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You're not welcome! Violence and support for an open grazing ban policy in Kaduna, Nigeria

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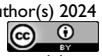
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Abstract

This study examines the effect of victimization and religious affiliation on support for a policy banning the open grazing of livestock in the northern Nigerian state of Kaduna. This policy, which aims to reduce the incidence of conflicts between nomadic herders and sedentary farmers, has been implemented to varying degrees in some states across Nigeria. Kaduna is a suitable case study for investigating these relationships because, despite having the third-highest incidence of farmer–herder conflicts out of Nigeria's 36 states, the state government has not implemented an open grazing ban policy there. The regression results show that victimization by herders increases the likelihood of supporting the policy. On average, Muslims are more supportive of the policy than Christians. The higher support among Muslims is quite surprising because most of the respondents who have been victimized by herders are Christians. Muslims might be more supportive of an open grazing ban policy due to a contagion effect: the common religion of Islam that they share with nomadic herders could lead to the attribution of blame for farmer–herder conflicts to Muslims, making them more eager to see an end to the conflict. This eagerness might be what leads to increased support for an open grazing ban policy.

Keywords

religion, ethnicity, violence, open grazing ban, policy, farmer–herder conflicts, pastoral conflicts, Kaduna, Nigeria

JEL Codes: D74, N57, Z12

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1. Introduction

Violent clashes between nomadic herders and sedentary farmers over land and water resources have exacerbated ethnic and religious polarization in Nigeria (Ejiofor, 2023; Griswold, 2018; Onwuzuruigbo, 2023; Tuki, 2024c). Even before these conflicts turned violent around 2009, Nigeria was already ethnically and religiously divided (Coleman, 1958, p. 351; Laitin, 1982; Obilom & Thacher, 2008; Ukiwo, 2003). Although these conflicts are spread across Nigeria's 36 states, they are concentrated in the country's Middlebelt Region (especially in the southern part of Kaduna State and the states of Benue and Plateau), where the resident population is predominantly Christian.[1] The conflict is often viewed through a religious lens because nomadic herders belong to the Fulani ethnic group and are Muslims (Christian Association of Nigeria, 2018; Parsons, 2023). Moreover, religious affiliation in Nigeria has been found to shape how individuals experience farmer–herder conflicts and the interpretations they ascribe to these experiences (Higazi, 2016; Schaub, 2014; Tuki, 2024c).

To address farmer–herder conflicts, the Nigerian federal government proposed a Grazing Reserve Bill in 2016, which sought to establish grazing reserves in all of Nigeria's 36 states; in these reserves, nomadic Fulani herders would reside with their livestock. The bill, which was eventually abandoned, was vehemently opposed by the state governors in the Middlebelt and Southern Regions. Similar policies—like the establishment of cattle colonies, Rural Grazing Areas (RUGA), and the National Livestock Transformation Plan—have also been met with stiff resistance in these Regions (Babajide, 2023; Ejiofor, 2023; Ele, 2020; Nnodim & Alagbe, 2021; Olumba, 2022). These proposals, though well intentioned, have failed because they are perceived as land-grabbing attempts by the Nigerian government in favor of the Fulani and as a move toward ethnic domination and the Islamization of Nigeria (Chukwuma, 2020; Ejiofor, 2022, 2023; Ele, 2020; Nwankwo, 2016, 2024a; Onwuzuruigbo, 2023; Tauna, 2019). The skepticism toward these policies was exacerbated by the fact that the Nigerian President at that time, Muhammadu Buhari, was a Muslim and belonged to the Fulani ethnic group.[2] In fact, Onwuzuruigbo (2023, p. 15) asserted that "Fulani pastoralists are tacitly supported by the Fulani-dominated federal government."Ejiofor (2023, p. 13) has highlighted the close association between land and ethnic identity in Nigeria: "Ethnic groups in Nigeria prefer to engage in unending conflicts than lose ancestral lands tied to their ethnic and cultural identities."

In response to these "bad" policies, some state governors in the Middlebelt and Southern Regions passed legislation banning the open grazing of livestock. The state of Benue, which has the second highest incidence of farmer–herder conflicts, was the first to pass such a law in 2017 (Godwin, 2017; Kwaja & Ademola-Adelehen, 2017).[3] The law criminalizes the free movement of livestock, mandates the adoption of ranching methods, and imposes penalties for infractions (Balarabe, 2021). Different requirements apply to indigenous peoples and non-indigenous peoples for the establishment of a ranch in Benue. To lease land for ranching purposes, non-indigenous peoples must gain approval from the landowner, the landowner's family and kindred head, community leaders, the chairman of the local government area (LGA) (i.e., municipality) where the land is located, and the state governor. Only when these authorities grant approval can a non-indigenous person set up a ranch. The lease, which cannot exceed 1 year, is subject to renewal. These requirements do not apply to the indigenous peoples of Benue state (Balarabe, 2021; Kwaja & Ademola-Adelehen, 2017; Onwuzuruigbo, 2023). Commenting on the discriminatory nature of the open grazing ban legislation, Onwuzuruigbo (2023, p. 365) observed: "It would appear that the hidden

intention of the Benue State anti-grazing law is to remind the Fulani of their status as non-indigenes."

Given that the law only applies to nomadic Fulani herders, coupled with the fact that they already constitute a minority in Nigeria's Middlebelt and the Southern regions, they perceive the law as discriminatory and as a violation of their right to free movement within Nigeria. This right is enshrined in Nigeria's 1999 constitution. Balarabe (2021) faulted the open grazing ban policy because it portrayed nomadic herding merely as an occupation and completely ignored the fact that the centuries-long practice is an integral part of Fulani culture and identity. Conversely, the Benue state government contends that the open grazing ban policy only restricts the movement of livestock, not people (Abah, 2017). The government also argues that the open grazing ban policy is a necessary intervention to reduce farmer–herder conflicts, protect the lives and property of the population, and encourage the adoption of modern ranching methods among herders (Mac-Leva & Emmanuel, 2020; Odunsi, 2021; Silas, 2017, 2021; Ugwu, 2022). Besides the State of Benue, some other states in Southern Nigeria like Ondo, Oyo, Delta, and Anambra among others have also passed open grazing ban legislations; although enforcement appears to be a challenge (Adedipe et al., 2022; Adegun, 2021; Olafusi, 2021).

But what are the attitudes of ordinary Nigerians toward an open grazing ban policy? Do religious patterns underlie these attitudes? How does the concrete experience of violence (i.e., victimization) influence support for an open grazing ban policy? Relying on novel survey data collected from the northern Nigerian state of Kaduna as part of the Transnational Perspectives on Migration and Integration (TRANSMIT) research project, as well as the theory of intergroup relations, this study seeks to answer these questions.[4] Kaduna is a suitable case study for investigating these relationships because, despite having the third-highest incidence of farmer–herder conflicts out of Nigeria's 36 states, such a law has not been passed there by the state government. Furthermore, mirroring Nigeria, Kaduna's population is almost evenly split between Christians and Muslims, with the latter group being slightly more numerous. The predominantly Muslim northern part of Kaduna was under emirate rule during the precolonial period (i.e., the Zaria Emirate). Conversely, the Southern part of Kaduna which has a predominantly Christian population, though subject to slave raids, was an indigenous territory that was never captured by Muslim jihadists. Kaduna has a history of religiously motivated conflicts between Christians and Muslims (Angerbrandt, 2011, 2018; Scacco & Warren, 2021).

Although some studies have examined the effect of the open grazing ban legislation on farmer–herder conflicts in Nigeria, they mostly employ qualitative methods and rely on secondary information (e.g., Balarabe, 2021; Ejiofor, 2022, 2023; Nwankwo, 2024a, 2024b; Onwuzuruigbo, 2023; Vanger & Nwosu, 2020). The originality of this study lies in the novel large-N survey data employed in the analysis, the quantification of support for an open grazing ban policy, and the use of econometric techniques. Moreover, unlike previous quantitative studies on conflict in Nigeria that use data from the Armed Conflict Location and Events Database (ACLED) (Raleigh et al., 2010) to construct a measure of conflict exposure (e.g., George et al., 2022; Odozi & Oyelere, 2019; Tuki, 2023b), this study focuses primarily on the concrete experience of violence (i.e., victimization) by the respondents and their family members. I only use the conflict exposure variable derived from ACLED as a control variable. Besides examining the heterogeneous effects of victimization on support for an open grazing ban policy among members of Nigeria's two major religious groups (i.e., Christians and Muslims), I also examine how support for an open grazing ban policy varies

among respondents depending on who the perpetrator of violence is (e.g., herders, robbers/bandits, and religious extremists).

This study finds that general victimization—that is, irrespective of the perpetrator—has no effect on support for an open grazing ban policy in Kaduna. The null effect persists even when I disaggregate the data based on religious affiliation and estimate models using the Christian and Muslim subsamples of respondents. This might be because an open grazing ban policy is related to a specific kind of violence—that is, that involving nomadic herders. However, when I focus specifically on victimization by herders, I find that it has a robust positive effect on support for an open grazing ban policy. The regression results also show that Muslim affiliation is positively correlated with support for an open grazing ban policy. This suggests that, on average (i.e., irrespective of victimization status), Muslims are more supportive of an open grazing ban policy than Christians. This might be due to a contagion effect: Blame for farmer–herder conflicts might be partly attributed to the larger Muslim population due to their shared religion of Islam with nomadic herders. The conflation of both groups might pressure Muslims to dissociate themselves from nomadic herders and make them more eager to see an end to farmer–herder conflicts. This eagerness might be what translates into increased support for an open grazing ban policy.

The rest of this study is organized as follows: Section 2 discusses some theoretical considerations and states the hypotheses. Section 3 describes the sampling strategy, operationalizes the variables used to estimate the regression model, and specifies the model's general form. Section 4 presents and discusses the regression results, while Section 5 summarizes the paper and concludes.

2. Theoretical considerations

2.1. Violence and support for an open grazing ban policy

There is a robust literature showing that violent conflicts negatively impact human well-being. In a study conducted in Ghana, Otu et al. (2024) found that farmer–herder conflicts caused a decline in farmers' agricultural output and a reduction in pastoralists' herd sizes. Analyzing survey data from war-torn Tigray in Ethiopia, Weldegiargis et al. (2023) found that three-fourths of households were food insecure; they had resorted to eating smaller meal portions, had eaten food they did not want to eat, and, in some instances, had gone without food. They pointed out that the armed conflict had caused food insecurity by destroying food systems, disrupting access to markets, increasing food prices, and reducing farming populations. Béné et al. (2024) conducted a study in Burkina Faso, finding that armed conflict had led to a contraction in local food traders' activities by about 50% and negatively impacted the local food system. Some studies have focused specifically on the Nigerian case: Using the General Household Survey (GHS) data for Nigeria, Odozi and Oyelere (2021) found that exposure to violent conflicts led to a decline in the number of hours that households devote to agriculture. The negative effect was particularly strong among household heads. They pointed out that this could lead to a reduction in agricultural output and income, especially when these hours were not diverted to non-farm productive activities. Likewise, George et al. (2020) utilized the GHS survey data to show that exposure to violent attacks perpetrated by the radical Islamist group *Boko Haram* prompted households to depend on less preferred foods, limit the variety of foods eaten, and reduce the portion size of meals consumed. Nnaji et al. (2022) conducted a study among rural households in Nigeria

and found that both the incidence and intensity of farmer–herder conflicts increased the risk of food insecurity.

Violent conflicts have also been found to cause psychological distress. For instance, Thabet et al. (2013) conducted a study among 374 Palestinian adults aged 22–64 years who had been exposed to war trauma. Death anxiety was pronounced among the respondents, and 66% of them had been diagnosed with PTSD. War exposure has also been found to cause PTSD among Palestinian children and adolescents residing in the Gaza Strip (El-Khodary & Samara, 2018; Manzanero et al., 2021; Thabet et al., 2011) and among nursing staff working there (Shamia et al., 2015). In a study conducted in the war-affected districts of Northern Ethiopia, Tadese et al. (2022) found that 75% of the population reported experiencing stress. Some studies have focused specifically on the Nigerian case. Analyzing survey data collected from northeastern Nigeria, Ajefu and Sonne (2022) found a positive correlation between exposure to *Boko Haram* attacks and depressive symptoms among household heads. Their regression model also showed that food insecurity, unemployment, illness, and injury were pathways through which violence led to depression. Tuki (2024b) conducted a study in the northern Nigerian state of Kaduna and found that exposure to violent conflicts increased individuals' likelihood of having a negative economic outlook. He observed that this was due to the disruption of socioeconomic activities and the psychological distress caused by conflict, both of which can reduce people's optimism about the future.

In a state like Kaduna, where most households rely on crop agriculture for their sustenance (Kaduna State Bureau of Statistics, 2016), individuals who have been victimized by herders might be more eager to see some concrete policy action from the government geared toward resolving farmer–herder conflicts. Such policies could include an open grazing ban. The discussion so far leads to the first hypothesis that this study seeks to test:

H1: *Among the population in Kaduna, individuals who have been victimized by herders are more likely than those who have not been victimized to support an open grazing ban policy.*

2.2. Religion and support for an open grazing ban policy

According to DiDonato et al. (2011, p. 66), ingroup favoritism is "the perception of ingroups as having more desirable attributes than outgroups." Ingroup members usually have similar characteristics, which may be phenotypical (e.g., race) or cultural (e.g., language and religion). Recognizing the difficulty in defining an ingroup, Allport (1954, p. 31) observed: "Perhaps the best that can be done is to say that members of an in-group all use the term *we* with the same essential significance." He also noted that even though the existence of an ingroup logically implied the existence of an outgroup, ingroup membership did not necessarily imply hostility or negative attitudes toward outgroup members. Brewer (1999, p. 30) concurred with Allport: "Indeed, ingroup love can be compatible with a range of attitudes toward corresponding outgroups, including mild positivity, indifference, disdain, or hatred." However, she also pointed out that ingroup favoritism could serve as a platform for outgroup hate, especially when one group perceives the other as a threat: "Whether actual or imagined, the perception that an outgroup constitutes a threat to ingroup interests or survival creates a circumstance in which identification and interdependence with the ingroup is directly associated with fear and hostility toward the threatening outgroup and vice versa" (Brewer, 1999, pp. 435–436).

Some studies have shown that people are generally inclined to treat members of their religious group preferentially. For example, in an experimental study conducted among undergraduate Jewish–Israeli students, Halabi et al. (2015, p. 104) found that "participants attributed less blame and recommended less severe punishment for an ingroup [a Jew] than an outgroup member [an Arab] for the same event." In another experimental study conducted in the United States, Hawkins and Nosek (2012) found that Christian participants contributed more money to religious charities than to non-religious ones. Analyzing data from the 2018 American General Social Survey, Speed and Brewster (2021) found that Christians exhibited a high level of ingroup favoritism and showed dislike for atheists. By contrast, atheists gave Christians similar favorability ratings as they rated their fellow atheist ingroup members. Galen et al. (2011) conducted a study in which they found that individuals who were high in religious fundamentalism rated religious individuals more favorably than those who were non-religious, leading them to conclude that, "Those who are high on religious fundamentalism prefer to affiliate with the target more when he is religious, whereas those low on fundamentalism do not show a religious social preference" (Galen et al., 2011, p. 2137). Evidence of favoritism toward religious ingroup members has also been found among Baptists, Catholics, Methodists, and Jews in the United States (Dunkel & Dutton, 2016), among Protestants in Ireland (Cairns et al., 2006), and among Muslims in China (Xia et al., 2021).

In the state of Kaduna, ingroup favoritism is particularly salient in the political domain, as individuals tend to vote based on their ethnoreligious affiliation and not on the capability of political candidates (Human Rights Watch, 2011; Ostien, 2012). This could be tied to Brewer's observation that "When groups are political entities, however, these processes [i.e., intergroup conflicts] may be exacerbated through deliberate manipulation by group leaders in the interests of mobilizing collective action to secure or maintain political power" (Brewer, 1999, p. 437). For instance, in 2023, a video of Kaduna's former governor, Nasir El-Rufai, emerged. In the video, he openly admitted that he had given preferential treatment to districts with mainly Muslim populations in the allocation of resources because they had voted for him during the elections, unlike the districts with predominantly Christian populations. Besides mentioning that religion was an important factor for him when making employment decisions, he boasted that he had ensured that only Muslims occupied key positions in his government, such as the deputy governor, minister of finance, secretary to the state government, and chief of staff. His remarks sparked outrage among Christians in the state, and reignited concerns about Muslim dominance in the political sphere (ACN International, 2023; Sahara TV, 2023; Shiklam, 2023).

Given this background, the Muslim population and nomadic Fulani herders are widely perceived as members of the same ingroup due to their shared religion of Islam. Nigerian herders have generally been critical of an open grazing ban policy, referring to it as discriminatory (Balarabe, 2021; Okon, 2021; Oyewale, 2020). The predominance of Muslims in Kaduna State politics may partly explain why the government has not proposed an open grazing ban policy, despite the high incidence of farmer–herder conflicts in the state. If cultural similarity does indeed lead to ingroup favoritism, then Muslims might, in solidarity with nomadic herders, oppose the implementation of an open grazing ban policy. Another reason why Muslims might be less supportive of an open grazing ban policy (or why Christians might be more supportive of the policy than Muslims) is that the conflicts are concentrated in Southern Kaduna, where the population is predominantly Christian (see Figures 2 and 3). This is congruent with the argument advanced by Tuki (2023a) that

farmer–herder conflicts are more likely to occur in municipalities with predominantly Christian populations than in those where Muslims are predominant. He pointed out that this was because the common religion of Islam, which is shared by the nomadic herders and the Muslim sedentary population made it easier for both parties to peacefully resolve disputes over land and water resources. For instance, they could appeal to a religious authority that they both respected—for example, an imam. By contrast, disputes over resources between nomadic herders and the Christian sedentary population were likely to turn violent due to the religious differences between the two parties. The concentration of conflicts in Christian territory might make Christians more eager to see some concrete policy action from the government geared towards ending farmer–herder conflicts, leading to increased support for an open grazing ban policy. This leads to the second hypothesis that this study seeks to test:

H2a: *Muslims are less supportive of an open grazing ban policy than Christians.*

However, the reverse is also possible—that is, Muslims may be more supportive of an open grazing ban policy than Christians. There is a body of literature highlighting the tendency among ingroup members to attribute the objectionable qualities of a few deviant outgroup members to the entire outgroup. This could be tied to the concept of scapegoating, which Stephan (1983, p. 42) defined as "a process by which other individuals or groups are held to be the cause of one's own problems." According to Allport (1943, p. 11), scapegoating is "a phenomenon wherein some of the aggressive energies of a person or group are focused upon another individual, group, or object; the amount of aggression and blame being either partly or wholly unwarranted." He noted that scapegoating emanates from "the exaggerated expression of common prejudices, occurring in times of abnormal social tension and personal frustration" (Allport, 1943, pp. 6–7). A point worth emphasizing is that scapegoating is likely to occur in times of war and conflict, when fears, anxieties, guilt, and deprivation are prevalent (Allport, 1943, pp. 15–17).

Several studies have provided empirical support for scapegoating. Baysu and Duman (2016, p. 46) conducted a study among Turks and Kurds in Turkey and Belgium, in which they found that "Ingroup identity predicts placing more responsibility on outgroups, which is then used to legitimize negative intergroup attitudes." Moreover, their results showed that blame attribution to outgroup members reduced the likelihood of intergroup forgiveness. They also found that a superordinate identity reduces both ingroup favoritism and outgroup blame, and increases intergroup forgiveness. In an experimental study conducted among ethnic Slovaks, Bauer et al. (2023, p. 1628) found that "when wrongdoers harm the victim, the destructive behavior towards the scapegoat doubles when the scapegoat is from the Roma minority than when the scapegoat is from the majority group."

Nwankwo (2024a) carried out a qualitative study in Nigeria's Benue valley which revealed that Christian farmers often integrate the land-grab discourse around farmer–herder conflicts with the Islamization discourse emanating from past religious crises. As a result, Christian farmers interpret farmer–herder conflicts as attempts by Muslims to assert control over lands owned by Christians, and to convert the local Christian communities to Islam. Likewise, Tuki (2024c) conducted a study in Nigeria and found that exposure to violent conflicts makes Christians unwilling to have Muslims as neighbors. Among Muslims, however,

exposure to violent conflicts had no effect on their willingness to have Christians as neighbors. He argued that this was because the major conflicts that have ravaged Nigeria during the past decade have involved the radical Islamist group *Boko Haram* and Muslim nomadic Fulani herders. The common religion of Islam shared by these groups and the Muslim population, makes it difficult for Muslims to establish ingroup-outgroup distinctions. Among Christians, however, ingroup-outgroup distinctions can easily be established because of the religious difference between the conflict actors. He conducted another study in the northern Nigerian State of Kaduna, where he found that exposure to conflicts involving nomadic Fulani herders not only led to distrust in members of the Fulani ethnic group but also in the larger Muslim population (Tuki, 2023b). He pointed out that this was due to a contagion effect in which members of the Fulani ethnic group were conflated with the larger Muslim population because of their shared religion of Islam.

Although all ethnoreligious groups in Kaduna share the superordinate identity of being Nigerians, this might not necessarily *soften* the attitudes of Christians and Muslims toward each other because each group tends to identify more strongly with their religion than with their nationality. The TRANSMIT survey conducted in Kaduna in 2021 included a question asking respondents to choose which aspect of their identity was most important to them—that is, their ethnicity, religion, or nationality. 74% chose their religion, 5% chose their ethnicity, 16% said all identities were equally important, while only 4% chose their nationality.[5] The high level of religious identification among the population engenders entitativity—that is, the perception of a social unit as a group—leading to a scenario where conflicts between individuals, say a Christian and Muslim, escalate to the group level due to the religious affiliations of the individuals (Higazi, 2008; Opeloye, 1998; Suberu, 2013; Tuki, 2023b).[6] Furthermore, the population in Kaduna, especially Christians, view farmer–herder conflicts as being religiously motivated. The TRANSMIT survey showed that 34% of the population in Kaduna agree that farmer–herder conflicts are caused by religion. When I disaggregate the data based on religious affiliation, the results show that 52% of Christians hold this view, which translates to one in two Christians. By contrast, only 17% of the Muslims agree that the conflicts are religiously motivated.

The tendency to associate nomadic herders with the larger Muslim population—due to the shared religion of Islam—might also imply the attribution of some blame to Muslims for farmer–herder conflicts. Allport (1954, p. 26) observed that "It is convenient to believe, if one can, that all of one category is good, all of the other evil." The attribution of blame to Muslims might make them more eager to see an end to farmer–herder conflicts, prompting them to support an open grazing ban policy. Muslims might also support the policy as a means to dissociate themselves from nomadic herders, who are generally perceived to have a high predisposition toward violence (Balarabe, 2021; Chiluwa & Chiluwa, 2022; Eke, 2020).[7] Looking from another perspective, Christians might be less supportive of an open gazing ban policy than Muslims because they do not have much confidence in the government, which is dominated by Muslims. Qualitative studies conducted in Kaduna show that some individuals believe the state government has failed to tackle farmer–herder conflicts because they are concentrated in the southern part of the state, where the population is predominantly Christian (Saidu et al., 2023). Given this background, Christians might see an open grazing ban policy as a *farce*—that is, as a policy that might be enshrined in the law but is not enforced. Such perceptions could make Christians hesitant to support an open grazing ban policy. The discussion so far leads to a variant of the second hypothesis:

H2b: *Muslims are more supportive of an open grazing ban policy than Christians.*

3. Data and methodology

3.1. Sampling strategy

This study relies on novel survey data collected in the northern Nigerian state of Kaduna in 2021 as part of the Transnational Perspectives on Migration and Integration (TRANSMIT) research project.[8] A total of 1,353 respondents were interviewed. Clustered random sampling was used to select the interview locations. Data were collected from all 23 local government areas (LGAs) (i.e., municipalities) in Kaduna except for four of them (i.e., Giwa, Birnin Gwari, Kauru, and Zangon Kataf). These LGAs were excluded from the sampling frame because it was unsafe for enumerators to conduct interviews there due to the high risk of kidnapping and intercommunal violence. Section B in the appendix discusses the sampling strategy in detail. The variables used to estimate the regression models are discussed in the next section, while Table A1 in the appendix reports the summary statistics for these variables.

3.2. Operationalization of the variables

3.2.1. Dependent variable

Open grazing ban. This measures the degree to which respondents believe an open grazing ban policy would reduce the incidence of farmer–herder conflicts. It was derived from the question, "Some state governors have proposed a ban on the open grazing of cattle and the adoption of modern ranching methods to address the clashes between farmers and herders. Do you think this policy would be effective in reducing these clashes?" The responses were measured on a scale with five ordinal categories ranging from, "0 = strongly disagree" to "4 = strongly agree."

The question on the open grazing ban policy was preceded by one where respondents were asked whether they were aware of the conflicts between nomadic herders and sedentary farmers. Of the 1,298 respondents who were asked this question, 326 said they were unaware of the conflict. This reduced the sample size by 25%. Given the high incidence of farmer–

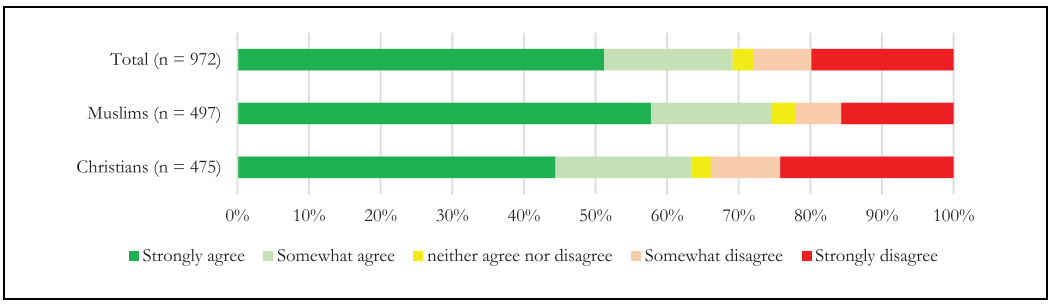

Figure 1. Support for an open grazing ban policy in Kaduna State.
Note. The vertical axis shows the total number of survey respondents and the religious subsamples of respondents (i.e., Christians and Muslims) who were asked the question about the potential for an open grazing ban policy to reduce the incidence of farmer–herder conflicts. The horizontal axis shows the percentage of respondents associated with the various response categories.

herder conflicts in Kaduna, coupled with the topic's prominence in public discourse, it is likely that those respondents who claimed to be unaware of the conflict gave that response because they did not want to discuss the topic. Farmer–herder conflicts are a sensitive issue in Kaduna, especially because of the religious dimension along which they play out. Of the 232 respondents who said they were unaware of the conflict, 71% were Muslims and 28% were Christians. When compared to the total number of respondents, 32% of Muslims and 17% of Christians claimed they were unaware of the conflict. Moreover, the 326 respondents who said they were unaware of the conflict were distributed between men and women in a ratio of 70:30. This suggests that women are more willing to talk about the conflict than men.

Figure 1 shows that support for an open grazing ban policy in Kaduna is quite high. 69% of the respondents either "strongly agree" or "somewhat agree" that the policy would be effective in reducing the incidence of farmer–herder conflicts. Disaggregating the data based on religious affiliation shows that Muslims are more supportive of the policy than Christians: 75% of Muslims either "strongly agree" or "somewhat agree" that the policy would reduce farmer–herder conflicts, while 63% of Christians hold this view.

3.2.2. *Explanatory variables*

Victimization (all). This is a dummy variable that takes the value of 1 if a respondent reported that he or she, or a family member, had experienced some form of violence during the last decade (i.e., irrespective of the perpetrator) and 0 otherwise. It was derived from the question, "During the last 10 years (2011–2021), have you or your close family members been affected by violence? By 'affected,' I mean (a) you or your close family were threatened by violence, (b) you or one of your close family members was injured or killed, or (c) your home or property was destroyed by an attacker." The responses were measured on a binary scale: "1 = yes" and "0 = no." 232 respondents reported that they had been victimized,

Table 1. Distribution of victimized respondents based on religious affiliation and perpetrators.

Perpetrator	Total	No. of Muslims	No. of Christians	% of Muslims	% of Christians
Religious extremists	66	23	43	35	65
Herders	58	13	45	22	78
Bandits/robbers	56	22	34	39	61
Cattle rustlers	16	7	9	44	56
Army	4	2	2	50	50
Farmer	3	1	2	33	67
Police	0	0	0	0	0
Family member	1	0	1	0	100
Others (not listed)	54	24	30	44	56

Note. The first column lists the perpetrators of the violent incidents that affected respondents or their close family members. The second column shows the total number of respondents who have been victimized by each perpetrator. Breaking down the data based on religious affiliation, the third and fourth columns show the number of Muslim and Christian respondents, respectively, who have been victimized by each perpetrator. The fifth and sixth columns show the percentage of Christians and Muslims who have been victimized by each perpetrator. It is important to note that respondents were allowed to select multiple perpetrators during the survey.

which is equivalent to 18% of the total respondents. In other words, one in five households in Kaduna was directly affected by violence between 2011 and 2021.

The respondents were then asked to identify the perpetrators of the violent incidents that had affected them. They were allowed to specify more than one perpetrator. As shown in Table 1, religious extremists were reported as the main perpetrators of violence. This is not surprising because Kaduna is polarized along religious lines and has a history of violent conflicts between Christians and Muslims (Angerbrandt, 2011, 2018; Scacco & Warren, 2021). The TRANSMIT data show that the population in Kaduna is almost evenly divided between Christians and Muslims, in a ratio of 44:56%, respectively. Some studies have found that polarization peaks in a society when the population is evenly split between two cultural groups, which, in turn, increases the risk of conflict (Montalvo & Reynal-Querol, 2003, 2005). Nomadic herders were the second most reported perpetrators of violence, while robbers/bandits ranked third. I developed dummy variables for each of the three main perpetrators of violence. For example, in the case of *herders*, the variable takes a value of 1 if the respondent or a family member has been victimized by herders and 0 otherwise. The reference category thus consists of respondents who were not victimized, plus those who were victimized by other perpetrators besides herders.

A closer examination of the data reveals a religious pattern: More Christians report being victimized than Muslims. Of the 232 respondents who had been victimized (i.e., irrespective of the perpetrator), 64% were Christians, while 36% were Muslims. Examining the religious distribution of victims based on the perpetrators of violence reveals that more Christians than Muslims reported being victimized in most categories. Specifically, 78% of those victimized by herders were Christians, while 22% were Muslims. The predominance of Christians among those victimized by herders might be due to the concentration of farmer–herder conflicts in the southern part of Kaduna, where the population is predominantly Christian.

To check whether this is indeed the case, I used data from the ACLED project (Raleigh et al., 2010) to visualize the spatial distribution of both the incidence of conflicts involving herders and the intensity of these conflicts in terms of the associated fatalities. I identified all conflict incidents in Kaduna where at least one of the actors was a "pastoralist" or belonged to the "Fulani" ethnic group. The two terms are identical in the ACLED dataset because actors defined as pastoralists are often referred to as "Fulani."[9] This operationalization is possible because the ACLED dataset provides information about both the occupation of the conflict actors and their ethnicities. A point worth highlighting is that this operationalization captures not only incidents where herders were the perpetrators but also those where they were the victims. Although the ACLED dataset, like most conflict datasets, is imperfect due to its heavy reliance on news sources, it is still very useful in illustrating conflict patterns because of its disaggregated nature and the fact that it is updated in real time.

Figure 2 shows that conflicts involving Fulani herders are indeed concentrated in the southern part of Kaduna State, where the population is predominantly Christian, especially in the LGAs that are contiguous to the state of Plateau.[10] Figure 3 shows that the fatalities associated with these conflicts are also concentrated in the southern part of the state. This pattern might be driven by the religious difference between Muslim herders and the predominantly Christian resident population, which makes it difficult for trust to be established between both parties, thereby increasing the likelihood of disputes over land and water resources turning violent. One could argue that the number of Muslims who reported in the survey that they had been victimized by herders may be underestimated because most of the respondents who claimed to be unaware of farmer–herder conflicts were Muslims. However,

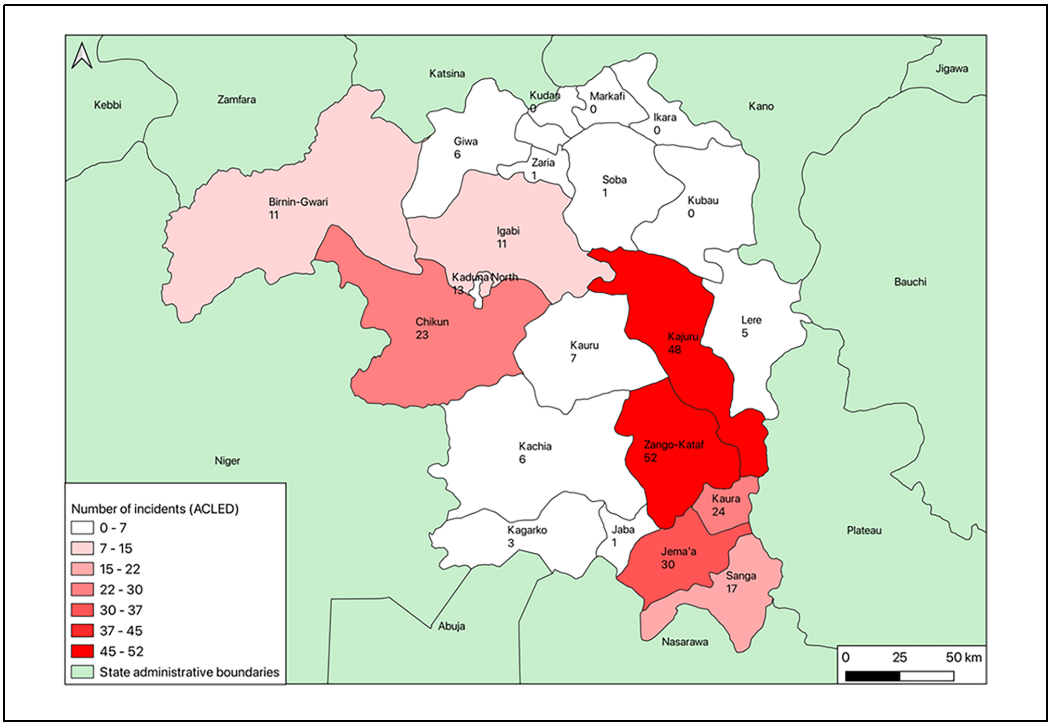

Figure 2. Distribution of conflict incidents involving nomadic Fulani herders in Kaduna State (1997–2021).
Note. The figure shows the administrative boundaries of the 23 local government areas (LGAs) in Kaduna State and the total number of conflict incidents involving nomadic Fulani herders that occurred there between 1997 and 2021. These figures are based on the ACLED dataset (Raleigh et al., 2010).

in addition to the general trend indicating that farmer–herder conflicts are concentrated in the predominantly Christian southern region, it can also be argued that the exclusion of Zangon-Kataf from the sampling frame might have resulted in an underestimation of the number of Christians who had been victimized.[11] As shown in Figures 3 and 4, Zangon-Kataf, which has a predominantly Christian population, has both the highest incidence of conflict and the highest number of fatalities out of the 23 LGAs in the state.[12] It is also worth noting that Kagarko, Jema'a, Sanga, Kaura, and Kajuru, which are also in the southern part of Kaduna and have witnessed high levels of violence, also have predominantly Christian populations. Most of the LGAs with a low incidence of violence and fatalities (e.g., Kudan, Makarfi, Ikara, Zaria, and Kubau) have predominantly Muslim populations. Furthermore, a closer examination of the survey data shows that six respondents who had earlier reported that they had been victimized by herders in an earlier question had later said that they were unaware of farmer–herder conflicts. Four of them were Christians and the remaining two were Muslims.

The violence during farmer–herder conflicts often occurs indiscriminately. A salient feature of these conflicts in Kaduna is their tendency to escalate from individual disputes to communal violence, often involving reprisals. For example, a conflict might begin with cattle straying into farmlands and destroying crops, leading to a violent dispute between an

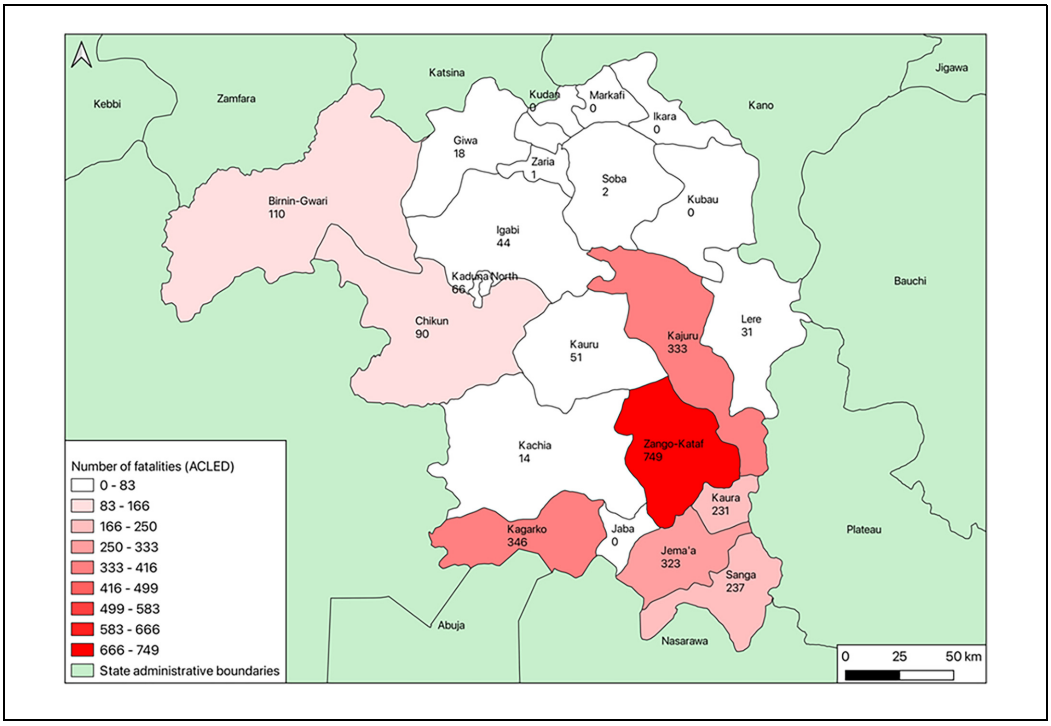

Figure 3. Distribution of fatalities from conflict incidents involving nomadic Fulani herders in Kaduna State (1997–2021).

Note. The figure shows the administrative boundaries of the 23 local government areas (LGAs) in Kaduna State and the total number of fatalities associated with conflicts involving nomadic Fulani herders between 1997 and 2021. These figures are based on the ACLED dataset (Raleigh et al., 2010).

individual farmer and herder. This initial clash can result in the injury or death of one party and may also involve the killing of livestock. Such incidents lead to grievances among members of the associated ethnic and religious groups, especially when Christian farmers clash with nomadic herders, which can escalate the conflict to the communal level. During reprisals, communities are often attacked by gunmen based on their ethnoreligious identities, and people killed indiscriminately, regardless of their involvement in the initial conflict. The casualties from these attacks often include children (Abubakar, 2020; Al Jazeera, 2023; Amnesty International, 2018; Human Rights Watch, 2018; Oduah, 2016).

Muslim affiliation. This is a dummy variable that takes the value of 1 if a respondent is Muslim, and 0 if they are Christian. All the respondents were either Muslims or Christians.

3.2.3. Control variables

Conflict exposure. This measures the total number of conflict incidents that occurred from 1997 to 2020 within a 20 km buffer around the respondents' dwellings (see Figure 4). I considered only incidents where at least one of the conflict actors was a "pastoralist" or belonged to the "Fulani" ethnic group. I was able to identify both the occupation and

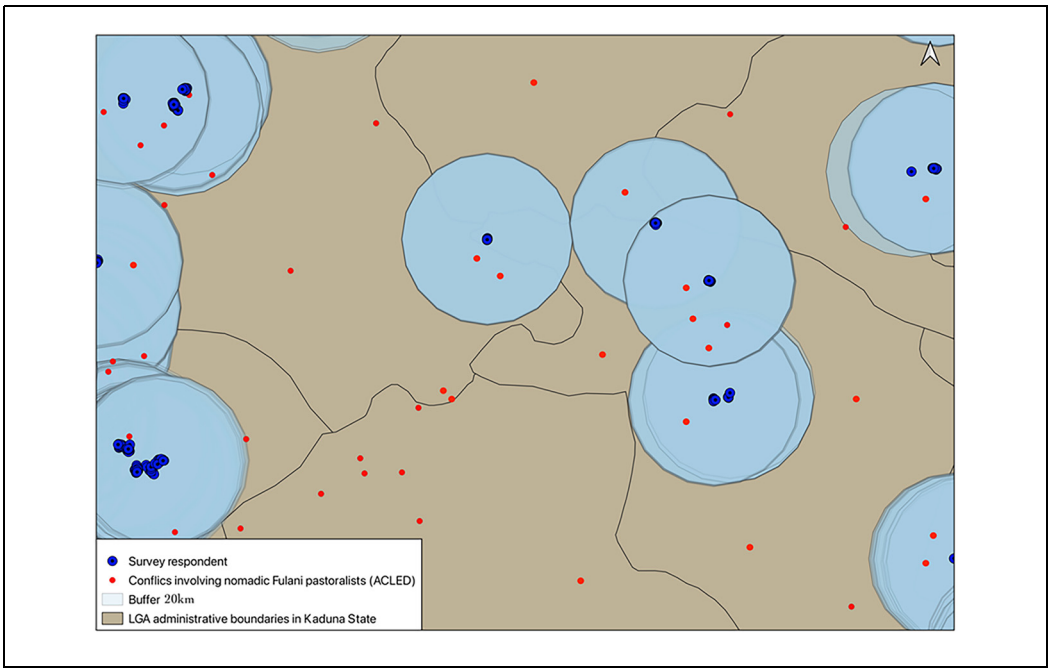

Figure 4. Measuring exposure to conflicts involving nomadic Fulani herders.
Note. The figure shows the geolocations of conflict incidents involving nomadic Fulani herders, the geolocations of the survey respondents, the 20 km buffer around their dwellings, and the administrative boundaries of the local government areas (LGAs) in Kaduna state.

ethnicity of the conflict actors because the ACLED dataset provides this information. A point worth emphasizing is that this operationalization captures incidents where nomadic herders were either the perpetrators or the victims.

I was able to draw buffers around the geolocations of the respondents using QGIS software because both the TRANSMIT and ACLED datasets are georeferenced. I considered conflicts within the buffer starting from 1997 because the ACLED dataset is available from that year. Although the ACLED data are updated in real time, I excluded all incidents that occurred after 2020. This adjustment mitigates the potential problem of reverse causation since the dependent variable is measured in 2021. I considered all conflicts within the buffer from 1997 to 2020 because I am particularly interested in the cumulative effect of conflict. Some studies have shown that memories of past conflicts tend to persist and shape perceptions in the present (e.g., Hong & Kang, 2017; Tuki, 2024a). I included conflict exposure as a control variable in the regression model because it could confound the relationship between victimization and support for an open grazing ban policy: exposure to conflict might increase the likelihood of individuals being victimized.[13] Also, Individuals who are exposed to violence might be more supportive of an open grazing ban policy—in the hope that this would end farmer–herder conflicts. 88% of the respondents had at least one conflict incident within the 20 km buffer around their dwellings, and 45% of them had at least 14 incidents.

Demographic attributes. This includes the age, gender, and marital status of the respondents. Gender takes the value of 1 if a respondent is female and 0 if male. Marital status takes the value of 1 if a respondent is married or has ever been married, and 0 otherwise. Age is measured in years.

3.3. Analytical technique

To examine the effect of victimization and religious affiliation on support for an open grazing ban policy, I consider a model of the following general form:

$$\gamma_{ij} = \beta_0 + \beta_1 \text{Victimization}_i + \beta_2 \text{Muslim affiliation}_i + \beta_3 \varphi_i' + \mu_i \quad (1)$$

where γ_{ij} is the dependent variable that measures support for an open grazing ban policy for respondent i who resides in local government area (LGA) j. φ_i' is a vector of control variables measuring conflict exposure and the respondents' demographic attributes, β_0 is the intercept, β_1 and β_2 are the coefficients of the explanatory variables, β_3 denotes the coefficients of the control variables, and μ_i is the error term. I estimated the model using an ordered logit (Ologit) regression because the dependent variable has five ordinal categories. A benefit of this approach is that it respects the dependent variable's ordered nature, allowing me to determine the effect of the explanatory variables on each category of the dependent variable. To account for the potential correlation between observations within the same local government area (LGA), I clustered the standard errors at the LGA level. To account for time-invariant factors that are unique to the respective LGAs and could confound the relationship between the dependent and explanatory variables (e.g., distance to the state's administrative center, physical geographical terrain), I included fixed effects for the LGAs in which the respondents reside in some of the models. Due to the overlap between ethnicity and religion in Nigeria, I included fixed effects for the respondents' ethnic groups in some of the models. This enables me to better isolate the effect of religious affiliation on support for an open grazing ban policy.

4. Results and discussion

4.1. General victimization (i.e., irrespective of perpetrator)

Table 2 reports the results of regression models examining the effect of victimization and religious affiliation on support for an open grazing ban policy. Models 1 to 5 are based on the full sample covering the population in Kaduna, while Models 6 and 7 focus on the Muslim and Christian subsample of respondents, respectively. In Model 1, where only victimization was considered, it was statistically insignificant. This suggests that general victimization has no effect on support for an open grazing ban policy. This might be because the population in Kaduna distinguishes between the perpetrators of violence, coupled with the fact that an open grazing ban policy is tailored specifically to address conflicts involving nomadic herders. In Model 2, where only Muslim affiliation was considered, it was statistically significant at the 5% level and carried a positive sign, suggesting that Muslims are on average more supportive of an open grazing ban policy than Christians. This result, which is consistent with Hypothesis 2b, is independent of the respondents' victimization status. The higher support for the policy among Muslims might be due to a contagion effect: Muslims might be conflated with nomadic herders because of the religion of Islam they share, leading to the

Table 2. Ordered logit models regressing support for an open grazing ban policy on victimization.

	Full sample					Religious subsamples	
						(6)	(7)
Open grazing ban$^{\Phi}$	(1)	(2)	(3)	(4)	(5)	Muslim	Christian
Victimization (all)	−.007		.129	.115	.126	.127	.135
	(0.201)		(0.204)	(0.198)	(0.204)	(0.485)	(0.183)
Muslim affiliation		.54**	.561**	.578***	.714**		
		(0.223)	(0.221)	(0.198)	(0.296)		
Age				−.009**	−.009*	−.013	−.005
				(0.005)	(0.005)	(0.008)	(0.008)
Gender				−.004	.014	.144	−.172
				(0.121)	(0.132)	(0.167)	(0.164)
Married				.174	.058	−.291	.219
				(0.149)	(0.166)	(0.241)	(0.229)
Conflict exposure				.005	−.027	.05***	−.042***
				(0.006)	(0.018)	(0.008)	(0.009)
Intercept 1	−1.397***	−1.141***	−1.105***	−1.247***	−1.339**	−.821***	−1.499***
	(0.098)	(0.113)	(0.102)	(0.203)	(0.562)	(0.318)	(0.497)
Intercept 2	−.952***	−.69***	−.654***	−.794***	−.866	−.363	−1.009***
	(0.125)	(0.18)	(0.171)	(0.21)	(0.54)	(0.354)	(0.347)
Intercept 3	−.808***	−.543***	−.508***	−.647***	−.709	−.167	−.881**
	(0.13)	(0.19)	(0.18)	(0.217)	(0.547)	(0.358)	(0.342)
Intercept 4	−.051	.226	.262	.127	.136	.681**	−.025
	(0.157)	(0.237)	(0.225)	(0.235)	(0.525)	(0.335)	(0.309)
LGA FE	No	No	No	No	Yes	Yes	Yes
Ethnic group FE	No	No	No	No	Yes	No	No
Observations	972	972	972	972	972	497	475
Pseudo R^2	.00	.008	.008	.01	.045	.054	.037
Log pseudolikelihood	−1243.004	−1233.028	−1232.676	−1230.799	−1186.861	−562.286	−614.473
AIC statistic	2496.008	2476.056	2477.351	2481.597	2411.723	1162.574	1244.947

Note. Φ is the dependent variable and clustered robust standard errors are in parenthesis. All models are estimated using ordered logit (Ologit) regression. FE denotes fixed effects.

***$p < .01$. **$p < .05$. *$p < .10$.

attribution of some blame for farmer–herder conflicts to Muslims. Blaming Muslims for the conflicts might make them more eager to see some concrete policy action from the government to address the conflict, resulting in greater support for an open grazing ban policy.[14] The increased support for the policy might also be driven by Muslims' desire to dissociate themselves from nomadic herders, who are often perceived as having a high predisposition toward violence (Eke, 2020). Looking from another perspective, Christians might be less supportive of an open grazing ban policy than Muslims because they do not believe in the government's ability to effectively and impartially implement such a policy. This skepticism arises from the perception that the government, dominated by Muslims, may be preferential toward nomadic herders. In Model 3, where the two explanatory variables were included in the same model, the results were consistent with those in the baseline models. When control variables (Model 4) and fixed effects for the respondents' ethnic groups and the LGAs where they resided (Model 5) were included in the model, the main results remained unchanged. Among the control variables, only age was statistically significant. Its negative sign indicates that people are less likely to support an open grazing ban policy as they get older.

To check whether heterogeneous patterns underlie the effect of victimization on support for an open grazing ban policy, I disaggregated the data based on religious affiliation and estimated models using the Muslim and Christian subsamples of respondents. As shown in Models 6 and 7, victimization had no effect on support for an open grazing ban policy among both Muslims and Christians. This lends some support to my earlier argument regarding the tendency among the population to distinguish between the perpetrators of violence, coupled with the fact that the open grazing ban policy is specifically associated with violence involving nomadic herders. Among the control variables, only conflict exposure was statistically significant. Its positive sign in Model 6 suggests that among Muslims, exposure to conflicts involving Fulani herders increases the likelihood of supporting an open grazing ban policy. This might be because Muslims who are exposed to conflict trust the state's institutions and believe that an open grazing ban policy would mitigate farmer–herder conflicts. Among Christians, however, conflict exposure had a negative effect on support for an open grazing ban policy (Model 7). This might be because Christians who are exposed to farmer–herder conflicts have low institutional trust and, hence do not see an open grazing ban policy as an effective tool to address farmer–herder conflicts. Moreover, given the dominance of Muslims in the political sphere, Christians might be skeptical regarding the effective and impartial implementation of an open grazing ban policy, even if such a law were passed.

The TRANSMIT survey had a question where respondents were asked the following: "How effective do you think the Nigerian government has been in its effort to address the conflict between farmers and herders?" The responses were measured on a scale with five ordinal categories ranging from "very effective" to "very ineffective." 52% of the population in Kaduna chose either the "very effective" or "somewhat effective" response categories. Disaggregating the data based on religious affiliation revealed a pattern: Muslims assessed the government's handling of farmer–herder conflicts more favorably than Christians. 67% of Muslims chose either the "very effective" or "somewhat effective" response categories. The estimate for Christians was only 36%.[15]

4.2. Perpetrator-specific victimization

4.2.1. Herders. It is possible that the null effect of victimization on support for an open grazing ban policy reported in Table 2 was because all the perpetrators of violence were

merged into a single category. Support for an open grazing ban policy might vary depending on who the perpetrator of violence is. This prompted me to disaggregate the victimization variable, focusing on the three main perpetrators of violence: herders, religious extremists, and bandits/robbers (see Table 1). I began by estimating models where I focused specifically on herders. Table 3 reports the results. In Model 1, where only victimization by herders was considered, it carried a positive sign and was statistically significant at the 5% level. This is consistent with Hypothesis 1, which states that among the population in Kaduna, victimization by herders increases the likelihood of supporting an open grazing ban policy. This might be because individuals who have been victimized by herders are more eager to see some concrete policy action from the government aimed at resolving farmer–herder conflicts, even if this involves the implementation of an open grazing ban policy. In Model 2, where Muslim affiliation was included in the model, victimization by herders maintained its positive sign and its significance level rose to 1%. Models 3 and 4 show that the main results are robust to the inclusion of control variables and fixed effects for respondents' ethnic groups and the LGAs where they reside.

To check for heterogeneous effects based on religious affiliation, I estimated Models 5 and 6 using the Muslim and Christian subsamples of respondents, respectively. Among Muslims, victimization by herders had no effect on support for an open grazing ban policy, while it had a positive effect among Christians. The positive effect found among Christians is consistent with Hypothesis 1, while the null effect found among Muslims is not, which makes it quite surprising. This indicates that religious affiliation influences how individuals respond when victimized by herders. Put differently, Muslims and Christians do not respond in the same way when victimized by herders. This might have something to do with the religious affiliation of the perpetrators and is an area that requires further research.[16]

It is imperative to point out that Christians and Muslims respond differently to victimization by herders and exposure to conflicts involving herders. While exposure to conflicts involving herders reduces the likelihood of Christians supporting an open grazing ban policy, victimization by herders has the opposite effect. Among Muslims, however, exposure to conflicts involving herders increases the likelihood of supporting an open grazing ban policy, while victimization by herders has no effect on support for the policy. This variation might be because victimization and conflict exposure do not measure the same thing. While victimization indicates the concrete experience of violence by respondents or their close family members, conflict exposure does not necessarily imply victimization. It is possible for individuals living in conflict zones to devise coping strategies that enable them to carry on with their "normal" lives despite the prevalence of violence.

To illustrate the size of the effects reported in Table 3, I plotted the predicted probabilities. A cursory look at the four panels in Figure 5 shows that the effect of religious affiliation and victimization by herders is largest on the extreme response categories of the dependent variable—that is, "strongly agree" and "strongly disagree." Panel A shows that, compared to Christians, Muslims are 16 percentage points more likely to choose the "strongly agree" response when asked about the potential for an open grazing ban policy to reduce the incidence of farmer–herder conflicts. By contrast, Muslim affiliation reduces the probability of choosing the "strongly disagree" response category by 10%. Panel B shows that, among the population in Kaduna, individuals who have been victimized by herders are 18 percentage points more likely to choose the "strongly agree" response category when asked about the potential for an open grazing ban policy to reduce the incidence of farmer–herder conflicts. By contrast, victimization by herders reduces the probability of choosing the "strongly

Table 3. Ordered logit models regressing support for an open grazing ban policy on victimization by herders.

	Full sample				Religious subsamples	
					(5)	(6)
Open grazing ban$^{\Phi}$	(1)	(2)	(3)	(4)	Muslim	Christian
Victimization (herders)	.691** (0.302)	.888*** (0.308)	.907*** (0.285)	.779** (0.306)	−.195 (0.523)	1.058*** (0.304)
Muslim affiliation		.594*** (0.206)	.593*** (0.19)	.715** (0.298)		
Age			−.01** (0.005)	−.01** (0.005)	−.013 (0.008)	−.008 (0.008)
Gender			.001 (0.119)	.012 (0.133)	.142 (0.166)	−.177 (0.151)
Married			.169 (0.151)	.067 (0.167)	−.291 (0.242)	.244 (0.236)
Conflict exposure			.003 (0.006)	−.028 (0.017)	.049*** (0.007)	−.046*** (0.009)
Intercept 1	−1.365*** (0.1)	−1.078*** (0.093)	−1.285*** (0.2)	−1.42** (0.561)	−.857*** (0.319)	−1.66*** (0.491)
Intercept 2	−.919*** (0.129)	−.625*** (0.16)	−.83*** (0.203)	−.946* (0.542)	−.399 (0.349)	−1.166*** (0.341)
Intercept 3	−.775*** (0.132)	−.478*** (0.168)	−.682*** (0.21)	−.788 (0.551)	−.202 (0.355)	−1.036*** (0.336)
Intercept 4	−.014 (0.161)	.299 (0.214)	.098 (0.227)	.06 (0.532)	.645** (0.322)	−.171 (0.309)
LGA FE	No	No	No	Yes	Yes	Yes
Ethnic group FE	No	No	No	Yes	No	No
Observations	972	972	972	972	497	475
Pseudo R^2	.002	.012	.013	.047	.053	0.044
Log pseudolikelihood	−1240.074	−1228.29	−1226.308	−1183.966	−562.343	−610.18
AIC statistic	2490.149	2468.579	2472.617	2405.932	1162.686	1236.359

Note. Φ is the dependent variable and clustered robust standard errors are in parenthesis. All models are estimated using ordered logit (Ologit) regression. FE denotes fixed effects.

***$p < .01$. **$p < .05$. *$p < .10$.

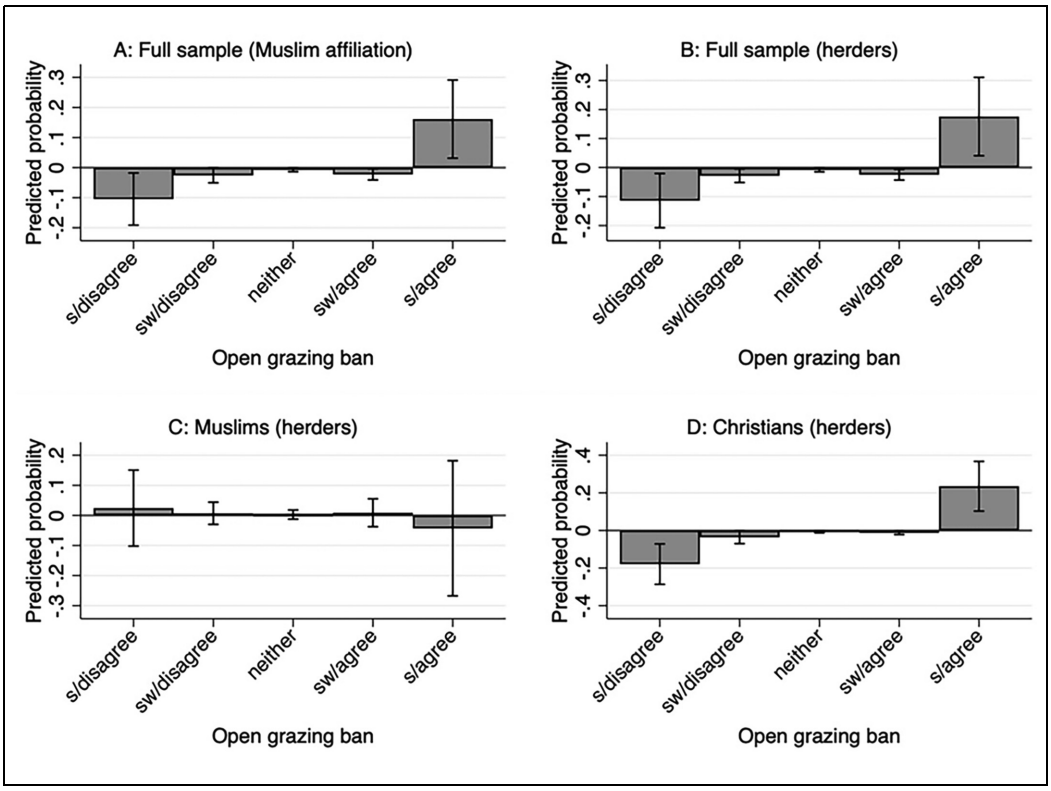

Figure 5. Average marginal effects of religion and victimization by herders on support for an open grazing ban policy.

Note. Panels A and B, which are based on Model 4 in Table 3, show the effect of Muslim affiliation and victimization by herders on support for an open grazing ban policy. Panels C and D (which are based on Models 5 and 6 in Table 3) show the effect of victimization by herders on support for an open grazing ban policy among Muslims and Christians, respectively. Confidence intervals are at the 95% level. "s" denotes "strongly" and "sw" denotes "somewhat."

disagree" response category by 11%. Suffice it to add that the reference category here consists of individuals who have not been victimized, plus those who have been victimized by other perpetrators besides herders. As shown in Panel C, where all the whiskers cross the horizontal line at zero, victimization by herders has no effect on support for an open grazing ban policy among Muslims. Panel D shows that among Christians, victimization by herders increases the probability of choosing the "strongly agree" response category by 24% when asked about the potential for an open grazing ban policy to reduce the incidence of famer–herder conflicts. Conversely, victimization by herders reduces the probability of choosing the "strongly disagree" response category by 18%.

4.2.2. Religious extremists and bandits. Table 4 reports the results of regression models examining the effect of victimization by the other two main perpetrators of violence (i.e., religious extremists and bandits/robbers) on support for an open grazing ban policy. Models 1 to 3 focus on victimization by religious extremists. In Model 1, which is based on the full sample

Table 4. Ordered logit models regressing support for an open grazing ban policy on victimization by religious extremists and bandits/robbers.

Open grazing ban$^{\Phi}$	(1) (full)	(2) (Muslim)	(3) (Xtian)	(4) (full)	(5) (Muslim)	(6) (Xtian)
Victimization (religious extremists)	−.249	.408	−.49			
	(0.203)	(0.374)	(0.301)			
Victimization (bandits/robbers)				−.031	−.84**	.523**
				(0.336)	(0.414)	(0.261)
Muslim affiliation	.676**			.691**		
	(0.298)			(0.297)		
Age	−.009*	−.012	−.005	−.009*	−.012	−.003
	(0.005)	(0.008)	(0.007)	(0.005)	(0.008)	(0.008)
Gender	.005	.149	−.184	.006	.162	−.144
	(0.136)	(0.168)	(0.161)	(0.133)	(0.17)	(0.167)
Married	.071	−.315	.232	.063	−.32	.198
	(0.167)	(0.236)	(0.241)	(0.169)	(0.248)	(0.235)
Conflict exposure	−.025	.047***	−.039***	−.026	.042***	−.042***
	(0.017)	(0.007)	(0.01)	(0.017)	(0.008)	(0.009)
Intercept 1	−1.356**	−.83***	−1.53***	−1.365**	−.947***	−1.429***
	(0.554)	(0.313)	(0.469)	(0.556)	(0.339)	(0.481)
Intercept 2	−.884*	−.371	−1.039***	−.893*	−.485	−.937***
	(0.534)	(0.344)	(0.321)	(0.535)	(0.367)	(0.337)
Intercept 3	−.726	−.174	−.91***	−.735	−.285	−.809**
	(0.541)	(0.35)	(0.316)	(0.542)	(0.374)	(0.332)
Intercept 4	.119	.674**	−.053	.109	.57*	.049
	(0.52)	(0.32)	(0.287)	(0.522)	(0.338)	(0.307)
LGA FE	Yes	Yes	Yes	Yes	Yes	Yes
Ethnic group FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	972	497	475	972	497	475
Pseudo R^2	.045	.054	.039	.045	.056	.038
Log pseudolikelihood	−1186.695	−562.088	−613.45	−1187.16	−560.805	−613.74
AIC statistic	2411.39	1162.176	1242.899	2412.319	1159.612	1243.48

Note. Φ is the dependent variable and clustered robust standard errors are in parenthesis. All models are estimated using ordered logit (Ologit) regression. FE denotes fixed effects. "full" denotes "full sample."
***$p < .01$. **$p < .05$. *$p < .10$.

where victimization by religious extremists was considered alongside the control variables and fixed effects for the respondents' ethnic groups and the LGAs where they reside, victimization by religious extremists had no statistically significant effect on support for an open grazing ban policy. It remained insignificant even when the data were disaggregated based on religious affiliation and models estimated using the Muslim and Christian subsamples of respondents (Models 2 and 3).

Models 4 to 6 focus on victimization by bandits/robbers. In Model 4, which is also based on the full sample and includes control variables and the relevant fixed effects, victimization by bandits/robbers was statistically insignificant. However, when the data were disaggregated based on religious affiliation, some patterns emerged: As shown in Model 5, which is based on the Muslim subsample of respondents, victimization by bandits/robbers carried a negative sign and was significant at the 5% level. This indicates that Muslims who have been victimized by bandits/robbers are less likely to support an open grazing ban policy. By contrast, as shown in Model 6, which is based on the Christian subsample of respondents, victimization by bandits/robbers carried a positive sign and was significant at the 5% level, indicating that Christians who have been victimized by bandits/robbers are likely to support an open grazing ban policy.

To illustrate the effect sizes, I plotted the predicted probabilities for Models 5 and 6 in Table 4 (see Figure 6). As shown in panel A, among Muslims, victimization by bandits/robbers reduces the probability of choosing the "strongly agree" response category by 18% when asked about the potential for an open grazing ban policy to reduce the incidence of farmer–herder conflicts. By contrast, it increases the probability of choosing the "strongly disagree" response category by 10%. Panel B shows that among Christians, victimization by bandits/robbers increases the probability of choosing the "strongly agree" response category by 12% and reduces the probability of choosing the "strongly disagree" response category by 9%.

A poignant question one might ask is, *why does the effect of victimization by bandits/robbers differ between Muslims and Christians?* To answer this question, it is imperative to first identify who the bandits/robbers are and the areas where they operate. Over the last 5 years, Nigeria's Northwest geopolitical zone (which includes the state of Kaduna) has witnessed a significant rise in banditry and ransom-driven abductions. Members of the Fulani ethnic group are overrepresented among the bandit groups operating in the region. Ejiofor (2021, p. 88) observes that "the term 'armed bandit' in the northwest zone is, in local parlance, shorthand for nomadic pastoralists of Fulani extraction who have taken to criminality in the absence of economic opportunities beyond cattle herding." In fact, armed banditry claimed more lives than the radical Islamist group *Boko Haram* in 2019, prompting the Nigerian government to proscribe them as terrorist organizations (Mac-Leva & Ibrahim, 2019; Ochojila, 2022). Given this background, the lower support for an open grazing ban policy among Muslims who have been victimized by bandits/robbers might be because they think the policy would threaten the livelihood of nomadic herders and lead to increased grievances, pushing more of them into banditry as a means of survival. The support for an open grazing ban policy among Christians who have been victimized by bandits/robbers might be because they make no distinction between bandits and nomadic herders, who share the same religion and ethnicity. This might prompt them to believe that the same policy—an open grazing ban—would curtail the violence perpetrated by both herders and bandits/robbers. While these explanations are plausible, I am unable to test them empirically using the TRANSMIT dataset because the survey instrument does not have a specific question focusing on people's

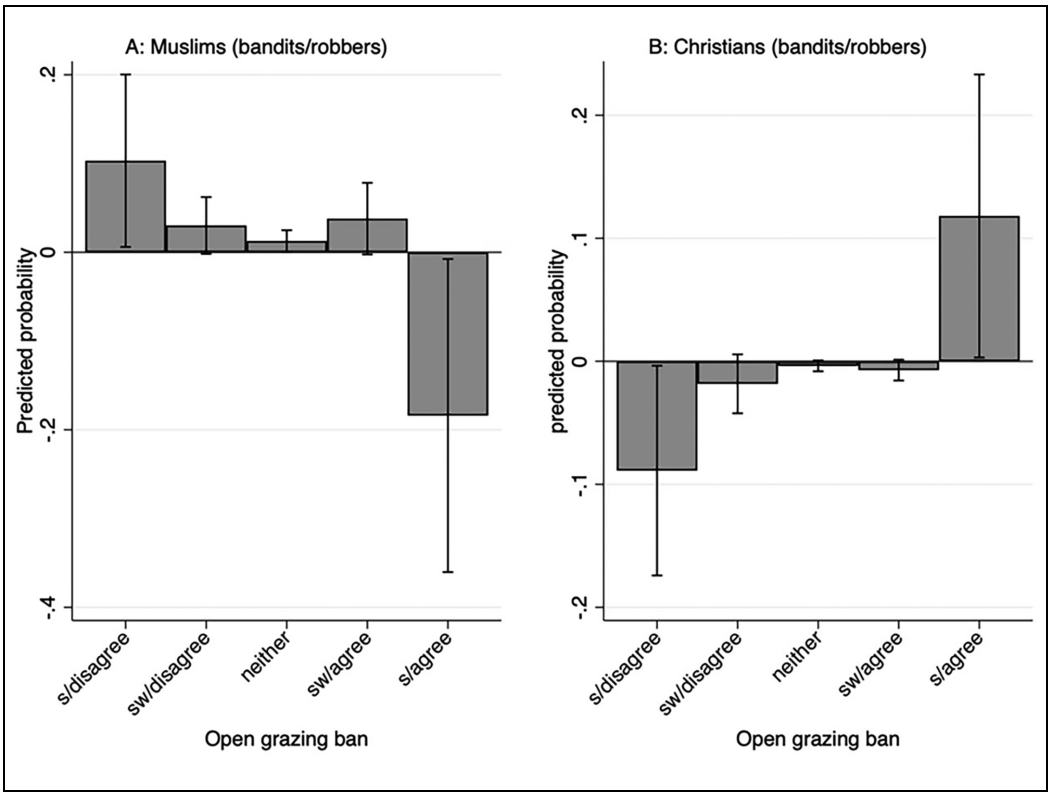

Figure 6. Average marginal effects of victimization by bandits/robbers on support for an open grazing ban policy.

Note. Panels A and B (which are based on Models 5 and 6 in Table 4) show the effect of victimization by bandits/robbers on support for an open grazing ban policy among Muslims and Christians, respectively. Confidence intervals are at the 95% level. "s" denotes "strongly" and "sw" denotes "somewhat."

perceptions of the association between banditry and nomadic herding. This is an area that requires further research.

5. Conclusion

This study examined the effect of victimization and religious affiliation on support for a policy banning the open grazing of livestock in the northern Nigerian state of Kaduna. Kaduna is a suitable case study for investigating these relationships because, despite having the third-highest incidence of farmer–herder conflicts out of Nigeria's 36 states, the state government has not implemented an open grazing ban policy there. The regression results showed that the effect of victimization on support for an open grazing ban policy depends on who is perpetrating the violence. General victimization (i.e., irrespective of the perpetrator) had no effect on support for an open grazing ban policy, but victimization by herders did have a positive effect. The positive effect was particularly strong among Christians. The regression results also showed that Muslims were, on average, more supportive of an open grazing ban

policy than Christians. This might be due to a contagion effect, which leads to the conflation of nomadic herders with Muslims—due to the common religion of Islam they share. This results in the attribution of blame for farmer–herder conflicts to Muslims, making them more eager to see some concrete policy action from the government to address the conflicts. This eagerness might be what translates into higher support for an open grazing ban policy. Support for the policy among Muslims might also be driven by their desire to dissociate themselves from nomadic herders, who are generally perceived as having a high disposition toward violence (Eke, 2020).

Taken together, the results of this study indicate that religious affiliation influences how individuals respond to violence. It also highlights the need for policymakers to consider religion while developing policies to mitigate farmer–herder conflicts. Failure to do so might rather lead to an escalation of violence. A case in point is the Rural Grazing Area (RUGA) policy, which sought to establish grazing reserves in all of Nigeria's 36 states where herders were to stay with their livestock. Though well intentioned, the policy was vehemently opposed by Southern Nigerian states and states in the Middlebelt region with predominately Christian populations. These peoples saw the policy as an attempt by the Muslim-dominated government to give their ancestral lands to nomadic Fulani herders who are considered settlers and non-indigenous peoples. By contrast, the policy met no opposition in Northern Nigerian states with predominantly Muslim populations. Although religion is contentious in Nigeria, scholars need to consider it in the analysis of land use conflicts, as this enables a holistic understanding of the problem.

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Ethical approval

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Data availability statement

The data and do-files underlying this study are available in the Harvard Dataverse: https://doi.org/10.7910/DVN/JRMSFQ

Notes

1. Nigeria's Middlebelt Region is part of Northern Nigeria. A significant part of this area, though proximate to the Muslim emirates during the precolonial period, was neither captured by Muslim jihadists nor subjected to emirate rule. This was due to the strategic military advantage provided by geography and the skill that the ethnic groups residing there possessed in warfare. This enabled them to better resist jihadist incursions. Most of the peoples in the uncaptured territories embraced Christianity—mainly as a form of collective action against the threat of Muslim domination, while those in the areas that were under emirate rule converted to Islam (Harnischfeger, 2006; Morrison, 1982; Van Beek, 1988; Vaughan, 2016).
2. Muhammadu Buhari was Nigeria's president from May 2015 to May 2023.
3. Table A4 in the appendix shows the distribution of conflicts involving nomadic herders across Nigeria's 36 states and the federal capital territory (i.e., Abuja) from 1997–2022.
4. For more information about the TRANSMIT research project, visit: https://www.projekte.hu-berlin.de/en/transmit
5. In Nigeria, religion and ethnicity are deeply intertwined, shaping much of the country's social and political landscape.
6. See Lickel et al. (2006) for a thorough discussion of entitativity and how it influences revenge during conflict.
7. Nomadic herders are often blamed for farmer–herder conflicts because farmlands are immobile and it is often the herders' livestock that stray into farmlands and destroy crops (Balarabe, 2021). This skew in blame attribution obscures the fact that nomadic herders have also been victims of violence and cattle theft (Chiedozie, 2021; Chiluwa & Chiluwa, 2022).
8. See note 4.
9. Besides the main survey of the resident population conducted in Kaduna, the WZB Berlin Social Science Center, Germany, also conducted a parallel survey targeting nomadic herders. A total of 255 herders were interviewed, which is quite a large number given the challenges of reaching herders due to their nomadic lifestyle. All the herders belonged to the Fulani ethnic group, except for three who were Hausa. Moreover, they were all Muslims.
10. The state of the plateau has the highest incidence of farmer–herder conflicts in Nigeria (see Table A4 in the appendix).
11. Zangon Kataf was one of the four unsafe LGAs that were excluded from the sampling frame during the TRANSMIT survey in Kaduna in 2021.
12. It is difficult to obtain estimates of the religious composition of the population from official government sources because censuses are conducted irregularly in Nigeria. Even in the rare instances when they are conducted, information about religion is usually not collected due to its sensitive nature. I inferred the religious composition of the population from the names of the LGA chairmen, as Nigerians typically bear names that indicate their religious affiliation. Moreover, they tend to vote along religious lines (Ostien, 2012), making it unlikely for a Muslim to win local government elections in an LGA where the population is predominantly Christian, and vice versa. This method of inferring a population's religious composition has been used by Laitin (1982) and Ostien (2012). Table A3 in the appendix shows the religious affiliation of the current chairpersons in the 23 LGAs of Kaduna. I deliberately used the word "chairmen" instead of "chairperson" because all the heads of the LGAs are men.
13. Of the 2,533 conflict incidents involving Fulani herders that occurred in Nigeria between 1997 and 2022, 77% of them caused at least one fatality.
14. The TRANSMIT dataset shows that one in two Christians agree that farmer–herder conflicts are caused by religion; the estimate for Muslims is one in six.
15. In Table A2 in the appendix, I estimated regression models in which I examined the effect of Muslim affiliation and victimization by herders on perceptions of the Nigerian government's effectiveness in handling farmer–herder conflicts. Muslim affiliation increased the likelihood of

assessing the Nigerian government's performance favorably, while victimization by herders had the opposite effect. Figure A1, also in the appendix, plots the predicted probabilities.

16. Qualitative interviews might be very suitable for this purpose.

References

Abah, H. (2017, August 8). Miyetti Allah sues Benue gov't over grazing law. *Daily Trust*. Retrieved July 10, 2024, from https://dailytrust.com/miyetti-allah-sues-benue-govt-over-grazing-law/

Abubakar, U. (2020, November 15). 8,000 kraals lost to the conflicts in Southern Kaduna (Part two). *Human Angle*. Retrieved December 17, 2023, from https://humanglemedia.com/8000-kraals-lost-to-the-conflicts-in-southern-kaduna-part-two/

ACN International. (2023, June 15). Nigerian Catholics shocked by public admission of religious discrimination in Kaduna. *Aid to the Church in Need*. Retrieved July 22, 2024, from https://acninternational.org/admission-of-religious-discrimination-in-kaduna-nigeria/

Adedipe, A., Ochei, M., Olatunji, D., Wodu, A., Nejo, A., & Nwakama, S. (2022, March 31). Herders adamant, Southern govs fail to enforce anti-open grazing law. *Punch Newspaper*. Retrieved September 24, 2024, from https://punchng.com/herders-adamant-southern-govs-fail-to-enforce-anti-open-grazing-law/

Adegun, A. (2021, September 1). Open grazing ban: List of states that have signed bill to law and those that have not. *Legit News*. Retrieved July 31, 2024, from https://www.legit.ng/1432156-open-grazing-ban-list-states-signed-bill-law-not.html

Ajefu, J. B., & Sonne, S. E. W. (2022). The association between terrorist attacks and mental health: Evidence from Nigeria. *Oxford Development Studies*, *50*(4), 336–351. https://doi.org/10.1080/13600818.2022.2072448

Al Jazeera. (2023, May 19). More than 100 people dead in communal clashes in central Nigeria. *Al Jazeera*. Retrieved December 17, 2023, from https://www.aljazeera.com/news/2023/5/19/more-than-100-people-dead-in-communal-clashes-in-central-nigeria.

Allport, G. W. (1943). *ABC's of scapegoating*. PRISM: Political & Rights Issues & Social Movements. 461. https://stars.library.ucf.edu/prism/461

Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley Publishing Company, Inc.

Amnesty International. (2018). *Harvest of death: Three years of bloody clashes between farmers and herders in Nigeria*. Amnesty International. Retrieved December 17, 2023, from https://www.amnesty.org/en/documents/afr44/9503/2018/en/

Angerbrandt, H. (2011). Political decentralisation and conflict: The Sharia Crisis in Kaduna, Nigeria. *Journal of Contemporary African Studies*, *29*(1), 15–31. https://doi.org/10.1080/02589001.2011.533057

Angerbrandt, H. (2018). Deadly elections: Post-election violence in Nigeria. *Journal of Modern African Studies*, *56*(1), 143–167. https://doi.org/10.1017/s0022278x17000490

Babajide, J. (2023, May 1). Reject grazing reserve bill, Ortom tells National Assembly. *Nigerian Tribune*. Retrieved July 10, 2023, from https://tribuneonlineng.com/reject-grazing-reserve-bill-ortom-tells-national-assembly/

Balarabe, K. (2021). Open grazing legislations and the protection of ethnic minority rights in Nigeria. *International Journal of Human Rights*, *25*(10), 1835–1856. https://doi.org/10.1080/13642987.2021.1895762

Bauer, M., Cahlíková, J., Chytilová, J., Roland, G., & Želinský, T. (2023). Shifting punishment onto minorities: Experimental evidence of scapegoating. *The Economic Journal*, *133*(652), 1626–1640. https://doi.org/10.1093/ej/uead005

Baysu, G., & Duman, Y. (2016). Why does identity matter? A two-path model to intergroup forgiveness via in-group bias and outgroup blame. *Psychological Research*, *19*(1), 43–51. https://www.ceeol.com/search/article-detail?id = 464579.

Béné, C., d'Hôtel, E. M., Pelloquin, R., Badaoui, O., Garba, F., & Sankima, J. W. (2024). Resilience–and collapse–of local food systems in conflict affected areas; reflections from Burkina Faso. *World Development*, *176*, 106521. https://doi.org/10.1016/j.worlddev.2023.106521

Bondarenko, M., Kerr, D., Sorichetta, A., & Tatem, A. J. (2020). *Census/projection-disaggregated gridded population datasets for 51 countries across Sub-Saharan Africa in 2020 using building footprints*. WorldPop, University of Southampton.

Brewer, M. (1999). The psychology of prejudice: Ingroup love or outgroup hate? *Journal of Social Issues*, *55*(3), 429–44. https://doi.org/10.1111/0022-4537.00126

Cairns, E., Kenworthy, J., Campbell, A., & Hewstone, M. (2006). The role of in-group identification, religious group membership and intergroup conflict in moderating in-group and out-group affect. *British Journal of Social Psychology*, *45*(4), 701–716. https://doi.org/10.1348/014466605X69850

Chiedozie, I. (2021, April 10). Farms, cows and blood: Untold story of reprisal attacks on Fulani herdsmen in the South-East. *International Center for Investigative Reporting*. Retrieved July 10, 2023, from https://www.icirnigeria.org/farms-cows-and-blood-untold-story-of-reprisal-attacks-on-fulani-herdsmen-in-the-south-east/

Chiluwa, I., & Chiluwa, I. M. (2022). 'Deadlier than Boko Haram': Representations of the Nigerian herder–farmer conflict in the local and foreign press. *Media, War & Conflict*, *15*(1), 3–24. https://doi.org/10.1177/1750635220902490

Christian Association of Nigeria. (2018). Nigerian church protest killing of Christians. *CAN Nigeria*. Retrieved July 10, 2023, from https://canng.org/news-and-events/news/173-nigerian-church-protest-killing-of-christians

Chukwuma, K. H. (2020). Constructing the herder–farmer conflict as (in) security in Nigeria. *African Security*, *13*(1), 54–76. https://doi.org/10.1080/19392206.2020.1732703

Coleman, J. S. (1958). *Nigeria: Background to nationalism*. University of California Press.

DiDonato, T. E., Ullrich, J., & Krueger, J. I. (2011). Social perception as induction and inference: An integrative model of intergroup differentiation, ingroup favoritism, and differential accuracy. *Journal of Personality and Social Psychology*, *100*(1), 66–83. https://psycnet.apa.org/doi/10.1037/a0021051

Dunkel, C. S., & Dutton, E. (2016). Religiosity as a predictor of in-group favoritism within and between religious groups. *Personality and Individual Differences*, *98*, 311–314. https://doi.org/10.1016/j.paid.2016.04.063

Ejiofor, P. F. (2021). The mobility of terror: Motorcycle bandits, violence and anarchy in Nigeria. *The RUSI Journal*, *166*(6–7), 84–95. https://doi.org/10.1080/03071847.2022.2058994

Ejiofor, P. F. (2022). 'Fulanis are foreign terrorists': The social construction of a suspect community in the Sahel. *Critical Studies on Terrorism*, *15*(2), 333–355. https://doi.org/10.1080/17539153.2021.2015841

Ejiofor, P. F. (2023). The fear of ethnic domination: Explaining the persistence of natural resource conflicts in Nigeria. *Ethnopolitics*, *22*(1), 1–21. https://doi.org/10.1080/17449057.2021.2006521

Eke, S. (2020). 'Nomad savage' and herder–farmer conflicts in Nigeria: The (un)making of an ancient myth. *Third World Quarterly*, *41*(5), 745–763. https://doi.org/10.1080/01436597.2019.1702459

Ele, M. N. (2020). Transhumance, climate change and conflicts: Reflections on the legal implications of grazing reserves and Ruga settlements in Nigeria. *Journal of African Law*, *64*(2), 199–213. https://doi.org/10.1017/s0021855320000066

El-Khodary, B., & Samara, M. (2018). The effect of exposure to war-traumatic events, stressful life events, and other variables on mental health of Palestinian children and adolescents in the 2012 Gaza War. *The Lancet*, *391*, 6. https://doi.org/10.1016/S0140-6736(18)30331-3

Galen, L. W., Smith, C. M., Knapp, N., & Wyngarden, N. (2011). Perceptions of religious and nonreligious targets: Exploring the effects of perceivers' religious fundamentalism. *Journal of Applied Social Psychology*, *41*(9), 2123–2143. https://doi.org/10.1111/j.1559-1816.2011.00810.x

George, J., Adelaja, A., Vaughan, O., & Awokuse, T. (2022). Explaining transhumance-related violence: Fulani Ethnic Militia in rural Nigeria. *Journal of Rural Studies*, *89*, 275–286. https://doi.org/10.1016/j.jrurstud.2021.12.003

George, J., Adelaja, A., & Weatherspoon, D. (2020). Armed conflicts and food insecurity: Evidence from Boko Haram's attacks. *American Journal of Agricultural Economics*, *102*(1), 114–131. https://doi.org/10.1093/ajae/aaz039

Godwin, A. C. (2017, May 4). Benue bans open grazing of cattle, stipulates 5-year-jail term, N1m fine for offenders. *Daily Post*. Retrieved July 10, 2023, from https://dailypost.ng/2017/05/04/breaking-benue-bans-open-grazing-cattle-stipulates-5-year-jail-term-n1m-fine-offenders/

Griswold, E. (2018). Radical encounters: Climate change and religious conflict in Africa. In R. A. Burridge & J. Sacks (Eds.), *Confronting religious violence: A counternarrative* (pp. 77–92). Baylor University Press.

Halabi, S., Statman, Y., & Dovidio, J. F. (2015). Attributions of responsibility and punishment for ingroup and outgroup members: The role of just world beliefs. *Group Processes & Intergroup Relations*, *18*(1), 104–115. https://doi.org/10.1177/1368430214546067

Harnischfeger, J. (2006). Islamisation and ethnic conversion in Nigeria. *Anthropos*, *101*, 37–53.

Hawkins, C. B., & Nosek, B. A. (2012). When ingroups aren't "in": Perceived political belief similarity moderates religious ingroup favoritism. *PLoS One*, *7*(12), e50945. https://doi.org/10.1371/journal.pone.0050945

Higazi, A. (2008). Social mobilization and collective violence: Vigilantes and militias in the lowlands of Plateau State, Central Nigeria. *Africa*, *78*(1), 107–135. https://doi.org/10.3366/E0001972008000077

Higazi, A. (2016). Farmer-pastoralist conflicts on the Jos Plateau, central Nigeria: Security responses of local vigilantes and the Nigerian state. *Conflict, Security & Development*, *16*(4), 365–385. https://doi.org/10.1080/14678802.2016.1200314

Hong, J. Y., & Kang, W. C. (2017). Trauma and stigma: The long-term effects of wartime violence on political attitudes. *Conflict Management and Peace Science*, *34*(3), 264–286. https://doi.org/10.1177/0738894215593683

Human Rights Watch. (2011, May 16). Nigeria: Post-election violence killed 800. *Human Rights Watch*. Retrieved July 28, 2024, from https://www.hrw.org/news/2011/05/16/nigeria-post-election-violence-killed-800

Human Rights Watch. (2018, June 18). Nigeria: Rising toll of middle-belt violence. *Human Rights Watch*. Retrieved December 17, 2023, from https://www.hrw.org/news/2018/06/28/nigeria-rising-toll-middle-belt-violence

Kaduna State Bureau of Statistics. (2016). *Kaduna Agricultural structure survey*. KDBS. https://kdbs.ng/publications/kaduna-agriculture-structure-survey/

Kwaja, C. M. A., & Ademola-Adelehen, B. I. (2017). *Implications of the Open Grazing Prohibition & Ranches Establishment Law on farmer-herder relations in the Middlebelt of Nigeria*. Search for Common Ground.

Laitin, D. D. (1982). The sharia debate and the origins of Nigeria's second republic. *The Journal of Modern African Studies*, *20*(3), 411–430. https://doi.org/10.1017/s0022278x00056901

Lickel, B., Miller, N., Stenstrom, D. M., Denson, T. F., & Schmader, T. (2006). Vicarious retribution: The role of collective blame in intergroup aggression. *Personality and Social Psychology Review*, *10*(4), 372–390. https://doi.org/10.1207/s15327957pspr1004_6

Mac-Leva, F., & Emmanuel, H. A. (2020, November 28). 3 years after: Benue gov't, MACBAN yet to agree on grazing law. *Daily Trust*. Retrieved July 10, 2023, from https://dailytrust.com/3-years-after-benue-govt-macban-yet-to-agree-on-grazing-law/

Mac-Leva, F., & Ibrahim, H. (2019, September 22). Bandits kill more Nigerians than Boko Haram, robbers, kidnappers, cultists, others. *Daily Trust*. Retrieved July 10, 2023, from https://dailytrust.com/bandits-kill-more-nigerians-than-boko-haram-robbers-kidnappers-cultists-others/

Manzanero, A. L., Crespo, M., Barón, S., Scott, T., El-Astal, S., & Hemaid, F. (2021). Traumatic events exposure and psychological trauma in children victims of war in the Gaza Strip. *Journal of Interpersonal Violence*, *36*(3–4), 1568–1587. https://doi.org/10.1177/0886260517742911

Montalvo, J. G., & Reynal-Querol, M. (2003). Religious polarization and economic development. *Economics Letters*, *80*(2), 201–210. https://doi.org/10.1016/s0165-1765(03)00080-6

Montalvo, J. G., & Reynal-Querol, M. (2005). Ethnic polarization, potential conflict, and civil wars. *American Economic Review*, *95*(3), 796–816. https://doi.org/10.1257/0002828054201468

Morrison, J. H. (1982). Plateau societies' resistance to jihadist penetration. In E. Isichei (ed.), *Studies in the history of Plateau State* (pp. 136–150). Macmillan Press.

Nnaji, A., Ma, W., Ratna, N., & Renwick, A. (2022). Farmer-herder conflicts and food insecurity: Evidence from rural Nigeria. *Agricultural and Resource Economics Review*, *51*(2), 391–421. https://doi.org/10.1017/age.2022.9

Nnodim, O., & Alagbe, J. (2021, July 24). FG replaces controversial RUGA with new scheme, begins camps in six states. *Punch*. Retrieved July 10, 2023, from https://punchng.com/fg-replaces-controversial-ruga-with-new-scheme-begins-camps-in-six-states/

Nwankwo, A. A. (2016, April 29). The National Grazing Reserve Bill and Islamization of Nigeria: Matters arising. *Sahara Reporters*. Retrieved July 10, 2023, from https://saharareporters.com/2016/04/29/national-grazing-reserve-bill-and-islamization-nigeria-matters-arising-arthur-agwuncha

Nwankwo, C. F. (2024a). Constructing farmer-pastoralist conflict as Islamization: Transformation and adaptation of resource competition discourse in the Nigerian Benue Valley. *Geoforum*, *148*, 103937. https://doi.org/10.1016/j.geoforum.2023.103937

Nwankwo, C. F. (2024b). From ejecting the herds to hidden dangers: Farmer-herder conflict and criminality in ungoverned forests along the Benue-Nasarawa-Taraba border. *Trees, Forests and People*, *17*, 100626. https://doi.org/10.1016/j.tfp.2024.100626

Obilom, R. E., & Thacher, T. D. (2008). Posttraumatic stress disorder following ethnoreligious conflict in Jos, Nigeria. *Journal of Interpersonal Violence*, *23*(8), 1108–1119. https://doi.org/10.1177/0886260507313975

Ochojila, A. (2022, January 5). FG declares bandits as terrorists. *The Guardian*. Retrieved July 10, 2023, from https://guardian.ng/news/fg-declares-bandits-as-terrorists/

Odozi, J. C., & Oyelere, R. U. (2019). *Violent conflict exposure in Nigeria and economic welfare* (Discussion Paper No. 12570). Institute for Labour Economics. https://www.econstor.eu/bitstream/10419/207396/1/dp12570.pdf

Odozi, J. C., & Oyelere, R. U. (2021). Does violent conflict affect the labor supply of farm households? The Nigerian experience. *Agricultural and Resource Economics Review*, *50*(3), 401–435. https://doi.org/10.1017/age.2021.14

Oduah, C. (2016, July 6). Nigeria: Deadly nomad-versus-farmer conflict escalates. *Al Jazeera*. Retrieved December 17, 2023, from https://www.aljazeera.com/news/2016/7/6/nigeria-deadly-nomad-versus-farmer-conflict-escalates

Odunsi, W. (2021 May 16). Act on open grazing ban in Southern Nigeria – Miyetti Allah to North. *Daily Post*. Retrieved July 10, 2023, from https://dailypost.ng/2021/05/16/act-on-open-grazing-ban-in-southern-nigeria-miyetti-allah-to-north/

Okon, D. (2021, November 29). Herdsmen resist Ortom's anti-open grazing law. *Business Day*. Retrieved July 28, 2024, from https://businessday.ng/big-read/article/herdsmen-resist-ortoms-anti-open-grazing-law/

Olafusi, E. (2021, September 23). At a glance: Edo, Imo, C'River – six southern states yet to enact anti-open grazing bill. *The Cable*. Retrieved August 1, 2024, from https://www.thecable.ng/at-a-glance-edo-imo-criver-six-southern-states-yet-to-enact-anti-open-grazing-law/

Olumba, E. E. (2022). The politics of eco-violence: Why is conflict escalating in Nigeria's Middle Belt? *Terrorism and Political Violence*, *36*(2), 180–197. https://doi.org/10.1080/09546553.2022.2129015

Onwuzuruigbo, I. (2023). Citizenship, indigeneity and the management of herders and farmers conflicts in Ghana and Nigeria. *Nationalism and Ethnic Politics*, *29*(3), 352–370. https://doi.org/10.1080/13537113.2023.2211448

Opeloye, M. O. (1998). The socio-political factor in the Christian-Muslim conflict in Nigeria. *Islam and Christian-Muslim Relations*, *9*(2), 231–237. https://doi.org/10.1080/09596419808721150

Ostien, P. (2012). *A survey of the Muslims of Nigeria's North Central geopolitical zone* (Working Paper No. 1). Nigeria Research Network, Oxford Department of International Development. https://www.qeh.ox.ac.uk/sites/www.odid.ox.ac.uk/files/WP1Ostien.pdf

Otu, B. O., Sarfo, K., & Impraim, K. (2024). Will there be enough food and meat for the people? Assessing the effects of farmer–herder conflicts on food security in Ghana. *Journal of Asian and African Studies*. Advance online publication. https://doi.org/10.1177/00219096241235291

Oyewale, W. (2020, January 2). Herdsmen protest against anti-grazing law, sue Oyo govt. *Punch Newspaper*. Retrieved July 28, 2024, from https://punchng.com/just-in-herdsmen-protest-against-anti-grazing-law-sue-oyo-govt/

Parsons, M. (2023). Militant religion, not just climate change, is fuelling violence in Nigeria. *The Critic*. Retrieved July 10, 2022, from https://thecritic.co.uk/nigerias-climate-of-terror/

Raleigh, C., Linke, A., Hegre, H., & Karlsen, J. (2010). Introducing ACLED – Armed Conflict Location and Event Data. *Journal of Peace Research*, *47*(5), 651–660. https://doi.org/10.1177/0022343310378914

Sahara TV. (2023, June 7). *Former Kaduna state governor, Mallam Nasir El-Rufai admits to religious bigotry in viral video* [Video]. Retrieved July 22, 2024, from https://www.youtube.com/watch?v=K4sxcHX0EFo

Saidu, B., Edet, M., & Adam, S. B. (2023). Analysis of government responses on the escalation off farmer-herders conflict in Southern Kaduna, 2011–2019. *Journal of Political Discourse*, *1*(3), 319–333.

Scacco, A., & Warren, S. S. (2021). Christian-Muslim relations in the shadow of conflict: Insights from Kaduna, Nigeria. In M. Cammett & P. Jones (Eds.), *The Oxford handbook of politics in Muslim societies* (pp. 539–560). Oxford University Press.

Schaub, M. (2014). *Solidarity with a sharp edge: Communal conflict and local collective action in rural Nigeria* (Working Paper No. 149). Afrobarometer. https://www.afrobarometer.org/publication/wp149-solidarity-sharp-edge-communal-conflict-and-local-collective-action-rural-nigeria/

Shamia, N. A., Thabet, A. A. M., & Vostanis, P. (2015). Exposure to war traumatic experiences, post-traumatic stress disorder and post-traumatic growth among nurses in Gaza. *Journal of Psychiatric and Mental Health Nursing*, *22*(10), 749–755. https://doi.org/10.1111/jpm.12264

Shiklam, J. (2023). Int'l community urged to investigate alleged genocide against Christians by El-Rufai's administration. *This Day Newspaper*. Retrieved July 22, 2024, from https://www.thisdaylive.com/index.php/2023/06/21/intl-community-urged-to-investigate-alleged-genocide-against-christians-by-el-rufais-administration/

Silas, D. (2017, November 8). Herdsmen in Benue are comfortable with anti-open grazing law – Attorney General, Gusa. *Daily Post*. Retrieved July 10, 2022, from https://dailypost.ng/2017/11/08/herdsmen-benue-comfortable-anti-open-grazing-law-attorney-general-gusa/

Silas, D. (2021, May 24). Open grazing: Why Nigerian govt should support ranching – Okowa. *Daily Post*. Retrieved July 10, 2022, from https://dailypost.ng/2021/05/24/open-grazing-why-nigerian-govt-should-support-ranching-okowa/

Speed, D., & Brewster, M. (2021). Love thy neighbour… or not: Christians, but not atheists, show high in-group favoritism. *Secularism and Nonreligion*, *10*(7), 1–15. https://doi.org/10.5334/snr.136

Stephan, W. G. (1983). Intergroup relations. In D. Periman & P. Cozby (Eds.), *Social psychology* (pp. 414–441). Holt, Rinehart and Winston.

Suberu, R. T. (2013). *Ethnic minority conflicts and governance in Nigeria*. IFRA-Nigeria.

Tadese, M., Tessema, S. D., Mihretie, A., Wake, G. E., Teshome, H. N., Mulu, G. B., & Habtewold, T. D. (2022). Perceived stress and its associated factors among people living in post-war Districts of

Northern Ethiopia: A cross-sectional study. *PLoS One*, *17*(12), e0279571. https://doi.org/10.1371/journal.pone.0279571

Tauna, A. (2019, July 1). Ruga: Middle belt forum blows hot over proposed Fulani settlement. *Daily Post*. Retrieved July 10, 2022, from https://dailypost.ng/2019/07/01/ruga-middle-belt-forum-blows-hot-proposed-fulani-settlement/

Thabet, A. A., Tawahina, A., El Sarraj, E., Henely, D., Pelleick, H., & Vostanis, P. (2011). Post-traumatic stress disorder and attention-deficit hyperactivity disorder in Palestinian children affected by the war on Gaza. *International Psychiatry*, *8*(4), 84–85. https://doi.org/10.1192/S1749367600002721

Thabet, A. A., Tawahina, A. A., El Sarraj, E., & Vostanis, P. (2013). Death anxiety, PTSD, trauma, grief, and mental health of Palestinians victims of War on Gaza. *Health Care Current Reviews*, *1*(2), 1000112. https://doi.org/10.4172/hccr.1000112

Tuki, D. (2023a). Is there a religious dimension to concern about farmer-herder conflicts in Nigeria? *APSA Preprints*. https://doi.org/10.33774/apsa-2023-0twpt-v2

Tuki, D. (2023b). *Pastoral conflicts and (dis)trust: Evidence from Nigeria using an instrumental variable approach* (Discussion Paper No: SP VI 2023-101). WZB Berlin Social Science Center. https://bibliothek.wzb.eu/pdf/2023/vi23-101.pdf

Tuki, D. (2024a). Undead past: What drives support for the secessionist goal of the Indigenous People of Biafra (IPOB) in Nigeria? *Journal of Race, Ethnicity and Politics*, *9*(1), 26–54. https://doi.org/10.1017/rep.2023.36

Tuki, D. (2024b). Violent conflict and expectation about the economy's performance: Evidence from Nigeria. *Economics Letters*, *241*, 111808. https://doi.org/10.1016/j.econlet.2024.111808

Tuki, D. (2024c). Violent conflict and hostility towards ethnoreligious outgroups in Nigeria. *Terrorism and Political Violence*. Advance online publication. https://doi.org/10.1080/09546553.2023.2285939

Ugwu, C. (2022, September 6). Reverse ban on open-grazing, Miyetti Allah begs Soludo. *Premium Times*. Retrieved July 10, 2023, from https://www.premiumtimesng.com/news/top-news/552551-reverse-ban-on-open-grazing-miyetti-allah-begs-soludo.html?tztc=1

Ukiwo, U. (2003). Politics, ethno-religious conflicts and democratic consolidation in Nigeria. *Journal of Modern African Studies*, *41*(1), 115–138. https://doi.org/10.1017/s0022278x02004172

Van Beek, W. E. A. (1988). Purity and statecraft: The Fulani jihad and its empire. In W. E. A. van Beek (Ed.), *The quest for purity: Dynamics of puritan movements* (pp. 149–182). Mouton.

Vanger, E. T., & Nwosu, B. U. (2020). Institutional parameters that condition farmer–herder conflicts in Tivland of Benue State, Nigeria. *African Security Review*, *29*(1), 20–40. https://doi.org/10.1080/10246029.2020.1763413

Vaughan, O. (2016). *Religion and the making of Nigeria*. Duke University Press.

Weldegiargis, A. W., Abebe, H. T., Abraha, H. E., Abrha, M. M., Tesfay, T. B., Belay, R. E., Araya, A. A., Gebregziabher, M. B., Godefay, H., & Mulugeta, A. (2023). Armed conflict and household food insecurity: Evidence from war-torn Tigray, Ethiopia. *Conflict and Health*, *17*(1), 22. https://doi.org/10.1186/s13031-023-00520-1

Xia, W., Guo, X., Luo, J., Ye, H., Chen, Y., Chen, S., & Xia, W. (2021). Religious identity, between-group effects and prosocial behavior: Evidence from a field experiment in China. *Journal of Behavioral and Experimental Economics*, *91*, 101665. https://doi.org/10.1016/j.socec.2021.101665

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Appendix

Section A

Table A1. Descriptive statistics.

Variable	Number of observations	Mean	Standard deviation	Minimum	Maximum
Open grazing ban$^{\Phi}$	972	2.726	1.606	0	4
Victimization (all)	972	0.205	0.404	0	1
Victimization (herders)	972	0.053	0.225	0	1
Victimization (religious extremists)	972	0.06	0.237	0	1
Victimization (bandits/robbers)	972	0.046	0.21	0	1
Muslim affiliation	972	0.511	0.5	0	1
Government effectiveness	972	2.024	1.684	0	4
Age	972	35.86	14.043	15	85
Gender	972	0.513	0.5	0	1
Marital status	972	0.747	0.435	0	1
Conflict exposure	972	10.357	11.079	0	49

Note. Φ is the dependent variable.

Table A2. Ordered logit models regressing government effectiveness on religious affiliation victimization by herders.

Government effectiveness$^{\Phi}$	(1)	(2)	(3)
Muslim affiliation	1.203*** (0.297)		1.186*** (0.297)
Victimization (herders)		−1.231*** (0.206)	−1.225*** (0.216)
Intercept 1	1.68 (1.79)	1.46 (1.387)	1.702 (1.85)
Intercept 2	2.114 (1.796)	1.893 (1.393)	2.141 (1.855)
Intercept 3	2.328 (1.772)	2.107 (1.367)	2.357 (1.83)
Intercept 4	3.52** (1.748)	3.298** (1.352)	3.565** (1.805)
LGA FE	Yes	Yes	Yes
Ethnic group FE	Yes	Yes	Yes
Observations	972	972	972
Pseudo R^2	.073	.072	.078
Log pseudolikelihood	−1280.057	−1280.872	−1271.886
AIC statistic	2598.114	2599.743	2581.773

Note. Φ is the dependent variable and clustered robust standard errors are in parenthesis. All models are estimated using ordered logit (Ologit) regression. FE denotes fixed effects. The dependent variable is measured on a scale with five ordinal categories.

***$p < .01$. **$p < .05$. *$p < .10$.

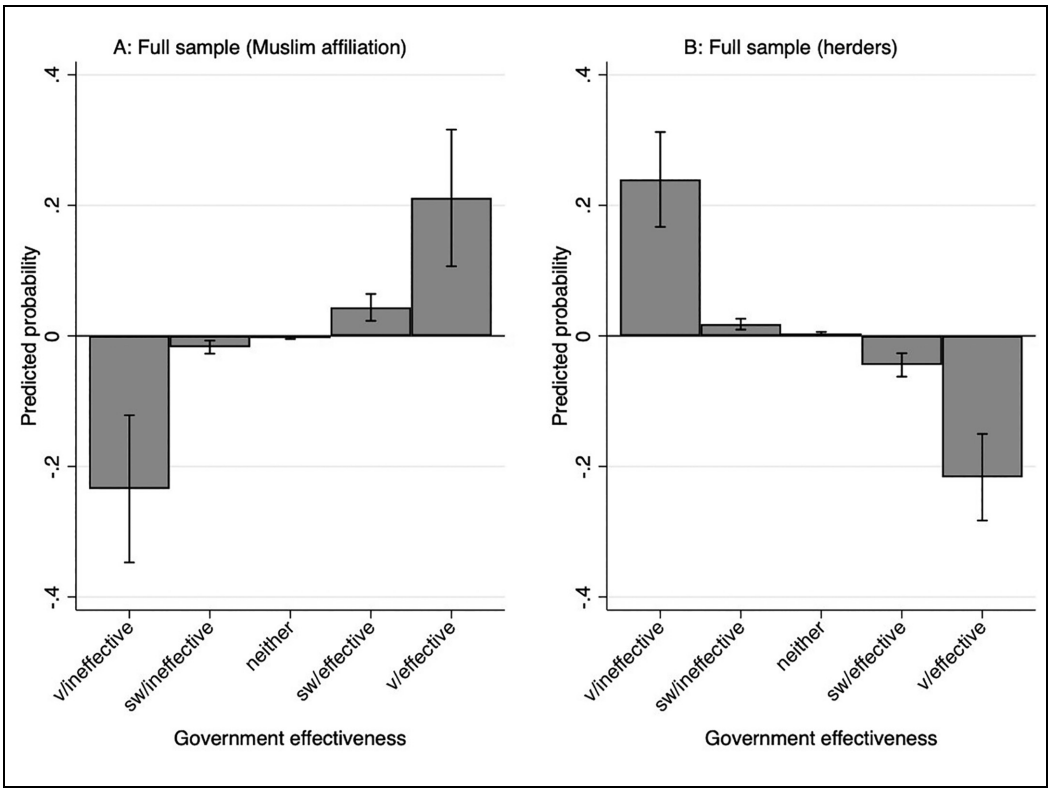

Figure A1. Average marginal effects of religion and victimization by herders on perceptions of government effectiveness in handling farmer–herder conflicts.

Note. Panels A (based on model 1 in Table A2) and B (based on model 2 in Table A2) show the effect of Muslim affiliation and victimization by herders, respectively, on perceptions of the Nigerian government's effectiveness in handling farmer–herder conflicts. "v" denotes "very" and "sw" denotes "somewhat.

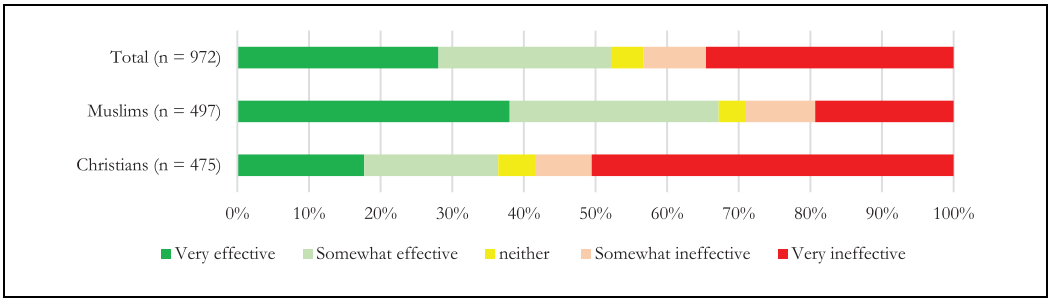

Figure A2. Government effectiveness at handling farmer–herder conflicts.

Note. The vertical axis shows the total number of survey respondents and the religious subsamples of respondents (i.e., Christians and Muslims) who were asked the relevant question about the degree to which the Nigerian government has been effective in addressing farmer–herder conflicts. The horizontal axis shows the percentage of respondents associated with the various response categories.

Table A3. Religious composition of the population in Kaduna State and the distribution of conflicts involving nomadic herders across the local government areas (1997–2022).

Local government area (LGA)	Total incidents	Total fatalities	Chairman's religion
Birnin Gwari†	11	110	Muslim
Chikun	23	90	Muslim
Giwa†	6	18	Muslim
Igabi	11	44	Muslim
Ikara	0	0	Muslim
Jaba	1	0	Christian
Jema'a	30	323	Christian
Kachia	6	14	Christian
Kaduna North	13	66	Muslim
Kaduna South	0	0	Muslim
Kagarko	3	346	Christian
Kajuru	48	333	Christian
Kaura	24	231	Christian
Kauru†	7	51	Muslim
Kubau	0	0	Muslim
Kudan	0	0	Muslim
Lere	5	31	Christian
Makarfi	0	0	Muslim
Sabon Gari	2	9	Muslim
Sanga	17	237	Christian
Soba	1	2	Muslim
Zangon Kataf†	52	749	Christian
Zaria	1	1	Muslim
Total	261	2,655	

Note. The first column lists the names of the 23 local government areas (LGAs) (i.e., municipalities) in Kaduna State. The second and third columns show the total number of incidents and fatalities across the LGAs resulting from conflicts in which at least one of the actors was defined as a "pastoralist" or belonged to the "Fulani" ethnic group. The figures are based on ACLED data (Raleigh et al., 2010) for the period 1997–2022.

†Denotes LGAs that were excluded from the sampling frame due to a high incidence of violence, which made them unsafe for enumerators to conduct interviews in.

Table A4. Distribution of conflicts involving Fulani herders across Nigeria's states (1997–2022).

State	Frequency	Percent	Cumulative
Abia	13	0.51	0.51
Adamawa	95	3.75	4.26
Akwa Ibom	5	0.20	4.46
Anambra	23	0.91	5.37
Bauchi	11	0.43	5.80
Bayelsa	4	0.16	5.96
Benue	406	16.03	21.99
Borno	29	1.14	23.13
Cross River	6	0.24	23.37
Delta	102	4.03	27.40
Ebonyi	14	0.55	27.95

(continued)

Table A4. (continued)

State	Frequency	Percent	Cumulative
Edo	31	1.22	29.17
Ekiti	14	0.55	29.73
Enugu	70	2.76	32.49
Federal Capital Territory	31	1.22	33.71
Gombe	6	0.24	33.95
Imo	14	0.55	34.50
Jigawa	37	1.46	35.97
Kaduna	289	11.41	47.37
Kano	5	0.20	47.57
Katsina	65	2.57	50.14
Kebbi	11	0.43	50.57
Kogi	49	1.93	52.51
Kwara	27	1.07	53.57
Lagos	8	0.32	53.89
Nassarawa	138	5.45	59.34
Niger	59	2.33	61.67
Ogun	49	1.93	63.60
Ondo	48	1.89	65.50
Osun	12	0.47	65.97
Oyo	62	2.45	68.42
Plateau	410	16.19	84.60
Rivers	12	0.47	85.08
Sokoto	18	0.71	85.79
Taraba	158	6.24	92.03
Yobe	7	0.28	92.30
Zamfara	195	7.70	100.00
Total	2,533	100.00	

Note. The figures in the table are based on data obtained from the Armed Conflict Location and Events Data Project (ACLED) (Raleigh et al., 2010). They include both incidents perpetrated by herders and those where they were victimized.

Section B

As part of the Transnational Perspectives on Migration and Integration (TRANSMIT) research project, the WZB Berlin Social Science Center, Germany conducted a survey in the Northern Nigerian state of Kaduna in 2021. A total of 1,353 respondents were interviewed in the state. To select the interview locations, multi-stage clustered random sampling was employed. Four out of the 23 local government areas (LGAs) (i.e., municipalities) in Kaduna (i.e., Giwa, Birnin Gwari, Kauru, and Zangon Kataf) were unsafe areas for interviews due to the high risk of intercommunal conflict. They were excluded from the sampling frame.

Grid cells of 5×5 km, which were called precincts, were developed using QGIS software. These precincts were laid on a shapefile showing Kaduna state's administrative boundaries. Each precinct was comprised of smaller 0.5×0.5 km grid cells. Precincts were randomly drawn with replacement, with probabilities corresponding to the population sizes within each of them. From each of the selected precincts, smaller 0.5×0.5 km grid cells were randomly selected with probabilities corresponding to the size of the population within them.

The smaller grid cells were drawn without replacement. Within each of the smaller grid cells, an average of 12 households were interviewed. The households were selected using a random walk approach, and the interviewee within the household was chosen using a simple random draw. Respondents were at least 15 years old. Before minors were interviewed, consent was sought from the household head. The minor was interviewed only if he or she also granted consent. Respondents were informed that participation in the survey was voluntary, and they could opt out of the interview at any time.

To ensure that the exclusion of the four unsafe LGAs did not skew the sample, the sample was stratified according to the population size in the senatorial district (Each state in Nigeria comprises three senatorial districts; each senatorial district comprises LGAs). Samples were drawn within each of the senatorial districts in relation to their respective population shares. It is difficult to obtain recent population estimates for Nigeria from official government sources because the last population census was conducted in 2006. Due to this constraint, the population data used for the sampling were obtained from the 2020 Worldpop gridded dataset (Bondarenko et al., 2020).