).

Taken together, we observe stark differences in the spillover effects between violent attacks conducted by Boko Haram and those conducted by the Fulani militias. For Fulani attacks, we do not observe the same positive spatial effect on economic well-being at the household level. Rather than the observed increase in economic activity among women and men as a result of distant Boko Haram attacks, we find a shift from male to female

employment for distant Fulani attacks. This relative gain in the economic relevance of women in households appears to translate into an increase in their decision-making autonomy.<sup>23</sup> Importantly, contrary to the findings for Boko Haram attacks, we do not observe any effects on the propensity of using contraceptive methods and experiencing domestic violence. One finding that both types of attacks have in common is the decrease in the likelihood that women justify being beaten by their husbands.

## 5.2 Heterogeneous Effects

In this subsection, we discuss effect heterogeneity across three relevant dimensions. First, we examine the role of the intensity of an event by exploiting the variation in the lethality of attacks. Specifically, we use an alternative definition of violent events focusing on the number of fatalities instead of the number of events. In doing so, we calculate the number of deaths beyond the 50 km radius inversely weighted by distance and control for the number of deaths within the 50 km radius of the household cluster. Second, we examine effect heterogeneity across geographic areas. We restrict the sample to focus on the northeastern region in which Boko Haram is the dominant extremist group. To facilitate the comparison of the results between both types of distant attacks, we additionally limit the sample to states in the Northeast affected by both types of attacks (Adamawa and Taraba). For the same purpose, in another subgroup analysis, we restrict the sample to household clusters in which both types of events occurred within a radius of 150–200 km, respectively. These households are also exposed to both types of attacks but are not exclusively stemming from two particular Nigerian states. Third, since Boko Haram attacks are motivated by religious beliefs, we test whether spatial spillover impacts have differential effects according to the religious orientation of the household. We interact the weighted measure of violent events with a categorical variable indicating the religious beliefs of the individual—i.e., Christian, Muslim, or traditionalist—and report the results of the interaction term.

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<sup>23</sup>The point estimates of distant attacks on female asset ownership and male employment statistically differ by type of attack. The difference in the point estimates between distant Boko Haram and Fulani attacks concerning female employment is significant at the 10 percent level.



The results are reported in Tables 4, 5, and 6. We first observe that our main results are unlikely to be driven by particularly severe attacks, as results for the number of casualties are qualitatively the same as those for the number of attacks (Table 4). The sole pronounced difference concerns the variables in relation to fertility. We now observe a small, positive statistically significant effect of distant Boko Haram attacks on the average number of children reported by women (Column IV in the top panel). It roughly corresponds to an increase of 0.5 percent over the average baseline number of children per woman. Also, men now are significantly less likely to have negative views on the current use of contraceptive methods (Column IV in the lower top panel), and the effects on the propensity of men reporting that the couple uses contraceptive methods increases (Column V in the lower top panel). While an increase in both the stock variable (fertility) and flow variable (contraceptive use), at first sight, appears contradictory, the observation period in this study is long enough for our results to potentially capture differently timed decisions, where a period of enhanced desire of adding family members is followed by a period of increased contraceptive use at the time of the survey.

Concerning heterogeneity across geographic areas (Table 5), we find that, overall, our main results for distant Boko Haram attacks remain unchanged when restricting the sample to households located in the Northeast.<sup>24</sup> The exception is the results for decision-making autonomy which are no longer statistically significant among men (lower top panel, Column III). There is a more pronounced effect of heterogeneity for distant Fulani attacks. In particular, the employment effects among women and men disappear (upper and lower bottom panel, Column I). We also no longer observe increased female decision-making autonomy for distant Fulani attacks (upper bottom panel, Column III). Thus, the finding of a shift from male to female employment and associated decision-making autonomy as a result of distant Fulani attacks does not seem to hold in the Northeast. We observe no stark heterogeneity for the effects of distant Fulani attacks on nonfinancial outcomes.

When examining households who are located in areas that may be (directly or in-

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<sup>24</sup>The coefficient for the effect on the employment propensity of women remains largely unchanged but is now more imprecisely estimated (upper top panel of the table).

directly) affected by both types of attacks, the results continue to look very different between distant Boko Haram and distant Fulani attacks. Turning to households living in the two states with a strong presence of both types of militant groups, we now observe a smaller, statistically insignificant spatial spillover effect of Boko Haram attacks on female employment (Column I in the upper top panel). All other results for distant Boko Haram attacks, including our finding of increased economic well-being at the household level, however, are quite similar compared to the full sample. The coefficient of the effect of distant Fulani attacks on female employment also turns statistically insignificant (Column I in the upper bottom panel). At the same time, we now observe a negative effect of distant Fulani attacks on the propensity of owning assets among both women (statistically significant at the 5 percent level) and men (statistically significant at the 10 percent level) (Column II in the two bottom panels). Thus, economic well-being at the household level seems to decline as a result of distant Fulani attacks in Adamawa and Taraba. When limiting the sample to household clusters in which both types of events occur within a radius of 150–200 km, the results tend to look very similar to those obtained for the full sample.

Concerning the role of religious orientation, we observe a relatively stronger estimated effect of distant Boko Haram attacks on female employment and negative statistically significant coefficients for the respective interaction terms between Boko Haram attacks and Islamic orientation as well as between Boko Haram attacks and traditionalist orientation (Column I in the top panel of Table 6). This suggests that the positive spatial spillover effects of distant Boko Haram attacks on female employment observed in the full sample are primarily driven by Christian households. We now also observe that the negative coefficient of distant Boko Haram attacks turns statistically significant in the regression for negative views of contraceptives among men (Column IV in the bottom panel of the table). The respective coefficients for the interaction terms between Boko Haram attacks and Islamic orientation and between Boko Haram attacks and traditionalist orientation are both positive and statistically significant. We observe a similar but somewhat less pronounced effect heterogeneity across religious orientation for contraceptive use among

both women and men. We observe no effect heterogeneity across religious orientation concerning the risk of domestic violence. All in all, this suggests that Christian families are more strongly affected by distant Boko Haram attacks in terms of female employment and family planning but not in terms of domestic violence. Similarly, the positive effects on female employment and female decision-making autonomy are only found for distant Fulani attacks among women of Christian orientation. Among women of Islamic orientation, we observe a reduction in asset ownership and contraceptive use. At the same time, distant Fulani attacks increase the number of children that women of Islamic orientation report (Table 6 in the appendix).

### 5.3 Discussion of Findings

In this subsection, we discuss the interpretation of the above findings on distant Boko Haram attacks' effects on women's empowerment. On the one hand, we observe improved economic well-being of women, an increase in their use of contraceptive methods, and greater rejection of being beaten by their husbands. These results all suggest a favorable change in women's empowerment. On the other hand, we also find an increase in reported levels of domestic violence.

The natural question arises whether the increased reporting of domestic violence results from an actual increase of domestic violence or from a shift in reporting behavior that is caused by the greater empowerment in some relevant aspects of the lives of women, especially concerning the acceptance of domestic violence. As they find it less acceptable to be beaten by their husband, empowered women may be more likely to make the problem salient to effect change by speaking about it. We employ three plausibility checks to examine the latter possibility.

First, an increased likelihood of reporting domestic violence as a result of a reduced acceptance of being beaten by the partner requires the propensities of reporting domestic violence and the acceptance of domestic violence by the women to be inversely correlated. We, however, observe a small, positive correlation between the two variables,

which suggests that women who experience domestic violence are also more accepting of the aggressive behavior of their partner. Second, if the estimates of the domestic-violence effects are indeed primarily attributable to a shift in reporting behavior, we would expect result patterns that are (i) dissimilar for women of Islamic orientation, as, among them, the effects of distant Boko Haram attacks on acceptance of domestic violence are, in absolute terms, significantly smaller relative to women of Christian orientation (see Column VII of Table 6) and (ii) similar for the distant Fulani attacks, as these cause a comparable increase in measures of women empowerment to Boko Haram attacks, including a significantly negative effect on the acceptance of traditional gender views (see Column VII of Table 3). However, this does not seem to be the case, as the estimate of the effect on the domestic-violence variable among women of Islamic orientation is insignificantly larger than among women of Christian orientation. In addition, the respective effect for distant Fulani attacks is small and statistically insignificant (Column VI of the same table).

Eventually, we check whether there are studies that can rationalize our finding of mixed results for distant Boko Haram attacks. Several empirical studies report a male backlash against women who gain economic empowerment (e.g., Guarnieri and Rainer, 2021; Heath, 2014; Bulte and Lensink, 2019; Anderson and Genicot, 2015). Increased economic activity and, by implication, increased demand for women’s time may make it increasingly challenging to fulfill the social norm of catering to the daily needs of all family members, especially those of the children (Deschênes *et al.*, 2020).<sup>25</sup> In line with this traditional gender norm and in spite of the reported improvements as a result of Boko Haram attacks, a substantial share of women and men in the sample report believing that it is justified to use violence to sanction women for neglecting children and burning food

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<sup>25</sup>Deschênes *et al.* (2020) also discuss collective models of household behavior that offer the possibility that domestic violence falls in response to women’s economic independence, which improves their position in the household. There may be a tipping point beyond which the gain in intrahousehold bargaining power likely offsets the male partner’s inclination to use physical violence against his wife as a byproduct of the increase in her economic activity (Heath, 2014). This may explain why we do not observe the same increase in intimate partner violence for distant Fulani attacks, which we find to cause a shift from male to female employment and, thus, an increase of female bargaining power. The concentration of the employment effects of distant Boko Haram attacks among men belonging to households of Islamic orientation, in contrast, potentially entails a reduction in female bargaining power. Here, domestic violence can serve men by ensuring they keep a large fraction of the additional income that they generate.

(see Table 1). Hence, our mixed findings appear plausible.

## 6 Channels

The empirical literature provides two main explanations for spatial spillover effects of violent events. First, the arrival of IDPs can alter the local economy and prevailing social norms in host communities. Second, violent events can affect trade relationships and degrade infrastructure at critical nodes, separating otherwise-unaffected communities from economic centers. In this section, we empirically examine whether the two forms of attacks may operate channels in a dissimilar way such that the distinct findings for Boko Haram and Fulani violent events can potentially be explained.

### 6.1 Inflow of IDPs

We first analyze the extent to which internal displacement explains the findings reported in the previous sections. We start by estimating whether the number of distant violent events is associated with the number of IDPs living within 10 km of the cluster.<sup>26</sup> The main variable of interest is the weighted number of violent attacks conducted by Boko Haram or Fulani. We also run separate regressions using different radii to count the number of violent events.

The results are reported in Table 7. Panel A reports the results focusing on Boko Haram events and Panel B on Fulani events. The results in Panel A suggest that as the number of violent events in the past five years increases, the number of IDPs in the village also increases. The estimated coefficients show a decaying relationship between the number of IDPs and the number of violent events the farther they are from the household cluster. To interpret the effects in quantitative terms, for simplicity, we turn

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<sup>26</sup>Specifically, we estimate the following model:

$$IDP_{cjt} = \alpha_2 + \beta_2 \mathbf{W}_{cj} \mathbf{VE}_{jt}^g + \delta_2' \mathbf{C}_{ct} + \sigma_{2t} + \gamma_{2t} + \epsilon_{cjt} \quad (2)$$

$IDP_{cjt}$  is a measure of the number of IDPs living within 10 km of the household cluster for each 100 cluster residents. This model takes into account the same control variables as in Eq. 1 with the exception of the individual-level controls.

to the specification that counts all events within a radius of 51–100 km (Column II). The results indicate that with a one-unit increase in the number of events, the number of IDPs rises by about 3.6 percent, or roughly 20 individuals. In turn, the spatial dispersion of Boko Haram attacks potentially operates via IDPs.

The results in Panel B, focusing on Fulani militias, in contrast, show no significant relationship between the number of violent attacks and the number of IDPs residing in the community. In our preferred specification, the coefficient is statistically insignificant and significantly smaller than the coefficient for Boko Haram attacks. This suggests that Fulani attacks have not contributed to displacement to the extent that Boko Haram attacks have. When restricting the sample to northeastern states with many Fulani attacks—i.e., Adamawa and Taraba—we again observe qualitatively similar results (Table A7 in the appendix). Thus, the IDP channel is likely to play an important role in explaining the heterogeneity in the spatial dispersion of the impacts of Boko Haram and Fulani attacks.

Next, we estimate the baseline regressions for distant Boko Haram attacks after splitting the sample into areas with and without IDPs. We build an indicator that aggregates the number of IDPs at the LGA level. We choose this geographical level of aggregation to clearly separate areas that are hosting IDPs and to avoid spillover effects of smaller regions such as the village.

We report the results in Table 8. For women (Panel A), except for the outcome variable concerning the justification of violence (Column VII), we find that all impacts are concentrated in areas hosting IDPs. In fact, for most financial and nonfinancial indicators, we find smaller coefficients, in absolute terms, that are not statistically significant in areas without IDPs. The size of the coefficient for justified beating is similar in both subsamples. For men (Panel B) residing in LGAs with IDPs, we observe that distant Boko Haram attacks increase the propensities for employment and asset ownership. We do not observe these impacts in areas without IDPs (Columns I and II). We further find a positive effect on the likelihood of reporting using contraceptive methods in areas with IDPs (Column V).

Overall, our results suggest that, except for the views of women on domestic violence,

the spillover impacts of Boko Haram violent attacks operate to a considerable extent through the arrival of IDPs in host communities. Our results support earlier findings that IDPs are positively associated with employment outcomes in low-income settings (e.g., Verme and Schuettler, 2021).

There are several possible explanations for this link between the presence of displaced people and local economic activity. For example, Alix-Garcia *et al.* (2018) explain it by an increase in the demand for goods and services in the hosting communities. An additional explanation is that social norms and values are different between the displaced population and the host community. When individuals from both groups interact with each other, norms and values of the IDPs may spill over to the host community. To descriptively examine differences between host and IDP households, we use data from the Nigeria IDP Profiling Survey conducted in the northeastern states. We compare the average characteristics of 270 host households with those of 250 IDP households (of which 128 live in host communities and 122 live in camps). Table A8 in the appendix displays these descriptive statistics (compare Columns I and III). IDP and host households are similar in household size (about seven household members, on average), mean age of the household head (around 44–45 years old), and whether the household head is married (87 percent married in the host sample and 90 percent married in the IDP sample). The gender composition is also similar across populations (45 percent women in host populations and 47 percent women in IDP populations). The table also shows that for IDP households, they are on average more educated, more women are head of the household, and more household heads are non-Muslim than for host households. These differences may point to IDP households' being more liberal than host households (e.g., with respect to the role of women in society). Importantly, we also observe high reported levels of social cohesion. In fact, both IDPs and host-community members report relatively high integration of IDPs. This suggests that conditions are in place for spillover of social norms among IDP households to host households.

## 6.2 Alternative Channels

We first discuss the other main explanation of spillover effects of violent effects discussed in the literature: the decline in trade caused by lower demand for commodities from areas with active conflict, along with the destruction of critical infrastructure which disconnects entire regions from established transportation routes (Polachek, 1980).

In the case of Boko Haram, the results do not necessarily support this channel. For instance, in Section 5.1, we reported positive spillover impacts on employment and asset ownership of both genders. In addition, we reported positive impacts on contraceptive use by women, which is inconsistent with interrupted supply chains as a result of violent events. In contrast, in the case of Fulani militias, the reported strong negative effects on male employment prospects are consistent with this channel of reduce trade and degraded infrastructure. That said, we reported strong positive effects on female employment and observed no clear adverse implications for economic well-being at the household level. This results pattern may be explained by the use of female employment as mitigation strategy—i.e., households may have responded to increasing economic uncertainty by diversifying their income source through increasing female employment. Thus, overall, findings for the distant Fulani attacks tend to be consistent with this other prominent effect channel.

Second, we discuss another potential channel of the spatial spillover effects of violent effects that has received relatively little attention in the literature. Specifically, we investigate the role of information. Informed people may change their beliefs and values, including those about the role of women in society, with the (implicit) objective of distancing themselves from the aggressors when they learn about the nature of the attacks and associate them with a certain ideology (e.g., Dell and Querubin, 2017; Gould and Klor, 2016). Distance to the attacks may continue to play an important role. Individuals may relate more to events in locations that they have some relationship with because of business or personal connections. Indeed, established literature suggests that events that are relatable to individuals (e.g., because they are familiar with the place or have business or personal connections with it) have a greater impact (Alsan and Wanamaker, 2017;



Tabellini, 2008). In addition, many individuals use local television news as a relevant source of information and the propensity of reporting about a violent event is greater in the television station of the affected locality.

To examine whether households change their views and attitudes toward women after following violent events in the media, we compare the effects of distant Boko Haram and Fulani attacks among clusters that have more access to information (e.g., through TV news coverage) with the effects among clusters that have limited access to information. We interact the indicators of violent attacks with an indicator of an above-median share of households with access to a TV in the cluster, i.e., we use a dummy variable that indicates whether that share is above the median (43 percent) and interact this indicator with the continuous variable of violent events.

The results are reported in Table 9. We do not observe significant differences in the effects of distant Boko Haram attacks between villages with high TV coverage and villages with low TV coverage, except for attitudes toward domestic violence (Column VII in Panel A of the table). As to those attitudes, in villages with higher TV coverage, we observe a significantly larger decrease in the likelihood that women report that domestic violence is acceptable. Importantly, we observe the same pattern for Fulani attacks (Column VII in Panel B). This is the same outcome variable for which we are unable to explain the effects of distant Boko Haram attacks among women through the IDP channel (see Section 6.1). This suggests that the change in attitudes of women toward violence is partly explained by access to information.

## 7 Conclusion

In recent years, many countries have witnessed an increase in violent conflict (World Bank, 2011), including conflict related to religious extremism. Jihadist extremist groups have grown in several countries—e.g., Iraq, Afghanistan, Nigeria, Pakistan, and the Syrian Arab Republic. These groups have been characterized by their oppression of women and minorities. Previous evidence on violent conflict has focused on analyzing the impact on

the targeted areas. A handful of cross-country panel studies have analyzed the economic impact of conflict on areas located far from conflict incidents. Yet, the spatial effects of Islamic extremist groups have not been analyzed before. Given the misogynistic nature of their operations and the strong displacement of the population, a better understanding of the spatial dispersion of their effects on women’s empowerment is needed. This paper has aimed at filling this gap.

We estimated the spatial spillover effects of conflict in Nigeria. In the past decade, the country experienced an increase in violent attacks due to religious extremism and territorial disputes. We estimated spatial spillover impacts of violent events conducted by the Islamist extremist group Boko Haram and, for comparison, militant Fulani herders on financial and nonfinancial outcomes for women and men.

We found that distant Boko Haram attacks exert positive spillover effects on economic well-being at the household level. This result is driven by an increase in employment prospects among women and men. The effects on the former are concentrated among Christian women and do not generalize well to women of traditionalist and Islamic orientation. Importantly, the improved economic well-being of the household translates into the economic empowerment of women. Specifically, we found a strong increase in their likelihood of owning assets and using modern contraceptive methods. However, even though distant attacks of the extremist group also reduce the propensity of women to regard domestic violence perpetrated by their partner as acceptable, we find a strong surge in the likelihood that a woman reports being pushed, slapped, or punched by her husband. A possible explanation is that for many Nigerian women and men the use of violence to sanction women for neglecting children and burning food is justified. When women expand time spent on economic activities it may become increasingly challenging for them to cater to the daily needs of all family members, especially those of the children (Deschênes *et al.*, 2020). For men, we find no significant spillover effects on attitudes toward violence and engagement in family planning.

In addition, our results show a very different spatial dispersion of the effects of violent Boko Haram attacks relative to Fulani attacks. Rather than an overall positive effect

on economic well-being at the household level, male employment appears to be partially substituted by female employment after distant Fulani attacks. Distant Fulani attacks alone also improve the decision-making autonomy of women. However, contrary to the findings for Boko Haram attacks, we did not observe any effects on the propensities of using contraceptive methods and experiencing domestic violence.

When looking at possible channels explaining the results, we found that the spatial spillover effects of Boko Haram attacks are likely linked to forced displacement. First, we found that only distant Boko Haram events significantly affect the inflow of IDPs to communities. Second, the spillover effects of Boko Haram attacks on financial outcomes for men and women are concentrated in areas hosting IDPs. The same holds for observed impacts on the family planning of women. Third, we observed no effects of Fulani attacks either on forced displacement or economic well-being of households. The result of a reduced gender gap in employment as a result of distant Fulani attacks, in contrast, seems consistent with attempts to diversify the income source in response to interrupted trade and degraded infrastructure.

One finding that equally applies to the two types of distant attacks is a decreased likelihood that women accept being beaten by their partner. Our empirical analyses of the IDP channel also suggest that forced migration plays a negligible role in causing this effect. We show that a contributing factor is access to television. For instance, when women learn about violent attacks, they may distance themselves from the aggressors by changing their beliefs and values.

Our findings of favorable implications of distant Boko Haram attacks for the economic well-being of the household and economic empowerment of women, paired with the important role of the IDP channel, have important implications for policy makers and for development organizations working in conflict-affected countries. They suggest that being generous to IDPs fleeing from Boko Haram insurgents by providing a safe place to live can be rewarding for host communities. Improved employment outcomes, for instance, boost economic prosperity as indicated by our result of increased asset ownership among host-community members. Existing evidence suggests that employment goes along with other

benefits such as improved psychological well-being (for example, Hussam *et al.*, 2022). Improved economic empowerment of women has also been associated with progress toward other development outcomes (e.g., Hsieh *et al.*, 2019). This finding opposes results from public opinion surveys showing that some host-community members are concerned that IDPs will reduce their employment prospects (Pape and Sharma, 2019) and further supports an overwhelming evidence base concerning the favorable implications of refugee integration efforts (Marbach *et al.*, 2018; Fasani *et al.*, 2021).

Our evidence suggests that additional investments in local IDP support systems are required. Development interventions need to address the potential male backlash against economically empowered women in the form of increased risk of domestic violence which is reported in this paper. This objective may be achieved in various ways. For instance, timely investments in health and human capital for adolescent girls were shown to reduce intimate partner violence faced by these girls after marriage (Chatterjee and Poddar, 2022). Similarly, providing adolescent girls with vocational training and information on sex, reproduction, and marriage can result in increased bodily integrity (Bandiera *et al.*, 2020).

The observed reduction in women’s acceptance of domestic violence as a result of distant Boko Haram attacks is an encouraging finding and can boost the effectiveness of these investments by helping daughters select into healthier partnerships. Even though the backlash of the partner to increased female employment is not offset by these desirable impacts, the influence of women on their sons is arguably greater, and their sons’ behavior as a partner in a relationship will therefore potentially be different. Women’s reduced acceptance of intimate partner violence may also be directly leveraged in group training for women and men, community-mobilization interventions, and combined livelihood and training interventions for women (Ellsberg *et al.*, 2015; Gram *et al.*, 2021; Jewkes *et al.*, 2008). There are also successful examples of interventions targeting men to reduce intimate partner violence and develop gender-equitable norms (e.g., Pulerwitz *et al.*, 2015; Hossain *et al.*, 2014). In addition, as suggested in Guarnieri and Rainer (2021), enforceable laws that offer women direct legal protection from domestic violence and the

opportunity to divorce abusive partners seem important. Empirical results on the impacts of these interventions in the context of IDP support systems represent an important area for future research.

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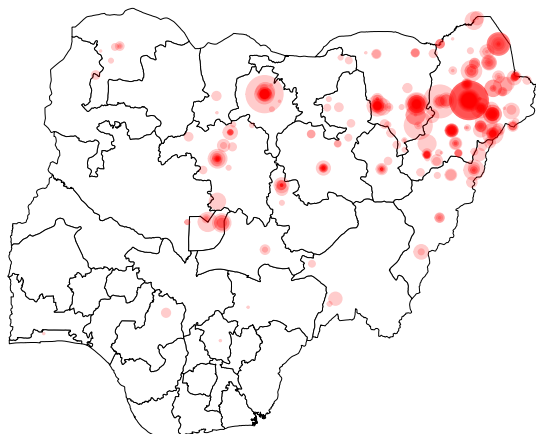
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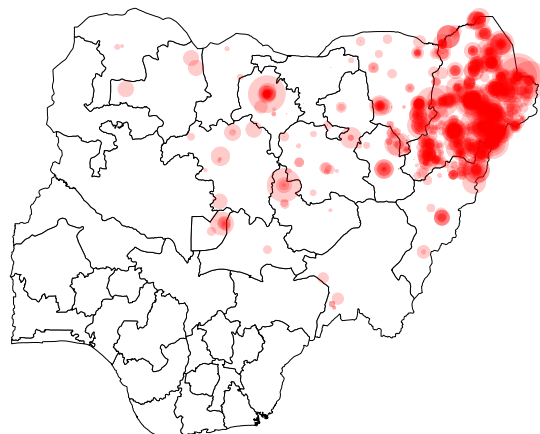
# Figures

A. 2008–2012



0 100 200 300

B. 2013–2017



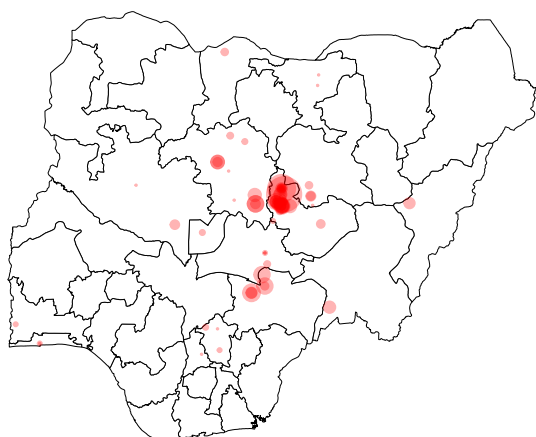
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**Figure 1: VIOLENT EVENTS WITH BOKO HARAM INVOLVEMENT WEIGHTED BY FATALITIES**

Source: ACLED and DHS Nigeria.

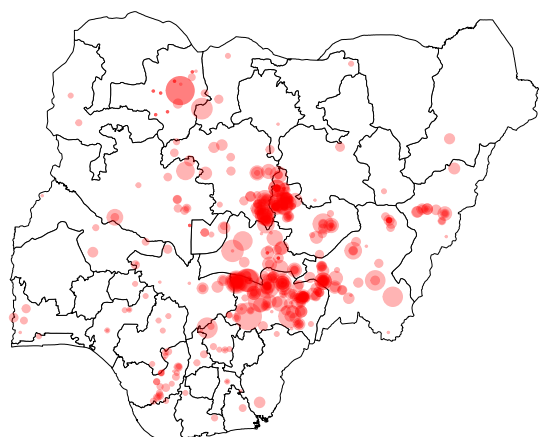
Notes: – The map shows the geographic location of violent events where at least one of the actors involved was Boko Haram during 2008–2012 for panel A, and 2013–2017 for panel B. The size of the bubble represents the number of fatalities by violent event.

A. 2008–2012



0 100 200 300

B. 2013–2017

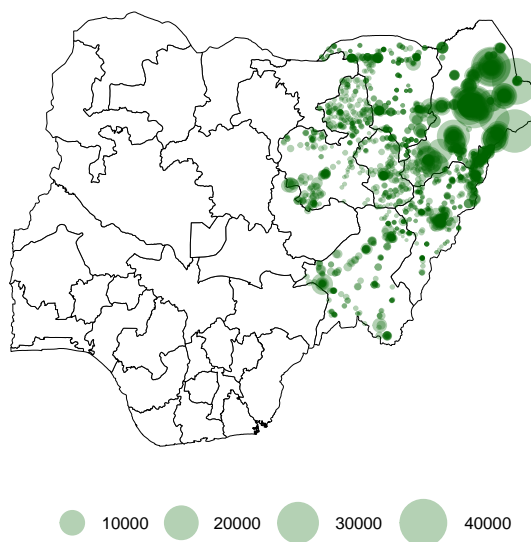


0 100 200 300

**Figure 2: VIOLENT EVENTS WITH FULANI INVOLVEMENT WEIGHTED BY FATALITIES**

Source: ACLED and DHS Nigeria.

Notes: – The map shows the geographic location of violent events where at least one of the actors involved was Fulani during 2008–2012 for panel A, and 2013–2017 for panel B. The size of the bubble represents the number of fatalities by violent event.



**Figure 3: LOCATION OF THE INTERNALLY DISPLACED POPULATION**

*Source:* IOM Displacement Tracking Matrix (DTM).

*Notes:* – The map shows the geographic location of IDP sites including both camps and host communities for Round 20 of the DTM data collected by the IOM. The size of the bubble represents the number of IDPs residing in the camp or host community in January 2018.

# Tables

**Table 1: DESCRIPTIVE STATISTICS**

	Women				Men			
	2013		2018		2013		2018	
	I	II	III	IV	V	VI	VII	VIII
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
<b>Financial outcome variables</b>								
Working	0.678	0.467	0.689	0.463	0.955	0.207	0.983	0.129
Decision autonomy	0.025	0.157	0.031	0.173	0.420	0.494	0.456	0.498
Asset ownership	0.117	0.322	0.090	0.286	0.639	0.480	0.512	0.500
<b>Non-Financial outcome variables</b>								
No. of children	4.055	2.894	4.018	2.815	—	—	—	—
Uses modern contraceptive	0.102	0.303	0.124	0.329	—	—	—	—
Experienced violence	0.136	0.342	0.172	0.378	—	—	—	—
Beating justified	0.383	0.486	0.310	0.462	0.232	0.422	0.166	0.372
Uses contraceptive (couple)	—	—	—	—	0.107	0.310	0.114	0.318
Neg. views contra.	—	—	—	—	0.431	0.495	0.358	0.480
Condom use	—	—	—	—	0.065	0.247	0.079	0.270
<b>Variables of interest</b>								
No. attacks weighted	0.957	1.454	1.729	3.494	0.885	1.356	1.490	3.464
No. events 0-50 km <sup>b</sup>	0.047	0.116	0.034	0.093	0.045	0.111	0.027	0.086
No. events 51-100 km <sup>b</sup>	0.055	0.116	0.081	0.226	0.050	0.109	0.069	0.224
No. events 101-150 km <sup>b</sup>	0.101	0.186	0.155	0.401	0.093	0.178	0.140	0.407
No. events 151-200 km <sup>b</sup>	0.143	0.292	0.226	0.604	0.138	0.288	0.199	0.578
No. fatalities weighted	0.925	0.926	5.249	3.954	0.885	0.856	4.837	3.901
No. attacks Fulani weighted	0.356	0.514	1.925	2.020	0.362	0.546	1.894	2.046
No. IPDs <sup>a</sup>	0.000	0.000	0.648	5.321	0.000	0.000	0.667	5.729
<b>Control variables</b>								
Age	31.446	8.818	31.799	8.601	36.377	7.481	39.459	9.027
<i>Religion</i>								
Christian	0.399	0.490	0.414	0.492	0.439	0.496	0.475	0.499
Islam	0.591	0.492	0.583	0.493	0.548	0.498	0.517	0.500
Traditionalist	0.010	0.099	0.004	0.061	0.013	0.112	0.008	0.090
<i>Education level</i>								
No education	0.467	0.499	0.436	0.496	0.263	0.441	0.249	0.432
Primary	0.196	0.397	0.159	0.366	0.217	0.412	0.177	0.382
Secondary	0.261	0.439	0.309	0.462	0.356	0.479	0.385	0.487
<i>Husband education level</i>								
No education	0.381	0.486	0.344	0.475	—	—	—	—
Primary	0.191	0.393	0.150	0.358	—	—	—	—
Secondary	0.288	0.453	0.345	0.475	—	—	—	—
Household size	6.022	2.562	5.973	2.559	5.306	2.442	5.394	2.386
<b>Cluster control variables</b>								
Rural	0.634	0.482	0.599	0.490	0.612	0.487	0.546	0.498
Population density <sup>a</sup>	1.751	5.102	1.644	4.416	1.844	5.172	2.148	5.266
Distance to border <sup>a</sup>	119.635	90.118	124.499	90.329	122.283	94.155	119.411	93.834
Proximity to water <sup>a</sup>	176.155	140.056	170.441	138.430	164.219	136.147	146.530	133.000
Cluster altitude	3.188	2.322	3.159	2.393	3.121	2.402	2.833	2.405
Min. distance to road	11.865	15.058	10.669	13.415	11.029	14.487	9.663	12.771
Observations	25,451		27,043		7,550		7,245	

Notes: — The table presents descriptive statistics. — <sup>a</sup> in thousands. — <sup>b</sup> The number of violent attacks has been divided by 100.

**Table 2: IMPACT OF BOKO HARAM ATTACKS ON FINANCIAL AND NON-FINANCIAL OUTCOMES**

	Financial Outcomes			Non-Financial Outcomes			
	I	II	III	IV	V	VI	VII
<b>Women</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
No. attacks weighted	0.006* (0.003)	0.007*** (0.002)	0.000 (0.001)	0.008 (0.008)	0.007*** (0.001)	0.014*** (0.002)	-0.013*** (0.004)
Observations	52,494	52,494	52,494	52,494	52,494	27,413	52,494
<i>Alternative model specifications</i>							
A. Shorter distance to violent attacks							
No. attacks weighted (>25km)	0.008** (0.004)	0.008*** (0.002)	-0.000 (0.001)	-0.008 (0.012)	0.009*** (0.002)	0.016*** (0.003)	-0.021*** (0.005)
B. Longer distance to violent attacks							
No. attacks weighted (>75km)	0.008*** (0.002)	0.004** (0.002)	0.000 (0.000)	-0.004 (0.008)	0.005*** (0.001)	0.007*** (0.002)	-0.010*** (0.003)
C. Control for weighted attacks (<50km)							
No. attacks weighted	0.005 (0.003)	0.008*** (0.002)	-0.000 (0.000)	0.004 (0.008)	0.007*** (0.001)	0.015*** (0.002)	-0.013*** (0.004)
D. Control for weighted Fulani attacks							
No. attacks weighted	0.006* (0.003)	0.008*** (0.002)	0.000 (0.001)	0.006 (0.008)	0.007*** (0.001)	0.014*** (0.002)	-0.013*** (0.004)
E. Residents (more than 5 years)							
No. attacks weighted	0.006* (0.003)	0.007*** (0.002)	0.000 (0.001)	0.010 (0.008)	0.007*** (0.001)	0.015*** (0.002)	-0.012*** (0.004)
<b>Men</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. attacks weighted	0.009*** (0.002)	0.007** (0.003)	0.011** (0.004)	-0.002 (0.004)	0.003* (0.002)	0.002 (0.001)	-0.001 (0.004)
Observations	14,795	14,795	14,795	14,795	14,795	14,795	14,795
<i>Alternative model specifications</i>							
A. Shorter distance to violent attacks							
No. attacks weighted (>25km)	0.010*** (0.002)	0.009** (0.004)	0.010** (0.005)	-0.006 (0.005)	0.003 (0.002)	0.002 (0.002)	-0.003 (0.004)
B. Longer distance to violent attacks							
No. attacks weighted (>75km)	0.006*** (0.002)	0.004 (0.003)	0.007** (0.003)	0.001 (0.003)	-0.000 (0.002)	0.001 (0.001)	0.001 (0.003)
C. Control for weighted attacks (<50km)							
No. attacks weighted	0.009*** (0.002)	0.009*** (0.003)	0.009** (0.004)	-0.000 (0.004)	0.003* (0.002)	0.003* (0.001)	0.000 (0.004)
D. Control for weighted Fulani attacks							
No. attacks weighted	0.009*** (0.002)	0.007** (0.003)	0.011** (0.005)	-0.001 (0.004)	0.004** (0.002)	0.003* (0.002)	-0.002 (0.004)
E. Residents (more than 5 years)							
No. attacks weighted	0.009*** (0.002)	0.007** (0.003)	0.011** (0.004)	-0.002 (0.004)	0.003* (0.002)	0.002 (0.001)	-0.001 (0.004)

Notes: – <sup>a</sup> The number of observations is smaller because only a subsample of women are chosen to respond to the domestic violence module. – Results are obtained from linear regression models. The table reports estimates of the effects of the number of violent attacks conducted by Boko Haram. The columns show the respective dependent variables used in the models. The variable of interest is the sum of violent attacks beyond the 50 km radius of the HH cluster inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the household cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

**Table 3: IMPACT OF FULANI ATTACKS ON FINANCIAL AND NON-FINANCIAL OUTCOMES**

	Financial Outcomes			Non-Financial Outcomes			
	I	II	III	IV	V	VI	VII
<b>Women</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
No. Fulani attacks weighted	0.009*** (0.003)	−0.000 (0.002)	0.004*** (0.002)	−0.011 (0.012)	−0.000 (0.003)	0.002 (0.004)	−0.017*** (0.005)
Observations	52,494	52,494	52,494	52,494	52,494	27,413	52,494
A. Shorter distance to violent attacks							
No. Fulani attacks weighted (>25km)	0.004 (0.005)	0.002 (0.004)	−0.001 (0.001)	0.020 (0.016)	0.005 (0.005)	0.020*** (0.006)	−0.027*** (0.007)
B. Longer distance to violent attacks							
No. Fulani attacks weighted (>75km)	0.006** (0.003)	0.001 (0.003)	0.002* (0.001)	−0.008 (0.010)	0.005*** (0.002)	0.002 (0.004)	−0.014*** (0.004)
C. Control for weighted attacks (<50km)							
No. Fulani attacks weighted	0.009*** (0.003)	−0.001 (0.002)	0.004*** (0.002)	−0.010 (0.012)	−0.001 (0.003)	0.001 (0.004)	−0.016*** (0.005)
D. Control for weighted Boko Haram attacks							
No. Fulani attacks weighted	0.010*** (0.003)	0.001 (0.002)	0.004*** (0.002)	−0.010 (0.012)	0.001 (0.003)	0.004 (0.004)	−0.019*** (0.005)
E. Residents (more than 5 years)							
No. Fulani attacks weighted	0.009*** (0.004)	0.000 (0.003)	0.003** (0.001)	−0.011 (0.013)	−0.001 (0.003)	0.005 (0.004)	−0.015*** (0.005)
<b>Men</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. Fulani attacks weighted	−0.005** (0.002)	0.003 (0.006)	−0.003 (0.009)	−0.001 (0.006)	0.004 (0.005)	0.008* (0.004)	−0.012* (0.006)
Observations	14,795	14,795	14,795	14,795	14,795	14,795	14,795
A. Shorter distance to violent attacks							
No. Fulani attacks weighted (>25km)	−0.005* (0.003)	−0.007 (0.010)	−0.031** (0.015)	−0.022*** (0.008)	0.001 (0.006)	0.004 (0.005)	−0.024** (0.011)
B. Longer distance to violent attacks							
No. Fulani attacks weighted (>75km)	−0.003** (0.002)	−0.007 (0.005)	−0.022*** (0.008)	−0.007 (0.005)	0.004 (0.004)	0.004 (0.004)	−0.011* (0.006)
C. Control for weighted attacks (<50km)							
No. Fulani attacks weighted	−0.005** (0.002)	0.002 (0.006)	−0.003 (0.009)	−0.001 (0.006)	0.004 (0.005)	0.008* (0.004)	−0.013* (0.006)
D. Control for weighted Fulani attacks							
No. Fulani attacks weighted	−0.004* (0.002)	0.004 (0.006)	−0.002 (0.009)	−0.001 (0.006)	0.005 (0.005)	0.008** (0.004)	−0.012* (0.006)
E. Residents (more than 5 years)							
No. Fulani attacks weighted	−0.005** (0.002)	0.003 (0.006)	−0.003 (0.009)	−0.001 (0.006)	0.004 (0.005)	0.008* (0.004)	−0.012* (0.006)

Notes: – <sup>a</sup> The number of observations is smaller because only a subsample of women are chosen to respond to the domestic violence module. – Results are obtained from linear regression models. The table reports estimates of the effects of the number of violent attacks conducted by the Fulani group. The columns show the respective dependent variables used in the models. The variable of interest is the sum of violent attacks beyond the 50 km radius of the HH cluster inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

**Table 4: IMPACT OF CASUALTIES CAUSED BY BOTH TYPES OF ATTACKS**

	Financial Outcomes			Non-Financial Outcomes			
	I	II	III	IV	V	VI	VII
<b>Women, Boko Haram</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
No. fatalities weighted	0.004 (0.002)	0.006*** (0.001)	0.000 (0.001)	0.020*** (0.006)	0.006*** (0.001)	0.011*** (0.002)	-0.010*** (0.003)
<b>Men, Boko Haram</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. fatalities weighted	0.007*** (0.002)	0.004 (0.003)	0.005 (0.004)	-0.016*** (0.004)	0.005*** (0.002)	0.002 (0.001)	0.003 (0.003)
<b>Women, Fulani</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
No. Fulani fatalities weighted	0.005* (0.003)	-0.000 (0.002)	0.003** (0.001)	-0.006 (0.011)	-0.002 (0.002)	-0.002 (0.004)	-0.008** (0.004)
<b>Men, Fulani</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. Fulani fatalities weighted	-0.003** (0.002)	0.003 (0.005)	0.000 (0.008)	-0.003 (0.006)	-0.002 (0.004)	0.002 (0.003)	-0.016*** (0.005)

Notes: – <sup>a</sup> The number of observations is smaller because only a subsample of women are chosen to respond to the domestic violence module. – Results are obtained from linear regression models. The table reports estimates of the effects of the number of violent attacks conducted by Boko Haram. The columns show the respective dependent variables used in the models. The variable of interest is the sum of violent attacks beyond the 50 km radius of the HH cluster inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the household cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

**Table 5: IMPACTS OF BOTH TYPES OF ATTACKS BY GEOGRAPHIC AREAS**

	Financial Outcomes			Non-Financial Outcomes			
	I	II	III	IV	V	VI	VII
<b>Women, Boko Haram</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
<b>A. Northeast Nigeria</b>							
All states							
No. attacks weighted	−0.006 (0.007)	0.010*** (0.004)	−0.000 (0.001)	0.007 (0.013)	0.007*** (0.002)	0.011** (0.005)	−0.018*** (0.007)
Adamawa and Taraba							
No. attacks weighted	−0.023*** (0.008)	0.011*** (0.003)	−0.001 (0.001)	0.006 (0.018)	0.013*** (0.004)	0.015* (0.008)	−0.029*** (0.006)
<b>B. Both Types of Attacks within 150km</b>							
No. attacks weighted	0.003 (0.003)	0.005** (0.002)	−0.000 (0.001)	0.007 (0.009)	0.005*** (0.001)	0.015*** (0.002)	−0.013*** (0.005)
<b>Men, Boko Haram</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
<b>A. Northeast Nigeria</b>							
All states							
No. attacks weighted	0.008** (0.004)	0.020*** (0.006)	−0.008 (0.007)	0.006 (0.008)	0.001 (0.003)	0.003 (0.002)	−0.009 (0.006)
Adamawa and Taraba							
No. attacks weighted	0.015*** (0.005)	0.025*** (0.008)	−0.016 (0.011)	0.003 (0.010)	−0.002 (0.006)	0.005 (0.005)	0.007 (0.008)
<b>B. Both Types of Attacks within 150km</b>							
No. attacks weighted	0.007*** (0.002)	0.009*** (0.003)	0.012** (0.005)	0.010** (0.004)	−0.000 (0.002)	0.001 (0.002)	0.001 (0.005)
<b>Women, Fulani</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
<b>A. Northeast Nigeria</b>							
All states							
No. Fulani attacks weighted	0.004 (0.013)	−0.002 (0.009)	−0.000 (0.001)	−0.033 (0.034)	−0.000 (0.004)	−0.007 (0.013)	−0.035* (0.020)
Adamawa and Taraba							
No. Fulani attacks weighted	−0.002 (0.017)	−0.018*** (0.007)	0.004* (0.002)	−0.022 (0.044)	−0.012 (0.009)	−0.003 (0.017)	0.056*** (0.016)
<b>B. Both Types of Attacks within 150km</b>							
No. Fulani attacks weighted	0.011*** (0.004)	0.002 (0.002)	0.004*** (0.002)	−0.014 (0.013)	−0.006** (0.003)	−0.010** (0.004)	−0.009* (0.005)
<b>Men, Fulani</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
<b>A. Northeast Nigeria</b>							
All states							
No. Fulani attacks weighted	0.001 (0.009)	−0.016 (0.016)	−0.011 (0.018)	−0.015 (0.020)	0.013* (0.007)	0.001 (0.004)	0.017 (0.018)
Adamawa and Taraba							
No. Fulani attacks weighted	−0.016** (0.008)	−0.038* (0.022)	0.067*** (0.025)	0.014 (0.024)	0.020* (0.011)	0.012* (0.007)	0.003 (0.017)
<b>B. Both Types of Attacks within 150km</b>							
No. Fulani attacks weighted	−0.002 (0.002)	−0.014** (0.007)	0.006 (0.010)	0.025*** (0.006)	−0.002 (0.005)	0.005 (0.004)	−0.010 (0.007)

Notes: – <sup>a</sup> The number of observations is smaller because only a subsample of women are chosen to respond to the domestic violence module. – Results are obtained from linear regression models. The table reports estimates of the effects of the number of violent attacks conducted by Boko Haram. The columns show the respective dependent variables used in the models. The variable of interest is the sum of violent attacks beyond the 50 km radius of the HH cluster inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the household cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .



**Table 6: IMPACT OF BOTH TYPES OF ATTACKS BY RELIGIOUS ORIENTATION**

	I	II	III	IV	V	VI	VII
	Financial Outcomes			Non-Financial Outcomes			
<b>Women, Boko Haram</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim	Beatings justified
No. attacks weighted	0.018*** (0.004)	0.009*** (0.002)	0.001 (0.001)	0.004 (0.011)	0.010*** (0.002)	0.011*** (0.004)	-0.018*** (0.004)
<i>Religion: Ref.: No. attacks x Christian</i>							
No. attacks x Islam	-0.017*** (0.003)	-0.002 (0.002)	-0.001 (0.001)	0.006 (0.008)	-0.004* (0.002)	0.005 (0.004)	0.007** (0.003)
No. attacks x Traditionalist	-0.024 (0.026)	-0.027* (0.015)	-0.006 (0.007)	0.266 (0.241)	-0.019* (0.010)	-0.012 (0.015)	0.004 (0.029)
Observations	52,494	52,494	52,494	52,494	52,494	27,413	52,494
<b>Men, Boko Haram</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. attacks weighted	0.010*** (0.002)	0.006 (0.004)	0.007 (0.005)	-0.012** (0.005)	0.006** (0.003)	0.004* (0.002)	0.003 (0.005)
<i>Religion: Ref.: No. attacks x Christian</i>							
No. attacks x Islam	-0.001 (0.001)	0.001 (0.003)	0.005 (0.004)	0.014*** (0.004)	-0.004* (0.002)	-0.002 (0.002)	-0.005 (0.004)
No. attacks x Traditionalist	0.005 (0.007)	-0.035 (0.049)	-0.061 (0.043)	0.085** (0.039)	0.019 (0.027)	0.021 (0.023)	0.074* (0.042)
Observations	14,795	14,795	14,795	14,795	14,795	14,795	14,795
<b>Women, Fulani</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim	Beatings justified
No. Fulani attacks weighted	0.012*** (0.004)	0.002 (0.002)	0.006*** (0.002)	-0.032*** (0.011)	0.004 (0.003)	0.003 (0.005)	-0.017*** (0.005)
<i>Religion: Ref.: No. attacks x Christian</i>							
No. Fulani attacks x Islam	-0.011** (0.004)	-0.009*** (0.003)	-0.005*** (0.001)	0.082*** (0.014)	-0.018*** (0.003)	-0.007 (0.005)	0.002 (0.005)
No. Fulani attacks x Traditionalist	0.011* (0.007)	-0.014* (0.008)	-0.006 (0.006)	-0.009 (0.064)	-0.012* (0.006)	0.040*** (0.013)	0.005 (0.013)
Observations	52,494	52,494	52,494	52,494	52,494	27,413	52,494
<b>Men, Fulani</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. Fulani attacks weighted	-0.005** (0.002)	0.006 (0.007)	0.000 (0.010)	0.004 (0.006)	0.008 (0.005)	0.011*** (0.004)	-0.010 (0.007)
<i>Religion: Ref.: No. attacks x Christian</i>							
No. Fulani attacks x Islam	0.002 (0.002)	-0.013 (0.008)	-0.013 (0.008)	-0.020** (0.008)	-0.014*** (0.005)	-0.012*** (0.004)	-0.008 (0.005)
No. Fulani attacks x Traditionalist	-0.013 (0.011)	0.082** (0.033)	-0.017 (0.038)	0.046 (0.031)	0.027 (0.020)	0.023 (0.020)	-0.016 (0.034)
Observations	14,795	14,795	14,795	14,795	14,795	14,795	14,795

*Notes: – Results are obtained from a linear regression model. The table shows the results of the interaction term between the weighted number of Boko Haram violent attacks and a categorical variable indicating the religious orientation of the individual. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .*

**Table 7: IMPACT OF BOTH TYPES OF ATTACKS ON LOG. OF IDPs IN CLUSTER**

	Direct association	Spillover effects			
	I	II	III	IV	V
<b>A. Boko Haram Violent Attacks</b>	0-50 km	50-100 km	100-150 km	150-200 km	Inv. dist
No. attacks	9.144*** (1.367)	3.601*** (0.377)	2.720*** (0.255)	2.253*** (0.185)	0.429*** (0.048)
Observations	52,494	52,494	52,494	52,494	52,494
<b>B. Fulani Violent Attacks</b>					
No. Fulani attacks	0.830 (0.756)	-0.140 (0.510)	0.352 (0.359)	-0.601** (0.249)	-0.036 (0.036)
Observations	52,494	52,494	52,494	52,494	52,494

*Notes: – Results are obtained from linear regression models. The dependent variable is the logarithm of the number of IDPs that reside within a 10 km radius of the HH cluster. The table reports estimates on the number of Boko Haram (panel A) and Fulani (panel B) violent attacks at different distance radii from the household cluster. The final column reports the coefficients focusing on the sum of violent attacks beyond the 50 km radius inversely weighted by distance. All regressions include the full set of control variables (including the log. of the population count in the cluster) and fixed effects. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .*

**Table 8: IMPACT OF BOKO HARAM ATTACKS BY PRESENCE OF IDPs IN LGA**

	I	II	III	IV	V	VI	VII
	Financial Outcomes			Non-Financial Outcomes			
<b>A. Women</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim	Beatings justified
<i>LGA with IDPs</i>							
No. attacks weighted	0.001 (0.006)	0.012*** (0.003)	−0.002 (0.001)	−0.002 (0.012)	0.009*** (0.002)	0.017*** (0.004)	−0.013** (0.006)
Observations	12,043	12,043	12,043	12,043	12,043	6,140	12,043
<i>LGA without IDPs</i>							
No. attacks weighted	0.006 (0.006)	−0.003 (0.002)	0.001 (0.002)	0.014 (0.018)	0.004 (0.003)	0.003 (0.003)	−0.017 (0.014)
Observations	40,451	40,451	40,451	40,451	40,451	21,273	40,451
	Financial Outcomes			Non-Financial Outcomes			
<b>B. Men</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
<i>C. LGA with IDPs</i>							
No. attacks weighted	0.011*** (0.004)	0.025*** (0.006)	−0.005 (0.006)	0.008 (0.007)	0.007** (0.003)	0.003 (0.003)	0.001 (0.007)
Observations	3,290	3,290	3,290	3,290	3,290	3,290	3,290
<i>D. LGA without IDPs</i>							
No. attacks weighted	−0.000 (0.002)	0.010 (0.009)	0.041** (0.018)	0.035*** (0.010)	0.002 (0.004)	0.004 (0.004)	0.015 (0.013)
Observations	11,505	11,505	11,505	11,505	11,505	11,505	11,505

Notes: – Results are obtained from linear regression models. The regressions were conducted separately for LGAs with and without IDPs. The columns list the dependent variables used for the models. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

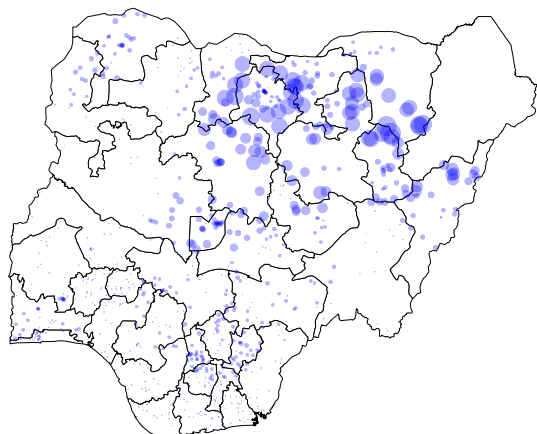
**Table 9: IMPACT OF BOKO HARAM ATTACKS BY ACCESS TO INFORMATION**

	I	II	III	IV	V	VI	VII
	Financial Outcomes			Non-Financial Outcomes			
<b>A. Women</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim	Beatings justified
No. attacks weighted	0.005 (0.003)	0.007*** (0.002)	0.000 (0.001)	0.006 (0.008)	0.007*** (0.001)	0.015*** (0.003)	−0.011*** (0.004)
High TV coverage	−0.014 (0.012)	−0.010 (0.008)	0.007** (0.004)	−0.158*** (0.041)	0.038*** (0.007)	0.004 (0.011)	−0.017 (0.013)
No. attacks x High TV coverage	0.005 (0.004)	0.000 (0.002)	−0.000 (0.001)	0.014 (0.011)	−0.001 (0.002)	−0.005 (0.004)	−0.007** (0.004)
Observations	52,494	52,494	52,494	52,494	52,494	27,413	52,494
	Financial Outcomes			Non-Financial Outcomes			
<b>B. Men</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. attacks weighted	0.007*** (0.002)	0.008*** (0.003)	0.009** (0.005)	−0.000 (0.004)	0.002 (0.002)	0.001 (0.001)	0.000 (0.004)
High TV coverage	0.002 (0.005)	−0.053*** (0.020)	−0.035 (0.022)	−0.037* (0.020)	0.017 (0.011)	0.006 (0.009)	−0.039** (0.018)
No. attacks x High TV coverage	0.008** (0.003)	−0.003 (0.004)	0.006 (0.004)	−0.004 (0.005)	0.003 (0.003)	0.003 (0.002)	−0.003 (0.005)
Observations	14,795	14,795	14,795	14,795	14,795	14,795	14,795

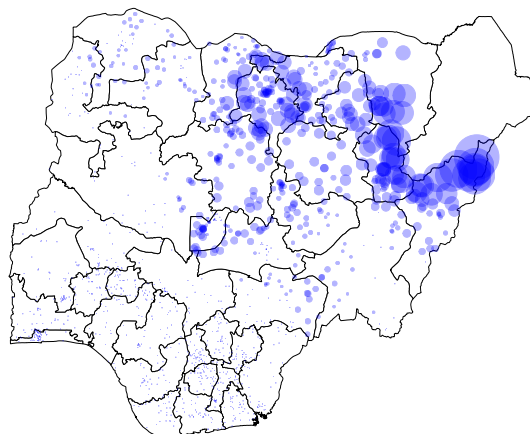
Notes: – Results are obtained from linear regression model. The columns show the dependent variables used in the models. The coefficients refer to the interaction term between violent attacks and a dummy variable indicating if the HH cluster has TV coverage above the median. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

# Appendix

A. 2013



B. 2018



0 ● 100 ● 200 ● 300 ● 400

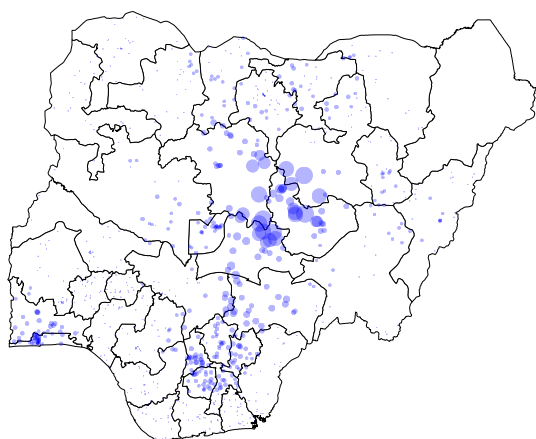
0 ● 100 ● 200 ● 300 ● 400

**Figure A1: DHS HOUSEHOLD CLUSTERS WEIGHTED BY NUMBER OF BOKO  
HARAM DISTANT VIOLENT EVENTS**

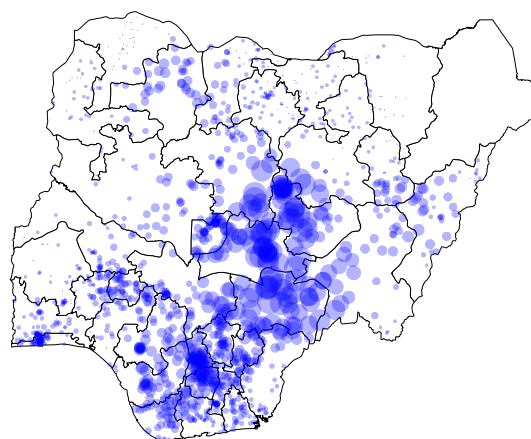
*Source: ACLED and DHS Nigeria.*

*Notes: The map shows the geographic location of DHS household clusters where surveys were conducted during 2013 for panel A, and 2018 for panel B. The size of the bubble represents the number of violent events that occurred within a radius of 100-150 km from the cluster in the past 5 years.*

A. 2013



B. 2018



0 ● 100 ● 200 ● 300 ● 400

0 ● 100 ● 200 ● 300 ● 400

**Figure A2: DHS HOUSEHOLD CLUSTERS WEIGHTED BY NUMBER OF FULANI  
DISTANT VIOLENT EVENTS**

*Source: ACLED and DHS Nigeria.*

*Notes: The map shows the geographic location of DHS household clusters where surveys were conducted during 2013 for panel A, and 2018 for panel B. The size of the bubble represents the number of violent events that occurred within a radius of 100-150 km from the cluster in the past 5 years.*

**Table A1: CHARACTERISTICS OF IDPs AND NON-IDPs**

	IDP Site data	DHS data
Number of individuals	1, 702, 680.00	182, 113.00
<b>Gender and age in %<sup>a</sup></b>		
Boys 0-1	3.09	1.75
Girls 0-1	3.80	1.70
Boys 1-5	8.09	8.84
Girls 1-5	9.93	3.45
Boys 6-17	14.05	15.43
Girls 6-17	17.07	15.02
Men 18-59	16.82	19.99
Women 18-59	21.98	22.74
Men above 60	2.39	3.45
Women above 60	2.79	2.52
<b>Reason for displacement in %</b>		
Communal clashes	3.83	—
Insurgency	96.00	—
Natural disasters	0.17	—
<b>Site in %</b>		
Host community	60.89	—
Camp	39.11	—
<b>Reasons not to return home in %</b>		
Lack of safety	68.68	—
House damaged	17.60	—
Accessibility	7.92	—
Lack of food	3.16	—
No livelihood	2.24	—
Basic infrastructure destroyed	0.36	—
Nothing or missing	0.05	—
<b>Occupation in %<sup>b</sup></b>		
Agriculture, pastoralism, fishing, forestry	48.41	41.27
Construction, transportation, maintenance	26.17	18.22
Sales or trade	25.22	15.33
Services	—	9.56
Other	—	15.62
None	0.20	
<b>Household level in %<sup>b</sup></b>		
Number of households	321, 580.00	39, 309.00
Household size	5.29	4.63
Share of hh with income	42.34	86.57
Access to schools	78.17	70.31
Access to electricity	32.44	59.96

*Notes: – The first column uses IOM DTM data collected in January 2018, aggregated at the site level. The second column uses DHS data for 2018. – <sup>a</sup> Data obtained from the individual roster or household roster. <sup>b</sup> The indicators on income and employment for the DHS data were obtained from the men roster.*

**Table A2: SUMMARY OF OUTCOME VARIABLES**

Variable name	Type	Definition
<b>Financial outcomes</b>		
Employed	Binary	Woman/Man is currently employed.
Asset ownership	Binary	Woman/Man owns a house or land independently.
Decision autonomy (women)	Binary	Woman takes decisions independently with respect to own health care, large household purchases, and family visits.
Decision autonomy (men)	Binary	Men takes decisions independently with respect to own health care and large household purchases.
<b>Non-financial outcomes</b>		
Number of children	Continuous	Number of children.
Modern contraceptive (women)	Binary	Woman uses a modern contraceptive method.
Beating justified	Binary	Woman says a husband is justified to beat his wife for arguing, neglecting children, burning food, going out, or refusing sex.
Experienced violence	Binary	Woman has experienced physical violence by husband/partner in the past 12 months (pushed, slapped, punched).
Neg. contraceptive views	Binary	Man reports negative views on women using contraceptive methods.
Modern contraceptive (men)	Binary	The couple uses a modern contraceptive method.
Condom use	Binary	Man reports using a condom as main contraceptive method.
Justifies beatings	Binary	Man justifies beating his wife for arguing, neglecting children, burning food, going out, or refusing sex.

*Notes: – Definition of outcome variables.*

**Table A3: IMPACT OF BOKO HARAM ATTACKS ON FINANCIAL AND NON-FINANCIAL OUTCOMES BY DISTANCE**

	Direct association	Spillover effects			
	I	II	III	IV	V
	0-50 km	51-100 km	101-150 km	151-200 km	Inv. dist weight (>50km)
<b>A. Women</b>					
Financial Outcomes					
Employed	0.111 (0.125)	0.010 (0.044)	-0.017 (0.027)	0.016 (0.017)	0.006* (0.003)
Asset ownership	0.142*** (0.046)	0.040** (0.019)	0.033*** (0.012)	0.037*** (0.009)	0.007*** (0.002)
Decision autonomy	-0.026 (0.034)	0.012 (0.011)	-0.004 (0.006)	-0.002 (0.003)	0.000 (0.001)
Non-financial Outcomes					
Number of children	-0.944*** (0.348)	0.148 (0.124)	0.037 (0.075)	0.038 (0.044)	0.008 (0.008)
Modern contraceptive	0.176*** (0.063)	0.079*** (0.022)	0.042** (0.016)	0.032*** (0.007)	0.007*** (0.001)
Experienced violence	0.340*** (0.088)	0.178*** (0.032)	0.073*** (0.019)	0.063*** (0.014)	0.014*** (0.002)
Justifies beatings	-0.403*** (0.113)	-0.190*** (0.057)	-0.077** (0.030)	-0.078*** (0.019)	-0.013*** (0.004)
<b>B. Men</b>					
Financial Outcomes					
Employed	-0.048 (0.044)	0.041* (0.022)	0.062*** (0.017)	0.039*** (0.012)	0.009*** (0.002)
Asset ownership	0.133 (0.154)	0.133*** (0.047)	0.081*** (0.030)	0.043** (0.017)	0.007** (0.003)
Decision autonomy	-0.274 (0.217)	0.085 (0.070)	0.032 (0.041)	0.016 (0.022)	0.011** (0.004)
Non-financial Outcomes					
Neg. contraceptive views	0.729*** (0.174)	0.042 (0.061)	-0.065* (0.037)	-0.022 (0.023)	-0.002 (0.004)
Contraceptive use (couple)	0.104 (0.070)	0.037 (0.026)	0.009 (0.017)	0.008 (0.010)	0.003* (0.002)
Condom use	0.092* (0.052)	0.013 (0.021)	0.009 (0.015)	0.012 (0.008)	0.002 (0.001)
Justifies beatings	0.076 (0.164)	0.245*** (0.061)	-0.025 (0.041)	-0.032 (0.021)	-0.001 (0.004)

Notes: – Results are obtained from linear regression models. Outcome variables for men and women are listed on the first column. The table reports estimates of the effects of the number of violent attacks conducted by Boko Haram at different distance radii from the household cluster. The final column reports the coefficients focusing on the sum of violent attacks beyond the 50 km radius inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the household cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

**Table A4: IMPACT OF FULANI ATTACKS ON FINANCIAL AND NON-FINANCIAL OUTCOMES BY DISTANCE**

	Direct association	Spillover effects			
	I	II	III	IV	V
	0-50 km	51-100 km	101-150 km	151-200 km	Inv. dist weight (>50km)
<b>A. Women</b>					
Financial Outcomes					
Employed	0.149** (0.063)	0.097** (0.042)	0.025 (0.028)	0.013 (0.026)	0.009*** (0.003)
Asset ownership	0.025 (0.053)	0.033 (0.032)	-0.052** (0.022)	-0.032* (0.017)	-0.000 (0.002)
Decision autonomy	0.062** (0.029)	0.043** (0.017)	0.011 (0.008)	0.017** (0.008)	0.004*** (0.002)
Non-financial Outcomes					
Number of children	-0.638*** (0.243)	-0.207 (0.140)	0.026 (0.114)	0.209** (0.084)	-0.011 (0.012)
Modern contraceptive (couple)	0.022 (0.051)	0.026 (0.032)	-0.017 (0.021)	0.024 (0.020)	-0.000 (0.003)
Experienced violence	-0.174** (0.081)	0.020 (0.048)	-0.028 (0.026)	0.010 (0.023)	0.002 (0.004)
Justifies beatings	0.135* (0.073)	-0.043 (0.051)	-0.069* (0.036)	-0.193*** (0.031)	-0.017*** (0.005)
<b>B. Men</b>					
Financial Outcomes					
Employed	-0.041 (0.028)	-0.027 (0.023)	-0.038** (0.018)	-0.038*** (0.012)	-0.005** (0.002)
Asset ownership	-0.005 (0.138)	-0.087 (0.083)	-0.031 (0.056)	-0.013 (0.049)	0.003 (0.006)
Decision autonomy	0.591*** (0.186)	-0.132 (0.117)	0.030 (0.059)	-0.137*** (0.047)	-0.003 (0.009)
Non-financial Outcomes					
Neg. contraceptive views	0.580*** (0.102)	-0.027 (0.073)	-0.001 (0.046)	-0.032 (0.042)	-0.001 (0.006)
Modern contraceptive	0.059 (0.098)	0.039 (0.060)	0.022 (0.030)	0.033 (0.024)	0.004 (0.005)
Condom use	0.059 (0.081)	0.057 (0.052)	0.059** (0.026)	0.043** (0.019)	0.008* (0.004)
Justifies beatings	-0.530*** (0.101)	-0.133 (0.096)	-0.278*** (0.046)	-0.054 (0.042)	-0.012* (0.006)

*Notes: – Results are obtained from linear regression models. Outcome variables for men and women are listed on the first column. The table reports estimates of the effects of the number of violent attacks conducted by the Fulani group at different distance radii from the household cluster. The final column reports the coefficients focusing on the sum of violent attacks beyond the 50 km radius inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the household cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .*

**Table A5: RELATIONSHIP BETWEEN INDIVIDUAL CHARACTERISTICS AND DISTANT VIOLENT EVENTS**

	I	II	III	IV	V	VI
	Literate (1/0) <sup>a, b</sup>	Body Height <sup>a, b</sup>	First child alive (1/0) <sup>a, c</sup>	Hepatitis vaccine (1/0) <sup>a</sup>	Language Hausa (1/0)	Male Head (1/0)
<b>A. Boko Haram Violent Attacks</b>						
No. attacks weighted	−0.003 (0.003)	0.404 (0.373)	0.001 (0.001)	−0.000 (0.001)	0.005 (0.006)	−0.001 (0.001)
Observations	37,578	25,128	38,980	16,749	27,043	52,494
<b>B. Fulani Violent Attacks</b>						
No. Fulani attacks weighted	−0.007 (0.005)	0.069 (0.646)	−0.001 (0.002)	0.003 (0.002)	−0.002 (0.008)	0.000 (0.002)
Observations	37,578	25,128	38,980	16,749	27,043	52,494
	Rural	Catholic	No education <sup>b</sup>	No education (husband) <sup>b</sup>	Age	Household size
<b>A. Boko Haram Violent Attacks</b>						
No. attacks weighted	0.007 (0.005)	0.001 (0.004)	0.005 (0.003)	0.002 (0.004)	−0.081*** (0.031)	0.012 (0.012)
Observations	52,494	52,494	37,578	37,578	52,494	37,578
<b>B. Fulani Violent Attacks</b>						
No. Fulani attacks weighted	0.012 (0.008)	−0.003 (0.007)	−0.004 (0.005)	−0.004 (0.004)	0.040 (0.060)	−0.037 (0.024)
Observations	52,494	52,494	37,578	37,578	52,494	37,578

*Notes: – Results are obtained from linear regression models. The reported coefficients correspond to the weighted number of distant Boko Haram attacks. We include the full set of controls for village characteristics (e.g., proximate attacks, distance to main road, population density), and time and local-government-area (LGA) fixed effect. <sup>a</sup>Proxy measures of poverty. <sup>b</sup>The sample was restricted to women above the age of 25 to reduce the concern that the variables may be genuinely affected by distant attacks. <sup>c</sup>We only considered children who were born at least five years before the year of the survey to rule out the variable may be genuinely affected by distant attacks. – – Standard errors in parentheses (clustered at the DHS cluster level). \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .*

**Table A6: IMPACT OF BOKO HARAM ATTACKS ON FINANCIAL AND NON-FINANCIAL OUTCOMES — ADJUSTMENT FOR MULTIPLE HYPOTHESIS TESTING**

	Financial Outcomes			Non-Financial Outcomes			
	I	II	III	IV	V	VI	VII
<b>Women</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
No. attacks weighted	0.006	0.007	0.000	0.008	0.007	0.014	−0.013
p-value	0.080	0.000	0.784	0.327	0.000	0.000	0.003
sharpened FDR-adjusted q-value	0.067	0.001	0.318	0.175	0.001	0.001	0.007
Observations	52,494	52,494	52,494	52,494	52,494	27,413	52,494
<b>Men</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
coefficient	0.009	0.007	0.011	−0.002	0.003	0.002	−0.001
p-value	0.000	0.018	0.018	0.686	0.064	0.120	0.869
sharpened FDR- adjusted q-value	0.001	0.024	0.024	0.297	0.060	0.092	0.331
Observations	14,795	14,795	14,795	14,795	14,795	14,795	14,795

Notes: – <sup>a</sup> The number of observations is smaller because only a subsample of women are chosen to respond to the domestic violence module. – Results are obtained from linear regression models. The table reports estimates of the effects of the number of violent attacks conducted by Boko Haram. The columns show the respective dependent variables used in the models. The variable of interest is the sum of violent attacks beyond the 50 km radius of the HH cluster inversely weighted by distance. All regressions include the full set of control variables and fixed effects. The table provides unadjusted p-values and “sharpened” False Discovery Rate (FDR)-adjusted q-values following the procedure of Benjamini et al. (2006), as outlined by Anderson (2008). These adjust for the fact that we examine the effects on seven outcome variables for both women and men. The results are qualitatively the same when adjusting for multiple hypotheses within each of the domains—i.e., financial and nonfinancial outcomes and in isolation among women and men. Sharpened FDR q-values can be smaller than unadjusted p-values when many hypotheses are rejected.

**Table A7: IMPACT OF BOTH TYPES OF ATTACKS ON LOG. OF IDPs IN CLUSTER (ADAMAWA AND TARABA ONLY)**

	Direct association	Spillover effects			
	I	II	III	IV	V
	0-50 km	50-100 km	100-150 km	150-200 km	Inv. dist
<b>A. Boko Haram Violent Attacks</b>					
No. attacks	5.009*** (1.418)	0.825 (0.873)	0.753* (0.447)	0.233 (0.267)	0.106 (0.087)
Observations	3,349	3,349	3,349	3,349	3,349
<b>B. Fulani Violent Attacks</b>					
No. Fulani attacks	−8.009 (5.831)	−4.752* (2.776)	−1.668 (2.288)	−5.883** (2.346)	−0.650* (0.375)
Observations	3,349	3,349	3,349	3,349	3,349

Notes: – Results are obtained from linear regression models. The dependent variable is the logarithm of the number of IDPs that reside within a 10 km radius of the HH cluster. The table reports estimates on the number of Boko Haram (panel A) and Fulani (panel B) violent attacks at different distance radii from the household cluster. The final column reports the coefficients focusing on the sum of violent attacks beyond the 50 km radius inversely weighted by distance. All regressions include the full set of control variables (including the log. of the population count in the cluster) and fixed effects. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .



**Table A8: DESCRIPTIVE STATISTICS OF HOST HOUSEHOLDS AND IDPs LIVING IN HOST COMMUNITIES**

	All states (excl. Borno)				Borno			
	Host		IDP		Host		IDP	
	I	II	III	IV	V	VI	VII	VIII
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
<i>Household characteristics</i>								
Household size	6.972	3.161	6.815	2.960	5.967	2.159	5.964	2.370
Household head age	43.764	16.097	45.678	14.299	42.396	14.050	41.810	14.067
Household head is Muslim	0.960	0.197	0.859	0.348	0.987	0.114	0.972	0.166
Household head is a woman	0.135	0.342	0.292	0.455	0.499	0.500	0.438	0.496
Household head is married	0.868	0.339	0.895	0.306	0.881	0.324	0.727	0.446
Electricity (access to grid)	0.473	0.499	0.504	0.500	0.803	0.398	0.571	0.495
<i>Education of men (household head or spouses)<sup>b</sup></i>								
No education	0.284	0.451	0.099	0.279	0.244	0.429	0.276	0.446
Primary and intermediate education	0.069	0.253	0.082	0.274	0.013	0.111	0.033	0.177
Secondary education	0.253	0.430	0.211	0.391	0.238	0.425	0.308	0.462
University	0.023	0.151	0.066	0.248	0.167	0.373	0.018	0.134
Technical and vocational	0.043	0.203	0.058	0.233	0.011	0.104	0.007	0.081
Religious education	0.224	0.412	0.390	0.486	0.282	0.450	0.309	0.462
Other	0.099	0.283	0.077	0.266	0.041	0.198	0.045	0.208
<i>Education of women (household head or spouses)</i>								
No education	0.472	0.497	0.367	0.466	0.361	0.478	0.423	0.494
Primary and intermediate education	0.072	0.256	0.092	0.281	0.027	0.161	0.069	0.254
Secondary education	0.180	0.380	0.167	0.359	0.192	0.392	0.237	0.425
University	0.006	0.078	0.054	0.227	0.065	0.247	0.003	0.057
Technical and vocational	0.001	0.027	0.004	0.067	0.004	0.060	0.000	0.018
Religious education	0.252	0.428	0.267	0.418	0.335	0.472	0.254	0.435
Other	0.013	0.114	0.034	0.179	0.016	0.124	0.012	0.110
<i>Gender composition</i>								
Female	0.447	0.194	0.473	0.231	0.592	0.163	0.470	0.202
Male	0.551	0.194	0.527	0.231	0.408	0.163	0.530	0.202
<i>Gender-age composition</i>								
Girls 0-6	0.086	0.141	0.103	0.127	0.125	0.144	0.114	0.148
Boys 0-6	0.109	0.152	0.108	0.143	0.082	0.129	0.131	0.136
Girls 6-14	0.118	0.146	0.109	0.120	0.188	0.138	0.116	0.134
Boys 6-14	0.139	0.159	0.126	0.148	0.128	0.154	0.197	0.191
Women 15-30	0.148	0.134	0.159	0.156	0.178	0.163	0.134	0.150
Men 15-30	0.156	0.176	0.151	0.192	0.070	0.127	0.106	0.164
Women 31-65	0.087	0.099	0.098	0.126	0.079	0.100	0.094	0.109
Men 31-65	0.132	0.107	0.129	0.094	0.123	0.101	0.086	0.112
Women above 65	0.007	0.042	0.003	0.026	0.021	0.085	0.013	0.071
Men above 65	0.014	0.046	0.013	0.043	0.005	0.037	0.010	0.061
<i>School attendance</i>								
Girls in school	0.363	0.385	0.303	0.342	0.482	0.375	0.347	0.394
Boys in school	0.519	0.363	0.520	0.388	0.424	0.420	0.538	0.435
<i>Employment</i>								
Women who are working	0.701	0.436	0.650	0.446	0.287	0.421	0.587	0.482
<i>Main occupation</i>								
Agriculture	0.331	0.383	0.370	0.352	0.057	0.209	0.098	0.256
Manufacturing	0.041	0.156	0.037	0.150	0.062	0.189	0.062	0.224
Services	0.592	0.393	0.543	0.369	0.797	0.357	0.793	0.363
Education	0.036	0.128	0.050	0.151	0.085	0.271	0.047	0.205
<i>Living arrangements</i>								
Host community	.	.	1.000	0.000	.	.	1.000	0.000
Camp	.	.	0.000	0.000	.	.	0.000	0.000
<i>Relationship between IDPs and locals<sup>c</sup></i>								
Very/fairly good	0.851	0.356	0.855	0.352	0.763	0.425	0.946	0.225
Neither/fairly bad/bad	0.149	0.356	0.145	0.352	0.237	0.425	0.054	0.225
Observations	270		128		1,240		746	

<sup>a</sup> This table is calculated with data from the IDP profiling survey. <sup>b</sup> Percentages don't add up to 100 because missing values are not displayed in this table. The same is true for the women results. <sup>c</sup> In this table, we display responses to one of the six social cohesion measures included in the survey — How do you rate your relations with your neighbors and the community? —. The distribution of responses is similar to the other five questions (agree/disagree statements): IDPs and locals of the area have a good relationship; Most people in this community want IDPs to return home; The arrival of IDPs has made it more difficult to find work; The arrival of IDPs has brought insecurity; The arrival of IDPs in this area has made it difficult to access services.

# Supplementary Appendix

(not intended for publication)

**Table A9: IMPACT OF BOKO HARAM VIOLENT ATTACKS ON FINANCIAL OUTCOMES: WOMEN**

	Employed	Asset ownership	Decision autonomy
No. attacks weighted	0.006* (0.003)	0.007*** (0.002)	0.000 (0.001)
No. attacks 0-50 km	0.034 (0.132)	0.040 (0.064)	-0.028 (0.039)
Age	0.010*** (0.000)	0.004*** (0.000)	0.001*** (0.000)
<i>Religion: Ref.: Christian</i>			
Islam	-0.049*** (0.010)	-0.009 (0.007)	0.000 (0.005)
Traditionalist	0.049** (0.022)	-0.011 (0.026)	0.011 (0.015)
<i>Education level Ref.: None</i>			
Primary	0.042*** (0.008)	0.017*** (0.006)	0.006** (0.003)
Secondary	0.041*** (0.008)	0.012** (0.006)	0.004 (0.003)
Tertiary	0.058*** (0.011)	0.024*** (0.009)	-0.016*** (0.006)
<i>Husband's education level: Ref.: None</i>			
Primary	0.044*** (0.010)	0.024*** (0.005)	0.004 (0.003)
Secondary	0.046*** (0.010)	0.004 (0.005)	-0.004 (0.003)
Tertiary	0.015 (0.011)	0.026*** (0.007)	-0.003 (0.004)
<b>Cluster characteristics</b>			
Rural	0.016 (0.010)	0.009 (0.006)	0.001 (0.003)
Population density	0.008 (0.008)	-0.004 (0.005)	0.002 (0.003)
Distance to border	0.014 (0.018)	0.027*** (0.010)	0.002 (0.003)
Proximity to water	-0.021** (0.011)	-0.029** (0.013)	-0.006** (0.003)
Min. distance to road	0.002 (0.003)	0.004* (0.002)	0.001 (0.001)
Constant	0.249 (0.208)	0.008 (0.153)	0.109 (0.069)
HH size dummies	yes	yes	yes
Year FE	yes	yes	yes
LGA FE	yes	yes	yes
Observations	52,494	52,494	52,494
R <sup>2</sup>	0.215	0.113	0.068

*Notes: – Results are obtained from a linear regression model. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .*

**Table A10: IMPACT OF BOKO HARAM VIOLENT ATTACKS ON FINANCIAL OUTCOMES: MEN**

	Employed	Asset ownership	Decision autonomy
No. attacks weighted	0.009*** (0.002)	0.007** (0.003)	0.011** (0.004)
No. attacks 0-50 km	-0.188*** (0.072)	0.028 (0.167)	-0.431* (0.240)
Age	-0.000* (0.000)	0.009*** (0.001)	-0.001 (0.001)
<i>Religion: Ref.: Christian</i>			
Islam	0.000 (0.005)	0.019 (0.018)	0.100*** (0.017)
Traditionalist	-0.012 (0.013)	0.016 (0.043)	0.041 (0.048)
<i>Education level Ref.: None</i>			
Primary	0.020*** (0.006)	-0.001 (0.014)	-0.012 (0.015)
Secondary	0.017*** (0.006)	-0.019 (0.014)	-0.057*** (0.016)
Tertiary	0.005 (0.007)	0.034** (0.016)	-0.142*** (0.016)
Married	-	-	-
<b>Cluster characteristics</b>			
Rural	-0.013** (0.006)	0.077*** (0.017)	0.038** (0.018)
Population density	0.004 (0.003)	0.017 (0.016)	0.003 (0.016)
Distance to border	-0.004 (0.006)	0.008 (0.022)	0.012 (0.021)
Proximity to water	0.001 (0.004)	0.038*** (0.013)	-0.028* (0.016)
Cluster altitude	-0.003 (0.005)	-0.003 (0.012)	0.000 (0.012)
Min. distance to road	-0.001 (0.002)	0.013** (0.005)	0.004 (0.005)
Constant	1.032*** (0.078)	-0.239 (0.293)	0.892*** (0.306)
HH size dummies	yes	yes	yes
Year FE	yes	yes	yes
LGA FE	yes	yes	yes
Observations	14,795	14,795	14,795
R <sup>2</sup>	0.180	0.331	0.263

*Notes: - Results are obtained from a linear regression model. - Standard errors in parentheses (clustered at the DHS cluster level). - \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .*

**Table A11: IMPACT OF BOKO HARAM VIOLENT ATTACKS ON NON-FINANCIAL OUTCOMES: WOMEN**

	Number of children	Contraceptive use	Beating justified	Experienced violence
No. attacks weighted	0.008 (0.008)	0.007*** (0.001)	-0.013*** (0.004)	0.014*** (0.002)
No. attacks 0-50 km	-1.050*** (0.383)	0.081 (0.062)	-0.232 (0.151)	0.165** (0.076)
Age	0.200*** (0.002)	0.000** (0.000)	-0.001*** (0.000)	-0.000 (0.000)
<i>Religion: Ref.: Christian</i>				
Islam	0.304*** (0.033)	-0.047*** (0.010)	0.043*** (0.010)	-0.064*** (0.010)
Traditionalist	0.322** (0.137)	-0.031 (0.019)	0.104*** (0.031)	0.061* (0.035)
<i>Education level Ref.: None</i>				
Primary	0.005 (0.033)	0.045*** (0.005)	0.001 (0.008)	0.020** (0.010)
Secondary	-0.381*** (0.037)	0.060*** (0.006)	-0.026*** (0.008)	-0.005 (0.010)
Tertiary	-1.106*** (0.046)	0.067*** (0.011)	-0.084*** (0.011)	-0.073*** (0.013)
<i>Husband's education level: Ref.: None</i>				
Primary	-0.027 (0.033)	0.016*** (0.005)	0.029*** (0.010)	0.029*** (0.008)
Secondary	-0.049 (0.032)	0.031*** (0.005)	0.004 (0.009)	0.002 (0.009)
Tertiary	-0.228*** (0.039)	0.049*** (0.008)	-0.017* (0.010)	-0.031*** (0.010)
<b>Cluster characteristics</b>				
Rural	0.079** (0.039)	-0.021*** (0.007)	0.029** (0.012)	0.002 (0.009)
Population density	0.007 (0.034)	0.002 (0.009)	0.001 (0.009)	-0.006 (0.010)
Distance to border	0.019 (0.040)	-0.004 (0.005)	0.008 (0.022)	-0.003 (0.009)
Proximity to water	0.021 (0.025)	-0.006 (0.006)	0.003 (0.008)	0.006 (0.007)
Min. distance to road	0.023** (0.011)	-0.002 (0.002)	0.006 (0.005)	0.002 (0.003)
Constant	-4.290*** (0.549)	0.077 (0.103)	0.254 (0.207)	0.011 (0.140)
HH size dummies	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
LGA FE	yes	yes	yes	yes
Observations	52,494	52,494	52,494	27,413
R <sup>2</sup>	0.637	0.137	0.311	0.156

*Notes: – Results are obtained from a linear regression model. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .*

**Table A12: IMPACT OF BOKO HARAM VIOLENT ATTACKS ON NON-FINANCIAL OUTCOMES: MEN**

	Justifies beatings	Neg. contra. views	Modern contraceptive	Condom use
No. attacks weighted	-0.001 (0.004)	-0.002 (0.004)	0.003* (0.002)	0.002 (0.001)
No. attacks 0-50 km	0.086 (0.189)	0.755*** (0.193)	0.056 (0.069)	0.057 (0.050)
Age	-0.002*** (0.000)	-0.001* (0.001)	-0.001*** (0.000)	-0.002*** (0.000)
<i>Religion: Ref.: Christian</i>				
Islam	-0.037** (0.016)	0.059*** (0.016)	-0.039*** (0.013)	-0.021** (0.010)
Traditionalist	0.145*** (0.043)	-0.015 (0.037)	-0.036 (0.022)	-0.017 (0.020)
<i>Education level Ref.: None</i>				
Primary	0.026* (0.015)	-0.020 (0.016)	0.015* (0.008)	0.002 (0.006)
Secondary	-0.002 (0.015)	-0.055*** (0.016)	0.052*** (0.008)	0.026*** (0.006)
Tertiary	-0.083*** (0.014)	-0.117*** (0.017)	0.082*** (0.012)	0.026*** (0.009)
Married	-	-	-	-
<b>Cluster characteristics</b>				
Rural	0.023* (0.013)	-0.006 (0.019)	-0.029*** (0.009)	-0.013* (0.007)
Population density	-0.029*** (0.011)	-0.013 (0.014)	-0.002 (0.009)	-0.006 (0.008)
Distance to border	0.007 (0.017)	-0.004 (0.024)	0.004 (0.012)	0.007 (0.009)
Proximity to water	0.022** (0.011)	-0.012 (0.018)	-0.005 (0.012)	-0.011 (0.011)
Cluster altitude	-0.018 (0.012)	0.026** (0.011)	0.003 (0.007)	0.014*** (0.005)
Min. distance to road	0.012** (0.005)	0.005 (0.005)	-0.003 (0.003)	-0.001 (0.002)
Constant	0.178 (0.203)	0.333 (0.289)	0.288 (0.208)	0.291* (0.167)
HH size dummies	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
LGA FE	yes	yes	yes	yes
Observations	14,795	14,795	14,795	14,795
R <sup>2</sup>	0.166	0.220	0.142	0.118

*Notes:* – Results are obtained from a linear regression model. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

**Table A13: IMPACT OF BOTH TYPES OF ATTACKS ON WOMEN’S MARITAL STATUS**

	Direct association	Spillover effects			
	0-50 km	50-100 km	100-150 km	150-200 km	Inv. dist
<b>A. Boko Haram Violent Attacks</b>					
No. attacks weighted	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Observations	54,919	54,919	54,919	54,919	54,919
<b>B. Fulani Violent Attacks</b>					
No. Fulani attacks weighted	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Observations	54,919	54,919	54,919	54,919	54,919

*Notes:* – Results are obtained from linear regression models. The dependent variable is the marital status of women in our sample (**0=unmarried, 1=married/widowed/divorced**). The table reports estimates on the number of Boko Haram (panel A) and Fulani (panel B) violent attacks at different distance radii from the household cluster. The final column reports the coefficients focusing on the sum of violent attacks beyond the 50 km radius inversely weighted by distance. All regressions include the full set of control variables (including the log. of the population count in the cluster) and fixed effects. – Standard errors in parentheses (clustered at the DHS cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

**Table A14: IMPACTS OF BOTH TYPES OF ATTACKS (WITHOUT AGE AS CONTROL)**

	Financial Outcomes			Non-Financial Outcomes			
	I	II	III	IV	V	VI	VII
<b>Women, Boko Haram</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
No. attacks weighted	0.004 (0.003)	0.007*** (0.002)	−0.000 (0.001)	−0.016 (0.011)	0.007*** (0.001)	0.014*** (0.002)	−0.012*** (0.004)
Observations	52,494	52,494	52,494	52,494	52,494	27,413	52,494
<b>Men, Boko Haram</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. attacks weighted	0.009*** (0.002)	0.007** (0.003)	0.011** (0.004)	−0.002 (0.004)	0.003* (0.002)	0.002 (0.001)	−0.001 (0.004)
Observations	14,795	14,795	14,795	14,795	14,795	14,795	14,795
<b>Women, Fulani</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
No. Fulani attacks weighted	0.010*** (0.003)	−0.000 (0.002)	0.004*** (0.002)	0.017 (0.015)	−0.001 (0.003)	0.001 (0.004)	−0.016*** (0.005)
Observations	52,494	52,494	52,494	52,494	52,494	27,413	52,494
<b>Men, Fulani</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use (couple)	Condom use	Justifies beating
No. Fulani attacks weighted	−0.005** (0.002)	0.002 (0.006)	−0.002 (0.009)	−0.003 (0.006)	0.004 (0.005)	0.008* (0.004)	−0.012* (0.006)
Observations	14,795	14,795	14,795	14,795	14,795	14,795	14,795

Notes: – <sup>a</sup> The number of observations is smaller because only a subsample of women are chosen to respond to the domestic violence module. – Results are obtained from linear regression models. The table reports estimates of the effects of the number of violent attacks conducted by Boko Haram. The columns show the respective dependent variables used in the models. The variable of interest is the sum of violent attacks beyond the 50 km radius of the HH cluster inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the household cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

**Table A15: IMPACT OF BOTH TYPES OF ATTACKS IN BAUCHI, GOMBE, AND YOBE**

	Financial Outcomes			Non-Financial Outcomes			
	I	II	III	IV	V	VI	VII
<b>Men</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use	Condom use	Justifies beating
<b>Women, Boko Haram Bauchi, Gombe, and Yobe (Boko Haram only)</b>							
No. attacks weighted	0.010 (0.009)	0.007 (0.005)	0.000 (0.000)	0.004 (0.019)	0.006** (0.003)	0.013* (0.007)	−0.012 (0.009)
<b>Men, Boko Haram Bauchi, Gombe, and Yobe (Boko Haram only)</b>							
No. attacks weighted	−0.004 (0.005)	0.019** (0.009)	−0.013 (0.009)	0.016 (0.010)	−0.001 (0.003)	−0.000 (0.002)	−0.013 (0.009)
<b>Women, Fulani Only Boko Haram</b>							
No. Fulani attacks weighted	−0.017 (0.023)	0.003 (0.017)	−0.002 (0.002)	−0.077 (0.059)	0.017** (0.007)	0.037* (0.021)	−0.122*** (0.030)
<b>Men, Fulani Only Boko Haram</b>							
No. Fulani attacks weighted	0.027 (0.016)	0.021 (0.028)	−0.087** (0.036)	0.059* (0.034)	0.010 (0.011)	−0.003 (0.005)	0.011 (0.033)

Notes: – <sup>a</sup> The number of observations is smaller because only a subsample of women are chosen to respond to the domestic violence module. – Results are obtained from linear regression models. The table reports estimates of the effects of the number of violent attacks conducted by Boko Haram. The columns show the respective dependent variables used in the models. The variable of interest is the sum of violent attacks beyond the 50 km radius of the HH cluster inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the household cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

**Table A16: IMPACT OF BOKO HARAM ATTACKS ON FINANCIAL AND NON-FINANCIAL OUTCOMES AMONG PEOPLE RESIDING IN COMMUNITY FOR LESS THAN 5 YEARS**

	Financial Outcomes			Non-Financial Outcomes			
	I	II	III	IV	V	VI	VII
<b>A. Women</b>	Employed	Asset ownership	Decision autonomy	Number of children	Contraceptive use	Violence victim <sup>a</sup>	Beatings justified
No. attacks weighted	-0.008 (0.013)	0.001 (0.005)	-0.000 (0.001)	-0.040 (0.040)	-0.006 (0.007)	0.015 (0.020)	0.000 (0.012)
Observations	4,253	4,253	4,253	4,253	4,253	1,475	4,253
<b>B. Men</b>	Employed	Asset ownership	Decision autonomy	Neg. views contraceptive	Contraceptive use	Condom use	Justifies beating
No. attacks weighted	-0.014 (0.017)	-0.097 (0.108)	-0.009 (0.103)	-0.226** (0.113)	-0.043 (0.076)	0.006 (0.057)	-0.275*** (0.097)
Observations	698	698	698	698	698	698	698

Notes: – <sup>a</sup> The number of observations is smaller because only a subsample of women are chosen to respond to the domestic violence module. – Results are obtained from linear regression models. The table reports estimates of the effects of the number of violent attacks conducted by Boko Haram. The columns show the respective dependent variables used in the models. The variable of interest is the sum of violent attacks beyond the 50 km radius of the HH cluster inversely weighted by distance. All regressions include the full set of control variables and fixed effects. – Standard errors in parentheses (clustered at the household cluster level). – \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .