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Pastoral conflicts and (dis)trust: Evidence from Nigeria using an instrumental variable approach

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Daniel Tuki

Pastoral conflicts and (dis)trust: Evidence from Nigeria using an instrumental variable approach

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Pastoral conflicts and (dis)trust: Evidence from Nigeria using an instrumental variable approach.
Discussion Paper SP VI 2023–101
Wissenschaftszentrum Berlin für Sozialforschung (2023)

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Abstract

Pastoral conflicts and (dis)trust: Evidence from Nigeria using an instrumental variable approach

by Daniel Tuki*

Although the incidence of conflicts between Fulani nomadic pastoralists and sedentary farmers in Nigeria have risen significantly during the last decade, no study has, to the best of my knowledge, examined how these conflicts influence distrust of members of the Fulani ethnic group and the larger Muslim population, nor the conditions under which these conflicts, which are primarily about competition over land and water resources, morph into religious conflicts. Using novel survey data collected from Kaduna, the state with the third highest incidence of pastoral conflicts in Nigeria, this study fills these gaps. The regression results show that exposure to pastoral conflicts cause distrust of members of the Fulani ethnic group and Muslims; although the size of the effect is much larger for the Fulani compared to Muslims. This shows that the population in Kaduna tend to conflate the Fulani with Muslims. Religious polarization was found to catalyze the process of resource conflicts turning religious.

Keywords: *Pastoral conflict, Farmer–herder conflict, trust, Fulani, Religion, Kaduna State, Nigeria*

JEL classification: D74, O13, Q34

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Zusammenfassung

Bauern-Hirten-Konflikte und (Un-)Vertrauen: Ergebnisse aus Nigeria unter Verwendung eines Instrumentalvariablenansatzes

Daniel Tuki*

Obwohl die Häufigkeit von Konflikten zwischen nomadischen Fulani-Pastoralisten und sesshaften Bauern in Nigeria in den letzten zehn Jahren erheblich zugenommen hat, wurde meines Wissens in keiner Studie untersucht, wie diese Konflikte das Misstrauen zwischen Mitgliedern der Fulani-Ethnie und der muslimischen Bevölkerung insgesamt beeinflussen und unter welchen Bedingungen diese Konflikte, bei denen es in erster Linie um den Wettbewerb um Land- und Wasserressourcen geht, in religiöse Konflikte umschlagen. Die vorliegende Studie füllt diese Lücken mit Hilfe von neu erhobenen Umfragedaten aus Kaduna, dem Bundesstaat mit der dritthöchsten Anzahl an pastoralen Konflikten in Nigeria. Die Ergebnisse der Regressionsanalyse zeigen, dass das Auftreten von Hirtenkonflikten Misstrauen gegenüber Mitgliedern der Fulani-Ethnie und Muslimen hervorruft; allerdings ist der Effekt bei den Fulani wesentlich größer als bei den Muslimen. Dies zeigt, dass die Bevölkerung in Kaduna dazu neigt, die Fulani mit Muslimen zu verwechseln. Außerdem wurde festgestellt, dass die religiöse Polarisierung den Prozess der religiös werdenden Ressourcenkonflikte katalysiert.

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1 Introduction

For over a decade, Nigeria has been contending with violent clashes between sedentary farmers and nomadic pastoralists. Although such conflicts are common across Africa, especially in the Sahel region, Nigeria stands out because a disproportionate number of them happen there. Data from the Armed Conflict Location and Events Database (ACLED) (Raleigh et al. 2010) shows that between 1997 and 2021, there were 5,799 conflicts in Africa in which at least one of the parties was a pastoralist. These incidents spanned 39 countries and Nigeria alone accounted for 34 percent of them. Among Nigeria's 36 states, Kaduna accounted for 12 percent of the almost 2,000 incidents that occurred in the country during this period, making it the third state most affected by pastoral conflicts. The majority of these conflicts were violent in nature, with 83 percent of them categorized as "Violence against civilians."

One attribute of pastoral conflicts in Nigeria is their tendency to escalate from the individual to the communal level (Gbadamosi 2022; Olumide 2022; Sahara Reporters 2022). The conflict might start with a disagreement between a farmer and herder as a result of cattle straying into farmland and destroying crops. This disagreement might then turn violent, leading to the death or injury of one of the parties. It could also result in the killing of cattle. This fuels resentment among members of the associated ethnic and religious groups, especially the group that incurs the greatest loss. Revenge, when it is sought, will typically be meted out at the communal level and along ethnic and religious lines

(Wuyo 2021; Sahara Reporters 2021, 2021a; Blueprint 2018). Another factor that adds an additional layer of complexity to pastoral conflicts in Nigeria is the uniqueness and identifiability of the pastoralists: they are Muslim and belong to the Fulani ethnic group, which is the largest ethnic group in Northern Nigeria and Nigeria at large, along with the Hausa. By contrast, most of the sedentary population in the areas where pastoral conflicts are concentrated is Christian.

The high incidence of pastoral conflicts across Nigeria has strained the relationship between nomadic pastoralists and many local communities, leading to the formation of paramilitary organizations. In 2020, six state governors in the predominantly Yoruba western region of the country formed the Western Nigeria Security Network (WNSN), also known as *Amotekun*, to address rising insecurity in the region (Aneasoronye 2020; Campbell and McCaslin, 2020). In the predominantly Igbo eastern region of the country, the Indigenous People of Biafra (IPOB), a movement that has been agitating for the secession of Nigeria's eastern region to form the Republic of Biafra, established the Eastern Security Network (ESN) (Campbell 2021). The Nigerian federal government has voiced its opposition to the establishment of such paramilitary organizations on the grounds that they undermine the federal security agencies (Adebayo 2020; Ojo 2020). There have even been clashes between these organizations and the Nigerian army (Nwannekanma and Akingboye 2022; Opejobi 2021). Pastoral conflicts have also deepened already existing religious cleavages across the country. Reports by the Christian Association of Nigeria (CAN) portray pastoral conflicts as attacks on

Christians by Muslims. The president, who is Muslim and a member of the Fulani ethnic group, has been criticized for his failure to proscribe Fulani pastoralists who perpetrate violence as terrorists and bring them to justice (Christian Association of Nigeria, 2018, 2018a). Conversely, a popular Muslim cleric, Sheik Ahmad Gumi, has cautioned against labelling all pastoralists as criminals and urged the federal government to establish a Ministry of Nomadic Affairs to look into the grievances of pastoralists. Moreover, he has noted that pastoralists have also been victims of violent attacks and cattle rustling (Tauna 2022; Sahara Reporters 2022a). He recently established an organization called Nomadic Rights Concern (NORIC) to protect the rights of pastoralists and facilitate the peaceful resolution of conflicts between pastoralists and sedentary peoples (Opejobi 2022; Yaba 2022).

Although many studies have been conducted on pastoral conflicts in Nigeria (e.g. George et al. 2022; Nnaji et al. 2022, 2022a; Chukwuma 2020; Ajala 2020; Vanger and Nwosu 2020), none has, to the best of my knowledge, empirically examined the effect that these conflicts have on trust, and the conditions under which these conflicts (which are primarily about competition over land and water resources) turn religious. This study, which is based on novel survey data collected from Kaduna State in 2021, fills these gaps. The survey questionnaire that was administered had questions on trust of members of the Fulani ethnic group and Muslims, which makes this study possible. The conditions under which pastoral conflicts occur across Nigeria vary from one state to the other. For

instance, in states like Benue, the state government imposed a ban on the open grazing of cattle in 2017 in an effort to sedentarize pastoralists and reduce the incidence of pastoral conflicts. Such a law does not exist in Kaduna, implying that pastoralists there operate within a relatively more relaxed institutional environment than those in Benue. The large-N survey data collected from Kaduna enables me to take the local context within which the conflicts occur into account in the analysis.

This study is not about the causes of pastoral conflict but rather its effect. Although the Fulani are predominantly Muslims, they constitute only a fraction of Nigeria's Muslim population. Given the history of religiously motivated conflict in Kaduna, coupled with the tendency for pastoral conflicts to be viewed through a religious lens, it is necessary to investigate whether the population in Kaduna is able to disentangle members of the Fulani ethnic group from the larger Muslim population. More specifically, this study will answer the following questions:

I. *Does exposure to pastoral conflict cause distrust of members of the Fulani ethnic group?*

II. *Does exposure to pastoral conflict cause distrust of Muslims?*

Although Kaduna State, which is located in Nigeria's Northern Region, is the case study for this research, I also use survey data from Edo State in Nigeria's Southern Region to conduct a counterfactual regression analysis to enhance the robustness of my results. Since Edo and Kaduna differ significantly in terms of the incidence of pastoral conflict and the ethno-religious composition of their

populations, this enables me to make systematic comparisons between the results from both states and examine the conditions under which conflicts over resources morph into religious conflicts. It is important to understand the effect of pastoral conflicts on trust as well as the conditions under which these conflicts turn religious, as this could inform policy aimed at reducing structural violence.

This study finds that exposure to pastoral conflict causes distrust of members of the Fulani ethnic group and Muslims. This suggests that the population in Kaduna associate Fulani pastoralists with the larger Muslim population. This highlights the tendency for conflicts over resources to interact with the religious affiliation of the actors and then transform into a religious conflict. Polarization along religious lines was found to catalyze this transformation process. In Edo, which is devoid of the religious polarization present in Kaduna, pastoral conflicts cause distrust of only the Fulani, but not Muslims. This study contributes to the broader literature on the relationship between conflict and trust (e.g. Kijewski and Freitag 2018; Ishiyama et al., 2018; Rohner, Thoenig, and Zilibotti, 2013, 2013a; De Juan and Pierskalla 2016).

This study proceeds as follows: Section 2 reviews the literature on the conflict-trust nexus. Section 3 discusses the sampling strategy, operationalizes the variables for the regression models, and specifies the general form of the model to be estimated. Section 4 discusses the results of the regression models, while section 5 summarizes the study and concludes.

2 Theoretical considerations

The effect of conflict goes beyond material losses. Rohner, Thoenig, and Zilibotti (2013) have developed a theory that posits that conflict has the capacity to erode trust, which in turn leads to further conflict. As they concisely put it, "a war today carries the seed of distrust and future conflict." (Rohner, Thoenig, and Zilibotti, 2013, 1,115). Moreover, they highlight the ineffectiveness of coercive peace policies like forceful regime changes and peacekeeping missions in producing durable and sustainable peace and recommend inter-ethnic trade as a more effective strategy for fostering trust and mitigating the risk of conflict. This recommendation is supported by arguments proposing that trust is central to trade and has the capacity to spill over to other areas of the relationship beyond the narrow confines of an immediate transaction. They have also recommended policies that focus on changing beliefs regarding other groups and on elevating national identity over ethnic identity, as these could foster empathy, tolerance, cooperation, and social cohesion, thereby increasing the likelihood for peaceful coexistence. In another publication, Rohner, Thoenig, and Zilibotti (2013a) tested their theory using representative survey data for Uganda. The results confirmed their theoretical proposition: An increase in the incidence of violence and fatalities had a negative impact on trust for other Ugandans, made ethnic cleavages more salient, and increased the risk of further conflict. The negative correlation between conflict and social trust has been corroborated by studies conducted in Tajikistan (Cassar, Grosjean, and Whitt 2013) and Kosovo (Kijewski

and Freitag 2018). In a study conducted in Nepal, De Juan and Pierskalla (2016) have found that exposure to conflict reduces trust in the national government. Conversely, Bellows and Miguel (2009), in a study conducted in Sierra Leone, have found that exposure to conflict fosters prosocial behavior. Ishiyama et al. (2018) found a positive association between the individual experience of violence and trust in the local government in Mexico. Although they found no statistical association between the individual experience of violence and interpersonal trust, they identified the perceived feeling of insecurity as the main factor that erodes social and institutional trust.

The conflict-trust nexus could also be viewed through the lens of the contact hypothesis. In his popular book entitled *The Nature of Prejudice*, Allport (1954, 7) defined prejudice as "an aversive or hostile attitude towards a person or group, simply because he belongs to that group, and is therefore presumed to have the objectionable qualities ascribed to the group." He highlighted the tendency for separateness among people – the preference to associate with those who are of a similar race, class, and hold similar values. Separateness, he argued, is often driven by convenience, because people who have a lot in common need to invest less effort to get along. However, he also noted that separateness could undermine communication across groups, exaggerate group differences, and lead to conflicting interests. He recommended more intergroup contact as a way to reduce frictions between groups. For such contact to yield positive results, some conditions were necessary: the groups needed to be willing to cooperate rather

than compete, they needed to work towards a shared goal, and they had to be of equal status. He also emphasized the importance of legislative action in reducing prejudice and discrimination, noting that this should be a long-term strategy, as it seldom had an immediate effect. As he succinctly put it: "Law is intended only to control the outward expression of intolerance. But outward action, psychology knows, has an eventual effect upon inner habits of thought and feeling." (Allport 1954, 477).

The aforementioned theories could be tied to the Nigerian case: Not all members of the Fulani ethnic group are pastoralists, and there is a tendency for the actions of the violent minority to be used as a yardstick for judging the entire group. Eke (2020) studied the representations of Fulani pastoralists in Nigeria and found that they were often portrayed as savages who had failed to embrace modernization. He pointed out that such representations generate perceptions among the sedentary population that foster distrust of pastoralists, making it difficult for meaningful relationships to be formed between both groups. This in turn increased the likelihood of conflict.

It is imperative to also consider the unique conditions in Kaduna State, the case study for this research. Like Nigeria, Kaduna has a predominantly Christian Southern Region and a predominantly Muslim Northern Region, and paralleling the country as a whole, the peoples in both regions differ ethnically. In terms of religious composition, the population is almost evenly split, with Muslims being slightly more numerous. Religion and ethnicity in Kaduna are almost

synonymous because the two overlap to a great extent. Kaduna has a history of violent clashes between Christians and Muslims. The relationship between the two religious groups, especially in the political and socioeconomic spheres, has been very competitive and to some extent adversarial (Agbalajobi 2019; Ibrahim 1989; Angerbrandt 2018). In 2000, the then governor of the state, who was Muslim, introduced Sharia law. This move was strongly supported by Muslims but vehemently opposed by the Christian population, leading to violent clashes between both religious groups that left over two thousand people dead (Human Rights Watch 2003; Angerbrandt 2011). The religious cleavage was again accentuated during the post-election violence in 2011. The incumbent president, a Christian from Nigeria's predominantly Christian Southern Region, was declared the winner of the presidential elections. Supporters of the opposition candidate who was a Muslim from Nigeria's Northern Region, disagreed with the election results. Though deemed by observers to be one of Nigeria's fairest and most transparent elections, it was followed by a wave of violence in the Northern Region, where the opposition candidate had won resoundingly. Muslim supporters of the opposition candidate systematically targeted and killed Christians and burned churches. In Kaduna's predominantly Christian neighborhoods, Christians retaliated by killing Muslims and burning mosques. The death toll was in the hundreds (Human Rights Watch 2011).

Nigerians have a very high level of religiosity. A 2018 Pew survey showed that 96 percent of them consider religion to be "very important" in their lives

(Poushter, Fetterolf and Tamir 2019). The survey data collected from Kaduna also showed that 95 percent of the state's population agree that the rules of the Bible/Quran are more important to them than the laws of Nigeria. Considering the high level of religiosity in the state, the history of religiously motivated violence, and the fact that the Fulani pastoralists are Muslims, it is not surprising that pastoral conflicts are often viewed through a religious lens. The survey data upon which this study relies showed that 52 percent of Christians in Kaduna agree that pastoral conflict is caused by religion. 17 percent of the Muslims hold this view. Allport highlighted the potential for religion to cause prejudice, especially given that some major religions claim to have possession of absolute truth: "People who adhere to different absolutes are not likely to find themselves in agreement." (Allport 1954, 446). He also highlighted the tendency for religion to be closely associated with race, nationality, and culture, which in turn made intergroup differences more salient: "When religious distinctions are made to do double duty, the grounds for prejudice are laid." (Allport 1954, 446). Given the poor state of Christian-Muslim relations in Kaduna, coupled with competition between the two religious groups, intergroup contact likely has limited capacity to reduce prejudice, despite the predictions of the contact hypothesis to the contrary. This is because one of the necessary conditions – cooperation towards a shared goal – is violated by both religious groups. Moreover, conflicts in the state have led to residential segregation along ethnic and religious lines, which in turn has led to

a situation where social networks depend to a large extent on religious affiliation (Angerbrandt 2018, 150; Hoffman 2017).

The ethnic and religious fault lines in the state also have historical roots dating back to the precolonial period. Until its capture by the British in 1903, most of Nigeria's Northern Region was part of an Islamic caliphate, which was comprised of several emirates. The predominantly Muslim northern part of Kaduna at that time was the Zaria Emirate, while the predominantly Christian south comprised of pagan tribes. Slavery was crucial to the functioning of the Muslim emirates, especially for the cultivation of staple and cash crops. Slaves were also bartered for horses, guns, and other durable goods. Muslims were forbidden from enslaving fellow Muslims due to the brotherhood they shared under a common religion; thus, the pagan tribes who did not embrace Islam (i.e. unbelievers) were frequently raided and captured as slaves by jihadists (Van Beek 1988). The pagan tribes in southern Kaduna, who did not appreciate being enslaved, often fought against jihadist incursions and emirate expansion. Some of the peoples in southern Kaduna emigrated to the Jos Plateau, a highland that proved difficult for the jihadists to capture due to the strategic military advantage it provided and the skill that the tribes on the Jos Plateau possessed in warfare (Morrison, 1982). Majority of these pagan peoples eventually embraced Christianity as a form of resistance against domination by the Muslim emirates (Vaughan 2016). Some studies have shown the tendency for the past to encroach

into the present and shape it (Besley and Reynal-Querol 2014; Nunn and Wantchekon 2011; Nunn 2007).

Against the backdrop of the discussion so far, the following hypotheses could be extrapolated:

> ***H_1:*** *Exposure to pastoral conflict causes distrust of members of the Fulani ethnic group*
>
> ***H_2:*** *Exposure to pastoral conflict causes distrust of Muslims*

3 Data and methods

3.1 Sampling strategy

As part of the Transnational Perspectives on Migration and Integration (TRANSMIT) research project, the WZB Berlin Social Science Center conducted a survey in the states of Kaduna and Edo in 2021. 1,353 and 1,638 respondents were interviewed in Kaduna and Edo respectively. Respondents were at least 15 years old. To select the interview locations, multi-stage clustered random sampling was employed. Although the sampling strategy employed in both states was similar, it was not identical. This is because all the local government areas (LGAs) in Edo were accessible to enumerators to conduct interviews in, but four LGAs in Kaduna (i.e., Giwa, Birnin Gwari, Kauru, and Zangon Kataf) were unsafe areas for interviews due to the high risk of intercommunal conflict. These four LGAs were excluded from the sampling frame.

Grid cells of 5 x 5km, which were called precincts, were developed using QGIS software. These precincts were overlaid on a shapefile showing the administrative boundaries of both states. Each precinct was comprised of smaller 0.5 x 0.5km 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 x 0.5km 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 and 18 households were interviewed in Kaduna and Edo respectively. The households were selected using a random walk approach, and the interviewee within the household was chosen using a simple random draw.

The slight difference between the sampling strategy employed in Kaduna compared to the one used in Edo is that the population in Kaduna was stratified according to the population size in the senatorial district (Each state in Nigeria comprises of 3 senatorial districts; each senatorial district comprises of LGAs). This was done to ensure that the exclusion of the four LGAs did not skew the sample. 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

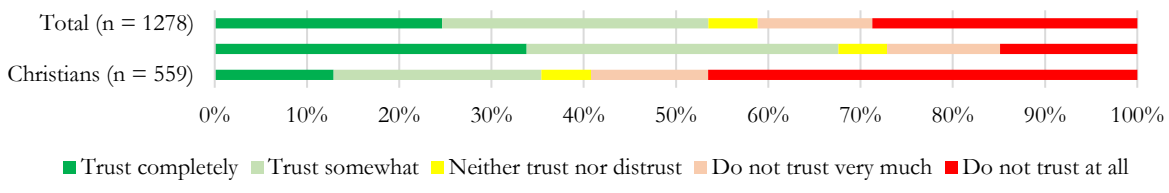
for both states was obtained from the 2020 Worldpop gridded dataset (Bondarenko et al. 2020).

3.2 Operationalization of the variables

3.2.1 Dependent variables

Distrust Fulani: This measures the extent to which respondents distrust members of the Fulani ethnic group. It was derived from the question, "How much do you trust people of the Fulani ethnic group?" with responses measured on a 5-point scale ranging from "Trust completely" to "Do not trust at all." 41 percent of the respondents chose either the "Do not trust at all" or the "Do not trust very much" response categories. Taking a closer look at the responses, an interesting pattern became apparent: 18 respondents refused to answer the question on trust in the Fulani. Conversely, only one respondent refused to answer a similar preceding question about trust in members of the Hausa ethnic group. This is likely because of the association of members of the Fulani ethnic group with pastoral conflicts, coupled with how contentious the topic of pastoral conflicts is in the state. "Don't know" and "Refused to answer" responses were treated as missing. This rule was applied to all the variables derived from the survey data.

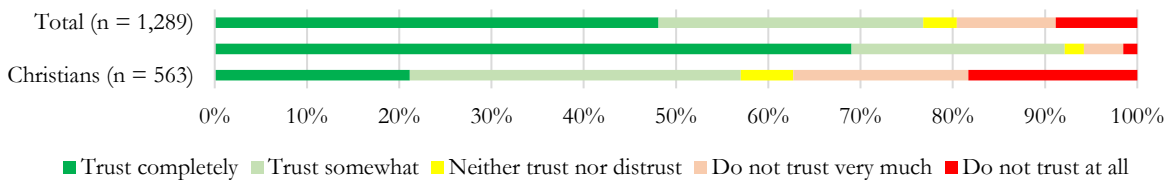
Figure 1: Distrust of Fulani in Kaduna State



As shown in figure 1, I detected a pattern after disaggregating the data based on religious affiliation: Compared to Muslims, Christians are more distrustful of the Fulani. 60 percent of Christians chose either the "Do not trust at all" or the "Do not trust very much" response categories. The estimate for the Muslim subsample was 27 percent. This higher level of trust among Muslims is likely because members of the Fulani ethnic group are predominantly Muslim. The 53 respondents who belonged to the Fulani ethnic group were all Muslims. 81 percent of the Muslim subsample of respondents belong to the Hausa ethnic group, and all members of the Hausa ethnic group are Muslims. The Hausa have lived alongside the Fulani for centuries and have intermarried to a great extent, which makes the two ethnic groups culturally proximate (Diamond, 1988, p. 21), hence explaining the higher trust in the Fulani among Muslims.

Distrust Muslims: This measures the degree to which respondents trust Muslims. It was derived from the question, "How much do you trust Muslims?" with responses measured on a 5-point scale ranging from "Trust completely" to "Do not trust at all."

Figure 2: Distrust of Muslims in Kaduna State



As shown in Figure 2, 20 percent of the respondents chose the "Do not trust at all" or the "Do not trust very much" response categories, which is 21 percentage

points lower than the estimate for distrust in the Fulani. This shows that people are more distrustful of the Fulani than Muslims. Breaking down the data based on religious affiliation shows that only 6 percent of Muslims chose the "Do not trust at all" or the "Do not trust very much" response categories, which is 21 percentage points lower than the estimate for distrust in the Fulani. This is not surprising because people are generally more trusting of members of their in-group (Brewer 1999; Allport 1954). The estimate for the Christian subsample was 37 percent, which is 23 percentage points lower than the estimate for distrust in the Fulani. Suffice to add that the correlation between the variables measuring distrust in the Fulani and Muslims was 0.55.

3.2.2 Explanatory variable

The main explanatory variable, "Pastoral conflict (all)" measures the degree to which respondents are exposed to pastoral conflicts. Relying on data from ACLED (Raleigh et al. 2010), I define a pastoral conflict as any incident where at least one of the actors or associated actors is a "pastoralist" or belongs to an ethnic group renowned for engaging in pastoralism. In the case of Nigeria, this would be the Fulani (Table 10 in the appendix shows the distribution of pastoral conflicts across Nigeria's 36 states). The ACLED dataset contains information about the ethnicity and occupation of the actors, which makes this operationalization possible. Virtually all the actors who are "pastoralists" are also defined as "Fulani Ethnic Militia," which makes the two terms almost synonymous.

A benefit of the ACLED dataset is its disaggregated nature and the fact that it is updated in real time. It covers both incidents where pastoralists are the perpetrators as well as those where they are the victims. 257 pastoral conflicts occurred in Kaduna between 1997 to 2021. Majority of these incidents were violent in nature, with Violence against civilians (83%) and Battles (12%) accounting for 95 percent of the total incidents. It is difficult to determine which actors during a conflict are the victims, especially in the case of battles where both actors may be actively involved in the fighting. However, the ACLED data goes by the general rule that civilians are always the victims in incidents categorized as "Violence against civilians." Going by this criterion, the Fulani were the perpetrators of most of the pastoral conflicts in Kaduna. Of the 213 incidents categorized as Violence against civilians, 92 percent of them were perpetrated by the "Fulani Ethnic Militia." However, it imperative to also mention that the ACLED dataset relies heavily on media reports; it is possible that incidents perpetrated by Fulani pastoralists might make the headlines more frequently than those perpetrated against them. Pastoralists often move to remote locations with limited security in search of pasture for their cattle; this makes them vulnerable to cattle rustling and other forms of violent attacks. These incidents are unlikely to make the news.

I used QGIS software to integrate the survey data with that from ACLED since both datasets are geocoded. As shown in figure 3, buffers with a 10km radius were drawn around the dwellings of the respondents and the number of pastoral

conflicts within them were counted. The higher the number of incidents within the buffer, the higher the exposure to pastoral conflict and vice versa. Only incidents that occurred between 1997 to 2020 were considered. The start date of 1997 was chosen because the ACLED data for Nigeria begins from that year. Incidents that occurred post-2020 were excluded because the dependent variable is measured in 2021. This serves as a lag for the explanatory variable. I considered all the pastoral conflicts within the buffers from 1997 to 2020 because I am particularly interested in the cumulative effect of pastoral conflict on trust.

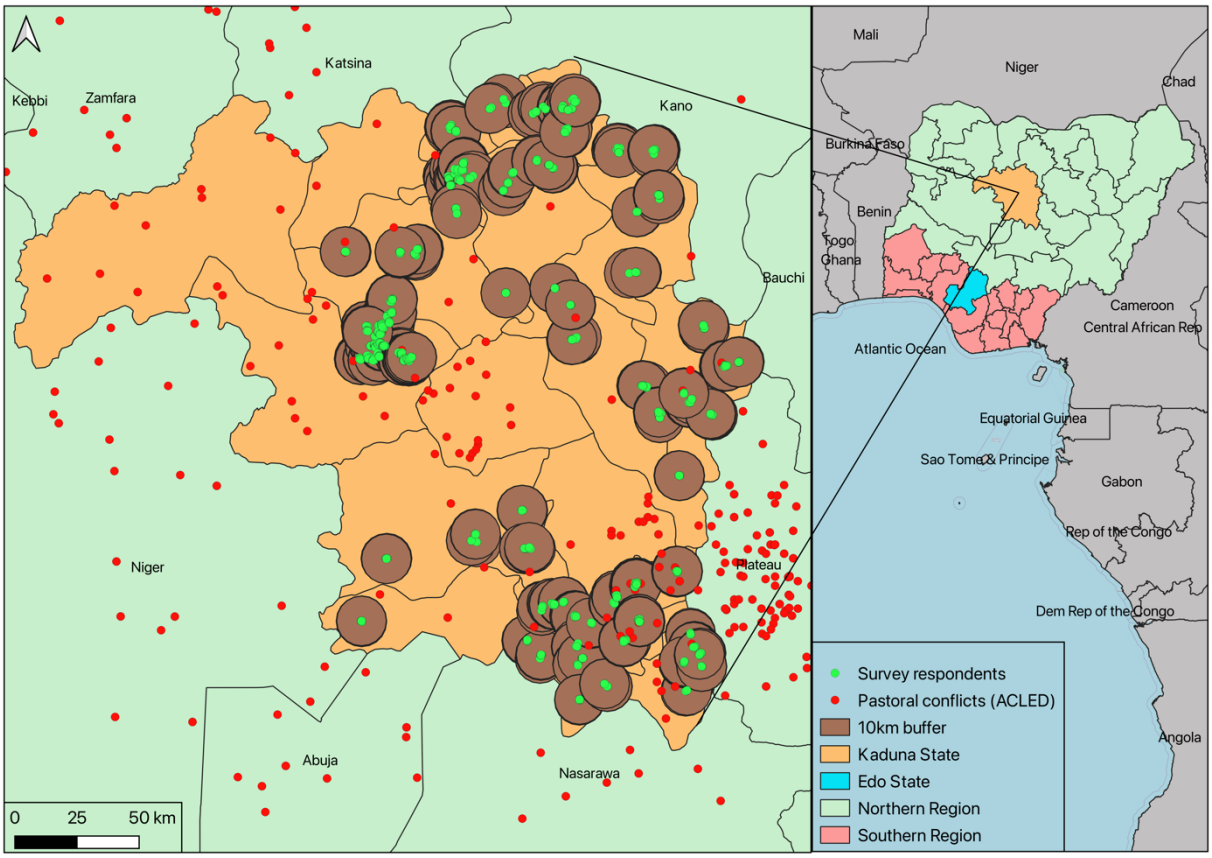


Figure 3: Measuring exposure to pastoral conflict

Buffers are a more efficient way of measuring exposure to pastoral conflict than administrative boundaries, according to the LGA. The latter limits the amount of variation in the conflict exposure variable, since all respondents within

the same LGA will be associated with the total number of incidents there. This assumes that they are equally exposed to pastoral conflict, which is not necessarily the case. Moreover, respondents living at the border of an LGA might be more exposed to incidents in a contiguous LGA than those in the particular LGA where they reside, as these incidents might be closer to their dwellings. Buffers, which are unique for each respondent and independent of administrative boundaries, address these problems. Buffers also allow for easy comparability between the respondents since they are of equal sizes. 60 percent of the 1,353 respondents had at least one incident within the 10km buffer.

I developed an alternative measure for exposure to pastoral conflict where I considered only the incidents within the buffers that resulted in at least 1 fatality. I used this to conduct a robustness check. Of the 257 incidents that occurred in Kaduna between 1997 to 2021, 88 percent of them were accompanied by at least one fatality.

3.2.3 Instrumental variables

Drought: I used the Standardized Precipitation-Evapotranspiration Index (SPEI) (Vincente-Serrano et al. 2010) as an instrumental variable in the regression models. The SPEI drought index is a gridded dataset that measures the incidence and severity of drought in a place over a period of time. Both precipitation and temperature were considered in the computation of the index. Although its theoretical limits are from $-\infty$ to $+\infty$, it typically ranges from 2.5 to -2.5, with higher values denoting more wetness and vice versa. Since the average value of

the SPEI index is 0, it thus captures the degree to which climatic conditions deviate from the normal average. A benefit of the SPEI index is that it can be calculated for different time frames ranging from 1 to 48 months. For this study, I focus on short-term drought, and thus use the three-month SPEI index. The data is in 0.5 x 0.5-degree spatial resolution. Each grid cell is associated with a unique SPEI value. The data is available on a monthly basis from 1900 to 2020. I computed the average SPEI drought index at the centroid for each of the grid cells within Nigeria's administrative boundary from 1997 to 2020 (See panel 1 of figure 4 for a visualization), which corresponds with the period that the ACLED dataset covers, and then took the average.

To determine the SPEI index values around the dwellings of the respondents, I matched their geolocations to the nearest SPEI centroid. The matching was done using QGIS software. Since the centroids are equidistant from each other, it goes that the respondents' dwellings will be located within the grid of the nearest SPEI centroid (see panel 2 of figure 4). The original SPEI dataset is in netcdf format. I extracted the index values at the centroids using R Studio. Version 2.7 of the SPEI index was used.

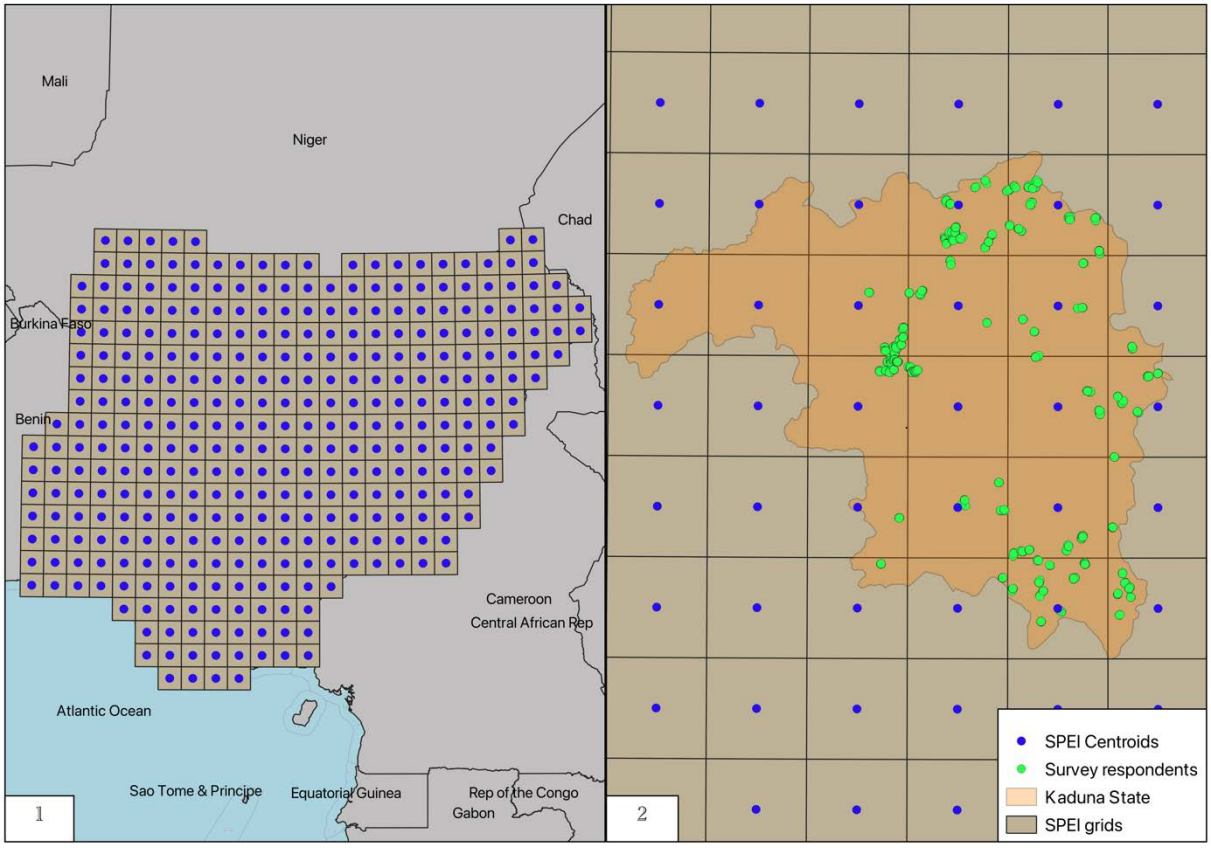


Figure 4: Determining the SPEI drought index at the respondents' dwellings

The rationale for using the SPEI index as an instrumental variable is driven by the role that drought plays in causing pastoral conflicts. It correlates positively with pastoral conflicts, and should plausibly not influence trust directly. According to the International Crisis Group (2017), the root causes of pastoral conflicts in Nigeria are drought and desertification, which have degraded pastures and made water sources scarce, forcing pastoralists to move southwards in search of these. Nigeria's northernmost region is proximate to the Sahara Desert, while the southernmost region is proximate to the Atlantic Ocean. The amount of rainfall and vegetation cover increases as one moves from the north towards the south. The southward movement by pastoralists tend to put them at loggerheads with sedentary farmers, especially when cattle stray into farmlands and destroy

crops. Land and water are crucial inputs for both farmers and pastoralists: Farmers need these for crop cultivation and irrigation; pastoralists also need these to water and graze their livestock. Using representative data for Africa, Erbele, Rohner and Thoenig (2020) have shown that rising temperatures increase the risk of conflict between farmers and pastoralists. Droughts could also lead to conflict by causing a decline in crop yields or the death of livestock, which leads to a decline in income; low income in turn reduces the opportunity cost of joining a rebel group (Von Uexkull 2014; Maystadt and Ecker 2014; Collier and Hoeffler 2004). A survey conducted by the Kaduna State Government showed that 1.3 million households in the state rely on rain-fed crop cultivation for their sustenance, with the agricultural sector employing 42 percent of the state's workforce. 5.4 percent of farmers cultivate crops solely for commercial purposes, while the remaining 94.6 percent cultivate crops solely for subsistence purpose or for both subsistence and commercial purposes (Kaduna State Bureau of Statistics 2016).

Distance to Governor's house: Using QGIS software, I computed the distance from the respondents' dwellings to the state governor's residence in kilometers and as-crow-flies (see Figure 5 for a visualization).

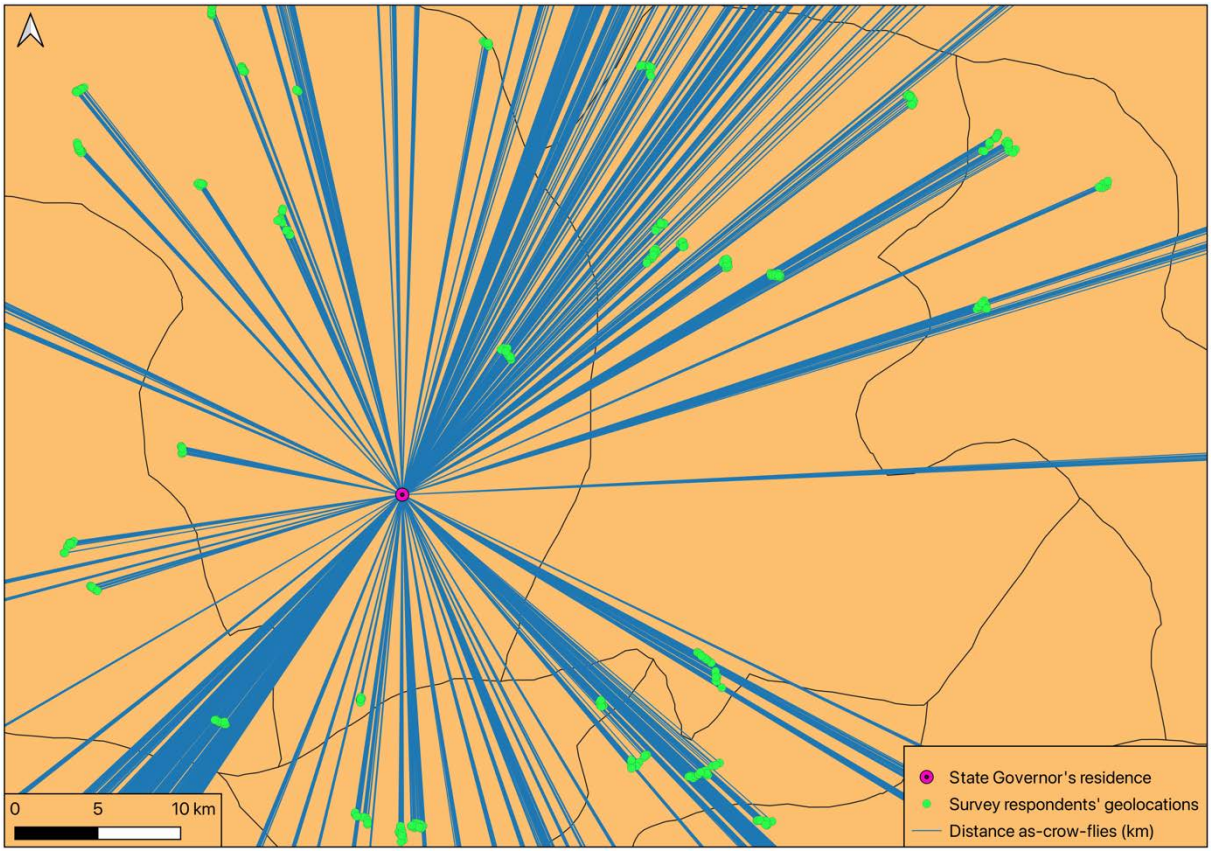


Figure 5: Developing a measure for state capacity

Le Billon (2001) argued that the ability of a government to exert control over its territory diminishes the farther one moves away from the administrative center. Based on this premise, I expect that the risk of pastoral conflict will increase the farther one moves from the state governor's residence. However, the reverse is also plausible: Pastoralists might be wary of insecurity and cattle rustling in the remote/rural areas, and this might prompt them to graze their cattle on lands and water sources closer to the center. This could lead to increased competition for these resources closer to the administrative center, which in turn could cause conflicts. Alongside the survey discussed in subsection 3.1, the WZB Berlin Social Science Center conducted another survey in parallel targeting pastoralists in Kaduna. Of the 255 pastoralists who were interviewed, 33 percent

of them have had their cattle stolen at least once during the last five years, which translates to 1 in 3 pastoralists. 20 percent of the them have had their cattle stolen two or more times, which corresponds to 1 in 5 pastoralists. This suggests that cattle rustling is a pressing problem in the state. The plausibility of both mechanisms makes it difficult to have an a priori expectation of the sign that this instrumental variable would take.

3.2.4 Control variables

Some control variables will be added to the regression models. This includes religious affiliation, gender, marital status, age, household income, and victimization by herders. Religious affiliation is a binary variable that takes the value of 1 if the respondent is Christian and 0 if Muslim. Since this study focuses primarily on Christians and Muslims, the 25 respondents in Edo who belonged to neither of these religions were treated as missing observations. All the respondents in Kaduna were either Christians or Muslims. Gender takes the value of 1 if the respondent is female and 0 if male. Marital status takes the value of 1 if the respondent is married or has ever been married and 0 otherwise. Divorcees and widows/widowers were categorized as married because divorce or the death of a spouse does not necessarily do away with familial responsibility, especially if the union produced offspring. Household income measures the capacity of the total income of the household to meet the needs of its members. It was derived from the question, "Which of the following statements best describe the current economic situation of your household?" with the responses on a five-point scale

ranging from “Money is not enough for food” to “We can afford to buy almost anything.”

Victimization by herders is measured using a dummy variable that takes the value of 1 if the respondent or a member of his or her household has been victimized by herders during the past decade and 0 otherwise. Of the 1,353 respondents who were interviewed, 232 had been affected by some form of violence. This translates to one in six households. Among the victimized subsample, religious extremists were reported as the main perpetrators of violence (28%). Herders came in second place with 25 percent. Among those who have been victimized by herders, 78 and 22 percent of them were Christians and Muslims respectively.

3.3 Descriptive Statistics and analytical technique

Table 1: Summary Statistics for Kaduna state

Variable	Obs.	Mean	Std. Dev.	Min	Max	
Pastoral conflict (all)	1353	4.124	5.856	0	19	
Pastoral conflict (1 fatality)	1353	3.618	5.09	0	17	
Religious affiliation	1298	0.439	0.496	0	1	
Victimized by herders	1353	0.043	0.203	0	1	
Gender	1321	0.557	0.497	0	1	
Marital status	1298	0.74	0.439	0	1	
Age	1321	34.391	14.004	15	85	
SPEI drought index	1353	-0.089	0.069	-0.229	-0.002	
Distance to gov't house (km)	1353	82.31	58.333	0.841	191.407	
How much do you trust members of the Fulani ethnic group?		*Completely* **(0)**	*Somewhat* **(1)**	*Neither* **(2)**	*Not much* **(3)**	*Not at all* **(4)**
Distrust Fulani	1278	24.65%	28.97%	5.32%	12.44%	28.72%
How much do you trust Muslims?						
Distrust Muslims	1289	48.1	28.7	3.65	10.71	8.84
Household's current economic situation (Money)		*Not enough for food* **(0)**	*Enough for food, not other basics* **(1)**	*Enough for basics, but not durables* **(2)**	*Enough for some expensive durables* **(3)**	*Can afford almost anything* **(4)**
Household income	1298	33.82%	44.14%	18.64%	3.24%	2.16%

Note: *Numbers in parentheses are the values assigned to the response categories.*

Table 1 summarizes the data used to estimate the regression model. The general form of the model to be estimated could be expressed thus:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X'_{2t} + \varepsilon_t$$

Where Y_t is the dependent variable which measures the level of distrust, either of members of the Fulani ethnic group or Muslims. X_{1t} is the explanatory variable, which measures exposure to pastoral conflict. X'_{2t} is a vector of control variables measuring the respondents' demographic attributes, socioeconomic condition, and past victimization by herders. β_1 and β_2 denote the coefficients of the explanatory and control variables respectively, while β_0 is the intercept. ε_t is the error term, and t the year in which the variables are measured.

The a priori expectation is that exposure to pastoral conflict causes distrust of members of the Fulani ethnic group and Muslims. However, it is also possible that people who distrust the Fulani and Muslims are those who are exposed to pastoral conflict. This leads to the problem of reverse causality. To mitigate this problem, I lagged the explanatory variable by considering only pastoral conflicts that occurred prior to 2021. This is because the dependent variable is measured in 2021. However, endogeneity might still be present due to the omission of some explanatory variables that could influence distrust from the regression model. To address this problem, I estimated the regression models using an instrumental variable (IV) approach. Drought and the distance to the state governor's house were used as instrumental variables. The rationale for their use is that they wouldn't influence distrust directly, but rather through the mechanism of pastoral conflict. Since the dependent variable is measured on a five-point ordinal scale, I estimated the model using IV ordered probit regression, which relies on maximum likelihood estimation.

4 Results and discussion

4.1 Association between the explanatory and instrumental variables

Table 2 reports the results of ordinary least squares (OLS) regression models examining the association between pastoral conflict and the instrumental variables. The dependent variable in models 1 and 2 consider all pastoral conflicts without the imposition of a fatality threshold. The SPEI values in Kaduna range from -0.229 to -0.002, which is below the normal average of 0. This allows for an

easy interpretation of the results, since higher values are closer to the normal average of 0, and invariably associated with more wetness.

Table 2: First-stage regressions

Pastoral conflict$^{\phi}$	All		1 fatality	
	(1)	(2)	(4)	(5)
SPEI drought index	-37.139***	-41.68***	-31.796***	-34.816***
	(2.169)	(2.65)	(1.907)	(2.336)
Distance to Gov't house	-0.052***	-0.053***	-0.043***	-0.044***
	(0.003)	(0.003)	(0.002)	(0.002)
Religious affiliation		-1.61***		-1.216***
		(0.347)		(0.306)
Victimized by herders		2.876***		2.744***
		(0.68)		(0.599)
Household income		-0.16		-0.14
		(0.153)		(0.135)
Gender		0.26		0.274
		(0.291)		(0.256)
Marital status		-1.018***		-0.905***
		(0.389)		(0.343)
Age		0.015		0.014
		(0.012)		(0.011)
Constant	5.081***	5.704***	4.333***	4.796***
	(0.258)	(0.529)	(0.227)	(0.467)
Observations	1353	1298	1353	1298
R-squared	0.269	0.3	0.252	0.281

Note: *Standard errors are in parentheses, ϕ is the dependent variable, *** p<0.01, ** p<0.05, * p<0.10. All models are estimated using ordinary least squares (OLS) regression.*

As expected, the SPEI drought index carried a negative sign and was significant at the 1 percent level in model 1, suggesting a direct association between dry spells and the incidence of pastoral conflict. The positive sign accompanying the distance to the state governor's residence suggests that the incidence of pastoral conflict increases the closer on moves towards the administrative center. This is congruent with the argument that pastoralists prefer to graze their cattle on lands closer to the center for security reasons. In model 2 where I add control variables, the sign and significance level of the instrumental variables remain unchanged. In models 3 and 4 where I consider only pastoral conflicts associated with at least one fatality, the negative sign

accompanying the instrumental variables persist and they remain significant at the 1 percent level.

4.2 Pastoral conflict and distrust of Fulani

Table 3: Effect of pastoral conflict on distrust of Fulani

Distrust Fulani$^{\phi}$	**Kaduna**						**Edo**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Pastoral conflict (all)	0.069***	0.062***	0.041***	0.046***	0.048***		1.334***
	(0.008)	(0.009)	(0.01)	(0.01)	(0.014)		(0.376)
Pastoral conflict (1 fatality)						0.054***	
						(0.012)	
Religious affiliation			0.711***	0.615***	0.981***	0.614***	0.117
			(0.068)	(0.12)	(0.177)	(0.12)	(0.092)
Victimized by herders		0.255*	0.033	0.00	-0.197	0.002	0.122
		(0.137)	(0.147)	(0.147)	(0.212)	(0.147)	(0.216)
Household income		-0.067**	-0.035	-0.037	-0.019	-0.036	-0.058*
		(0.031)	(0.033)	(0.033)	(0.047)	(0.033)	(0.033)
Gender		-0.005	0.035	0.036	0.024	0.037	0.115*
		(0.058)	(0.062)	(0.062)	(0.09)	(0.062)	(0.062)
Marital status		-0.259***	-0.175**	-0.164*	-0.185	-0.164*	0.259***
		(0.079)	(0.084)	(0.084)	(0.122)	(0.084)	(0.09)
Age		-0.002	-0.005*	-0.004*	-0.007*	-0.004*	-0.01***
		(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
Constant					2.355***		
					(0.703)		
Intercept 1	-0.337***	-0.714***	-0.558***	-1.087**		-1.071**	-1.46***
	(0.06)	(0.116)	(0.119)	(0.481)		(0.481)	(0.449)
Intercept 2	0.373***	0.014	0.255**	-0.264		-0.25	-0.87**
	(0.048)	(0.107)	(0.114)	(0.478)		(0.477)	(0.351)
Intercept 3	0.495***	0.14	0.397***	-0.121		-0.107	-0.684**
	(0.046)	(0.106)	(0.113)	(0.477)		(0.476)	(0.321)
Intercept 4	0.803***	0.456***	0.757***	0.242		0.254	-0.359
	(0.044)	(0.103)	(0.113)	(0.476)		(0.476)	(0.271)
Ethnic group dummies	No	No	No	Yes	Yes	Yes	No
Estimation method	IV Probit	IV Probit	IV Probit	IV Probit	2SLS	IV Probit	IV Probit
Observations	1278	1278	1278	1278	1278	1278	1355
R squared					0.131		
Log likelihood	-5719.468	-5706.076	-5645.748	-5616.122		-5453.973	-1955.629

Note: *Standard errors are in parentheses, ϕ is the dependent variable. Standard errors are in parentheses, *** p<0.01, ** p<0.05, * p<0.10*

Table 3 reports the results of the second-stage regressions examining the relationship between exposure to pastoral conflict and distrust of members of the Fulani ethnic group. In model 1 – the baseline model where no control variables were added – pastoral conflict carried the expected positive sign and was significant at the 1 percent level. This suggests that exposure to pastoral conflict increases the likelihood of distrusting members of the Fulani ethnic group. The correlation between the error terms of the first and second stage regression

models was -0.47 and significant at the one percent level, which indicates that there was indeed endogeneity and the use of IV regression was appropriate.

In model 2, I added all the control variables except for religious affiliation. Pastoral conflict remained significant at the 1 percent level and carried the expected positive sign. Although the variables measuring household income and victimization by herders were significant in model 2, they both became insignificant in model 3 when I controlled for religious affiliation. The Akaike Information Criterion (AIC) statistic also decreased from 11,442 to 11,324, indicating that model 3 has a better fit than its predecessor. Pastoral conflict retained its positive sign and remained significant at the 1 percent level. Keeping all covariates at their mean levels, the analysis showed that a unit increase in the number of pastoral conflicts within the 10km buffer around the dwellings of the respondents increases the likelihood of them choosing the "Do not trust at all" response category by 1.1 percent (Table 5 in the appendix reports the marginal effects at the mean for model 3). Religious affiliation was significant at the 1 percent level and carried a positive sign, indicating that Christians are more distrustful of the Fulani than Muslims. Keeping all covariates at their mean levels, the analysis showed that Christians are 18.7 percent more likely to choose the "Do not trust at all" response category compared to Muslims. In model 4 where I added dummy variables for all the ethnic groups, pastoral conflict and religious affiliation retained their positive signs and remained significant at the 1 percent level.

As a robustness check, I treated all the variables as continuous and re-estimated the model using two-stage least squares (2SLS) regression. As shown in model 5, the results are consistent with those from the preceding models. To check for the suitability of the instrumental variables, I undertook a test for overidentifying restrictions since there were two instrumental variables and one endogenous variable, which made the model overidentified. The Sargan and Basmann statistics were 1.933 and 1.89 respectively. Both statistics were insignificant, implying that the instrumental variables were valid. To check if exposure to pastoral conflict was indeed endogenous, I conducted a test for endogeneity. The Durbin and Wu-Hausman statistics were 24.934 and 24.833 respectively, both of which were significant at the 1 percent level. Thus, the null hypothesis that the variables were exogenous was rejected. In model 6, I conducted another robustness check by considering only pastoral conflicts that have caused at least one fatality. The explanatory variable carried the expected positive sign and was significant at the 1 percent level.

I conducted a final robustness check using alternative survey data collected from Edo State in Nigeria's Southern Region. Edo differs from Kaduna in terms of the incidence of pastoral conflict and the religious composition of its population. While the population is almost evenly split between Christians and Muslims in Kaduna, with the latter group being slightly more numerous, Muslims constitute a minority in Edo as they account for about 10 percent of the population, while the remaining 90 percent is Christian. Moreover, Kaduna has a much higher

incidence of pastoral conflict than Edo. Data from ACLED shows that there were 257 pastoral conflicts in Kaduna between 2010 and 2021. In Edo, there were 24. This indicates that for each incident that occurred in Edo during this period, there were 11 in Kaduna. While 26 percent of the 1,638 respondents in Edo had at least one pastoral conflict within the 10km buffer, the estimate in Kaduna was 34 percentage points higher. Model 7 shows the regression results based on the data from Edo. Exposure to pastoral conflict carried the expected positive sign and was significant at the 1 percent level. Keeping all covariates at their mean levels, the analysis showed that an additional conflict within the 10km buffer increases the likelihood of choosing the "Do not trust at all" response category by 30 percent (Table 6 in the appendix presents the summary statistics of the data from Edo, while table 7 reports the marginal effects at the mean for model 7). This effect is 29 percentage points higher than the effect found in Kaduna. A closer inspection of the dependent variable shows that 87 percent of the respondents in Edo chose the "Do not trust at all" response category, compared to 29 percent in Kaduna (Figure 6 in the appendix compares the level of distrust in the Fulani between the respondents in Kaduna and Edo). The much larger effect in Edo than in Kaduna may be explained by the lower incidence of conflict in Edo, which makes it possible for such occurrences to shock the population, thus having a larger effect on attitudes. The high incidence of pastoral conflicts in Kaduna may have caused some form of apathy and normalization of violence, thus the smaller marginal effect. Moreover, respondents in Kaduna are more likely to know some members

of the Fulani ethnic group personally, and this could to some degree temper distrust despite the high incidence of pastoral conflict. In Kaduna, 53 respondents belonged to the Fulani ethnic group. There was only 1 Fulani respondent in Edo. Unlike as was the case in Kaduna, religious affiliation was insignificant in Edo. This might be because the population in Edo are able to disentangle members of the Fulani ethnic group from the larger Muslim population, and thus do not consider them as an adjacent religious outgroup. Religion is not a contentious issue in Edo, probably because Christians already dominate and do not feel threatened by the Muslim minority. However, in Kaduna where both religious groups are almost equally represented among the population, this appears to have fostered competition between them, which in turn makes religious cleavages more salient. Societies divided into two equal groups tend to be very polarized, and this in turn increases the risk of conflict (Montalvo and Reynal-Querol 2005, 2003).

4.3 Pastoral conflict and distrust of Muslims

Table 4: Effect of pastoral conflict on distrust of Muslims

Distrust Muslims$^{\phi}$	**Kaduna**						**Edo**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Pastoral conflict (all)	0.081***	0.074***	0.041***	0.037***	0.024**		-0.336
	(0.008)	(0.009)	(0.01)	(0.011)	(0.011)		(0.416)
Pastoral conflict (1 fatality)						0.043***	
						(0.013)	
Religious affiliation			1.17***	1.045***	1.325***	1.04***	0.832***
			(0.076)	(0.134)	(0.068)	(0.133)	(0.103)
Victimized by herders		0.241*	-00.07	-0.103	-0.201	-0.096	-0.017
		(0.129)	(0.147)	(0.151)	(0.16)	(0.151)	(0.201)
Household income		-0.011	0.054	0.051	0.056	0.051	-0.018
		(0.03)	(0.034)	(0.035)	(0.036)	(0.034)	(0.031)
Gender		0.069	0.133**	0.142**	0.18***	0.143**	0.165***
		(0.057)	(0.065)	(0.066)	(0.069)	(0.066)	(0.061)
Marital status		-0.217***	-0.075	-0.08	-0.091	-0.082	0.226***
		(0.077)	(0.087)	(0.089)	(0.095)	(0.089)	(0.079)
Age		0.005**	0.002	0.003	0.002	0.003	-0.009***
		(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
Constant					0.222*		
					(0.125)		
Intercept 1	0.297***	0.322***	0.759***	0.818		0.818	-0.879***
	(0.049)	(0.102)	(0.118)	(0.512)		(0.51)	(0.171)
Intercept 2	0.988***	1.026***	1.683***	1.756***		1.754***	-0.149
	(0.043)	(0.099)	(0.12)	(0.511)		(0.509)	(0.185)
Intercept 3	1.097***	1.138***	1.829***	1.904***		1.901***	0.046
	(0.043)	(0.099)	(0.121)	(0.511)		(0.509)	(0.19)
Intercept 4	1.532***	1.584***	2.396***	2.478***		2.474***	0.565***
	(0.05)	(0.101)	(0.127)	(0.512)		(0.51)	(0.202)
Ethnic group dummies	No	No	No	Yes	No	Yes	No
Estimation method	IV Probit	IV Probit	IV Probit	IV Probit	2SLS	IV Probit	IV Probit
Observations	1289	1289	1289	1289	1289	1289	1489
R squared					0.229		
Log likelihood	-5509.677	-5503.219	-5358.178	-5346.537		-5181.628	-2891.34

Note: *Standard errors are in parentheses, ϕ is the dependent variable. Standard errors are in parentheses, *** p<0.01, ** p<0.05, * p<0.10.*

Having shown that exposure to pastoral conflicts cause distrust of the Fulani, I proceed to check whether exposure to pastoral conflicts also causes distrust of Muslims. Table 4 reports the second-stage regression results. In model 1 – the baseline model – pastoral conflict was significant at the 1 percent level and carried the expected positive sign. This is congruent with the a priori expectation that exposure to pastoral conflict causes distrust of Muslims. In model 2 where I added all the control variables except for religious affiliation, pastoral conflict remained significant at the 1 percent level and retained its positive sign. When I controlled for religious affiliation in model 3, the AIC statistic declined

from 11,036 to 10784, indicating that model 3 has a better fit than its predecessor. Victimization by herders, which was significant in model 2, became insignificant in model 3. Pastoral conflict remained significant at the 1 percent level and retained its positive sign. Keeping all covariates at their mean levels, the analysis showed that a unit increase in the number of pastoral conflicts within the 10km buffer increases the likelihood of respondents choosing the "Do not trust at all" response category by 0.2 percent (Table 8 in the appendix reports the marginal effects at the mean for model 2). The size of this effect is much smaller than the effect that exposure to pastoral conflict has on distrust of the Fulani (i.e. 1.1 percent). Religious affiliation was significant at the 1 percent level and carried a positive sign, indicating that Christian self-identification increases the likelihood of distrusting Muslims. Keeping all covariates at their mean levels, the analysis showed that Christians are 7 percent more likely to choose the "Do not trust at all" response category than Muslims. This size of this effect is 12 percentage points smaller than the effect of Christian self-identification on distrust of the Fulani. This indicates that even though Christians distrust both Muslims and the Fulani, they are more distrustful of the Fulani. these results are robust to the inclusion of dummy variables for all the ethnic groups as shown in model 4. In model 5, I treated all the variables as continuous and re-estimated the model using 2SLS. Although the significance level of pastoral conflict dropped to 5 percent, it retained its positive sign. In model 6 where I considered only pastoral conflicts

with at least 1 fatality, pastoral conflict retained its positive sign and was significant at the 1 percent level.

I estimated model 7 using the alternative data from Edo. Pastoral conflict was statistically insignificant. This supports the earlier argument that the population in Edo are able to disentangle members of the Fulani ethnic group from the larger Muslim population; this is why exposure to pastoral conflicts cause distrust of the Fulani but not Muslims. Religious affiliation was significant at the 1 percent level and carried a positive sign. Keeping all covariates at their mean levels, the analysis showed that Christian self-identification increases the likelihood of choosing the "Do not trust at all" response category by 33 percent, which is 26 percentage points larger than the size of the effect in Kaduna (Table 9 in the appendix reports the marginal effects at the mean for model 7). The statistical significance of religious affiliation is likely because Muslims constitute an adjacent religious group, unlike the Fulani. Worth emphasizing is the point that even though the population in Edo is more distrustful of the Fulani and Muslims than the population in Kaduna, they are still able to delink the two groups. A plausible explanation for the conflation of the Fulani and Muslims in Kaduna is the high level of religious polarization in the state, which catalyzes the process of conflicts over resources morphing into religious conflicts.

5 Conclusion

This study examined the effect of exposure to pastoral conflict on distrust of members of the Fulani ethnic group and the larger Muslim population in Kaduna State. The regression results showed that exposure to pastoral conflict causes distrust of both the Fulani and Muslims. However, the effect of pastoral conflict on distrust of the Fulani was larger than the effect on distrust of Muslims. This finding is robust to an alternative estimation method and measurement of the explanatory variable. Christian self-identification was also found to increase the likelihood of distrusting the Fulani and Muslims; the size of the effect was much larger for the Fulani than Muslims. These findings indicate that the population tends to conflate the Fulani with Muslims. Polarization along religious lines was found to catalyze the process of conflicts over resources morphing into religious conflicts.

Christians and Muslims do not view pastoral conflicts from the same perspective; the former group is more likely to ascribe pastoral conflicts to a religious cause. If intergroup trust is to be fostered, policymakers first need to be aware of how perceptions vary across cultural groups. In the short term, the government could take concrete steps towards improving the security situation in the state: security forces could be better trained and provided with the necessary equipment needed to respond promptly and effectively to conflict situations. The government could also do more to hold the perpetrators of violence accountable. This could reduce the grievances that often lead to reprisal

attacks. When culprits are not brought to book, this erodes institutional trust, prompting people to take the law into their own hands. Interreligious dialogue could also be employed as a long-term strategy for building intergroup trust. Programs that elevate a shared national identity over ethnicity and religion should be prioritized by the government. While this is desirable, it might be very difficult to achieve because of the central role that religion plays in politics in Kaduna and Nigeria at large.

References

Adebayo, Musliudeen. 2020, January 15. "Why we Established Amotekun – Makinde." *Daily Post*. https://dailypost.ng/2020/01/15/why-we-established-amotekun-makinde/

Agbalajobi, Damilola. 2019, February 12. "Explainer: Factors That Foster Conflict in Nigeria's Kaduna State." *The Conversation*. https://theconversation.com/explainer-factors-that-foster-conflict-in-nigerias-kaduna-state-109899

Ajala, Olayinka. 2020. "New Drivers of Conflict in Nigeria: An Analysis of the Clashes Between Farmers and Pastoralists." *Third World Quarterly* 41(12): 2048-2066.

Allport, Gordon. (1954). The Nature of Prejudice. Massachusetts: Addison-Wesley Publishing Company, Inc.

Aneasoronye, Modestus. 2020, March 4. "Five Things You Need to Know About Operation Amotekun." *Business Day*. https://businessday.ng/news/article/five-things-you-need-to-know-about-operation-amotekun/

Angerbrandt, Henrik. 2018. "Deadly Elections: Post-election Violence in Nigeria." *The Journal of Modern African Studies* 56(1): 143-167.

Angerbrandt, Henrik. 2011. "Political Decentralisation and Conflict: The Sharia Crisis in Kaduna, Nigeria." *Journal of Contemporary African Studies*, 29(1): 15-31.

Bellows, John, and Miguel Edward. 2009. "War and Collective Action in Sierra Leone." *Journal of Public Economics* 93(11): 1144-1157.

Besley, Timothy, and Reynal-Querol, Marta. 2014. "The Legacy of Historical Conflict: Evidence From Africa." *American Political Science Review* 108(2):319-336.

Blueprint. 2018, June 26. "Plateau killings reprisal – Miyetti Allah." *Blueprint News*. https://blueprint.ng/plateau-killings-reprisal-miyetti-allah/

Bondarenko Maksym., Kerr David, Sorichetta Alessandro and Tatem Andrew. 2020. Census/projection-disaggregated Gridded Population Datasets for 51 Countries Across Sub-Saharan Africa in 2020 Using Building Footprints. WorldPop, University of Southampton, UK.

Brewer, Marilynn B. 1999. "The Psychology of Prejudice: Ingroup: Love or Outgroup Hate?" *Journal of Social Issues* 55(3): 429-444.

Campbell, John. 2021, February 9. "Security Deteriorating in Nigeria's Former 'Biafra'". *Council on Foreign Relations*. https://www.cfr.org/blog/security-deteriorating-nigerias-former-biafra

Campbell, John and McCaslin Jack. 2020. "Facing Rising Insecurity, Southwest Governors in Nigeria Launch Policing Initiative." *Council on Foreign Relations*. https://www.cfr.org/blog/facing-rising-insecurity-southwest-governors-nigeria-launch-policing-initiative

Cassar, Alessandra, Grosjean Pauline and Whitt Sam. 2013. "Legacies of Violence: Trust and Market Development. *Journal of Economic Growth* 18(3): 285-318.

Christian Association of Nigeria. 2018. "Political Opposition Sponsorship of Killings in Nigeria: Questions Buhari Government Must Answer." *CAN Nigeria*. https://canng.org/news-and-events/news/181-political-opposition-sponsorship-of-killings-in-nigeria-questions-buhari-government-must-answer

Christian Association of Nigeria. 2018a. "Nigerian Church Protest Killing of Christians." *CAN Nigeria*. https://canng.org/news-and-events/news/173-nigerian-church-protest-killing-of-christians

Chukwuma, Kodili Henry. 2020. "Constructing the Herder–farmer Conflict as (In) security in Nigeria." *African Security* 13(1): 54-76.

Collier, Paul and Hoeffler Anke. 2004. "Greed and Grievance in Civil War." *Oxford Economic Papers* 56(4): 563-595.

De Juan, Alexander and Pierskalla Jan Henryk. 2016. "Civil War Violence and Political Trust: Microlevel Evidence from Nepal." *Conflict Management and Peace Science* 33(1): 67-88.

Diamond, Larry 1988. Class, Ethnicity and Democracy in Nigeria: The Failure of the First Republic. London: Macmillan Press.

Eke, Surulola. 2020. "'Nomad Savage' and Herder-farmer Conflicts in Nigeria: The (Un)making of an Ancient Myth." *Third World Quarterly* 41(5): 745-763.

Eberle, Ulrich J., Roher Dominic and Thoenig Mathias. 2020. Heat and Hate, Climate Security and Farmer-Herder Conflicts in Africa (ESOC Working Paper No. 22). Empirical Studies of Conflict Project. http://esoc.princeton.edu/wp22

Gbadamosi, Hakeem. 2022, February 1. "Killer Herdsmen in Ondo Communities: Set Farms, Villages Ablaze in Molege." *Nigerian Tribune*. https://tribuneonlineng.com/killer-herdsmen-in-ondo-communities-set-farms-villages-ablaze-in-molege/

George, Justin, Adelaja Adesoji, Vaughan Olifemi, and Awokuse Titus. 2022. Explaining Transhumance-related Violence: Fulani Ethnic Militia in Rural Nigeria. *Journal of Rural Studies* 89: 275-286.

Hoffmann, Leena Koni. 2017, February 15. "Kaduna Threatens to Undermine Nigeria's Democratic Stability." *Chatham House*. https://www.chathamhouse.org/2017/02/violence-southern-kaduna-threatens-undermine-nigerias-democratic-stability

Human Rights Watch. 2011, May 16. "Nigeria: Post-election Violence Killed 800." *Human Rights Watch*. https://www.hrw.org/news/2011/05/16/nigeria-post-election-violence-killed-800

Human Rights Watch. 2003, July 23. "The Miss World Riots: Continued Impunity for Killing in Kaduna." *Human Rights Watch*. https://www.hrw.org/reports/2003/nigeria0703/2.htm

Ibrahim, Jibrin. 1989. "The Politics of Religion in Nigeria: The Parameters of the 1987 Crisis in Kaduna State." *Review of African Political Economy*, 16(45-46): 65-82.

International Crisis Group. 2017. Herders Against Farmers: Nigeria's Expanding Deadly Conflict (Africa Report no. 252). Brussels: International Crisis Group.

Ishiyama, John, Higareda Felipe Carlos Betancourt, Pulido Amalia and Almaraz Bernardo. 2018. "What are the Effects of Large-scale Violence on Social and Institutional Trust? Using the Civil War Literature to Understand the Case of Mexico, 2006–2012." *Civil Wars* 20(1): 1-23.

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

Kijewski, Sara, and Freitag Markus. 2018. "Civil War and the Formation of Social Trust in Kosovo: Posttraumatic Growth or War-related Distress?" *Journal of Conflict Resolution* 62(4): 717-742.

Le Billon, Philippe. 2001. "The Political Ecology of War: Natural Resources and Armed Conflicts." *Political Geography* 20(5): 561-584.

Maystadt, Jean-Francois and Ecker Olivier. 2014. "Extreme Weather and Civil War: Does Drought Fuel Conflict in Somalia Through Livestock Price Shocks?" *American Journal of Agricultural Economics* 96(4): 1157-1182.

Montalvo, Jose G. and Reynal-Querol Marta. 2005. "Ethnic Polarization, Potential Conflict, and Civil Wars." *American Economic Review*, 95(3): 796-816.

Montalvo Jose G. and Reynal-Querol Marta. 2003. "Religious Polarization and Economic Development." *Economics Letters* 80(2): 201-210.

Morrison, James H. 1982. "Plateau Societies' Resistance to Jihadist Penetration." In Studies in the History of Plateau State (136–150), edited by Isichei Elizabeth. London: Macmillan Press.

Nnaji, Amaka, Ratna Nazmun, Renwick Alan and Ma Wanglin. 2022. "Risk Perception, Farmer– herder Conflicts and Production Decisions: Evidence from Nigeria." *European Review of Agricultural Economics* 1-34

Nnaji, Amaka, Ma Wanglin, Ratna Nazmun and Renwick Alan. 2022. "Farmer-herder Conflicts and Food Insecurity: Evidence from rural Nigeria." *Agricultural and Resource Economics Review* 51: 391-421.

Nunn, Nathan. 2007. "Historical Legacies: A Model Linking Africa's Past to its Current Underdevelopment." *Journal of Development Economics* 83(1): 157-175.

Nunn, Nathan and Wantchekon, Leonard. 2011. "The Slave Trade and the Origins of Mistrust in Africa." *American Economic Review* 101(7): 3221-52.

Nwannekanma, Bertram and Akingboye Oluwaseun 2022, April 7. "Army, Amotekun Corps in Mild Argument Over Cows in Ondo." *The Guardian*. https://guardian.ng/news/army-amotekun-corps-in-mild-argument-over-cows-in-ondo/

Ojo, Olawunmi. 2020, January 18. "Operation Amotekun: Metaphor for FG's Indecisiveness on Insecurity." *The Guardian*. https://guardian.ng/saturday-magazine/operation-amotekun-metaphor-for-fgs-indecisiveness-on-insecurity/

Olumide, Seye 2022, June 8. "Suspected Fulani Killer-herdsmen Attack Ogun Community, Kill Three." *The Guardian*. https://guardian.ng/news/ suspected-fulani-killer-herdsmen-attack-ogun-community-kill-three/

Opejobi, Seun. 2022, June 25. "Gumi Creates Nomadic Rights Group, Describes Herdsmen as Victims of Banditry." *Daily Post*. https://dailypost.ng/2022/06/25/gumi-creates-nomadic-rights-group-describes-herdsmen-as-victims-of-banditry/

Opejobi, Seun. 2021, January 28. "Orlu: Nnamdi Kanu Orders ESN to Ceasefire Against Army, Watchful of Fulani Herdsmen." *Daily Post*. https://dailypost.ng/2021/01/28/orlu-nnamdi-kanu-orders-esn-to-ceasefire-against-army-watchful-of-fulani-herdsmen/

Poushter, Jacob, Fetterolf Janell and Tamir Christine. 2019. A changing world: Global views on diversity, gender equality, family life and the importance of religion. Washington D.C.: Pew Research Center.

Raleigh, Clionadh, Andrew Linke, Håvard Hegre and Joakim Karlsen. 2010. "Introducing ACLED – Armed Conflict Location and Event Data." *Journal of Peace Research* 47(5): 651–660.

Rohner, Dominic, Thoenig Mathias and Zilibotti Fabrizio. 2013. "War Signals: A Theory of Trade, Trust, and Conflict." *Review of Economic Studies* 80(3): 1114-1147.

Rohner, Dominic, Thoenig Mathias and Zilibotti Fabrizio. 2013a. "Seeds of Distrust: Conflict in Uganda." *Journal of Economic Growth* 18(3): 217-252.

Sahara Reporters. 2022, June 5. "How Hoodlums Attacked Hausa Community in Ondo After Terrorists Struck Church, Killed Worshippers – Local Chief." *Sahara Reporters.* https://saharareporters.com/2022/06/05/how-hoodlums-attacked-hausa-community-ondo-after-terrorists-struck-church-killed

Sahara Reporters. 2022a, June 2. "Our Children Killing, Kidnapping People Only want dialogue – Islamic Cleric, Sheikh Gumi Tells Nigerian Government." *Sahara Reporters*. https://saharareporters.com/2022/06/02/our-children-killing-kidnapping-people-only-want-dialogue-%E2%80%93-islamic-cleric-sheikh-gumi

Sahara Reporters. 2021, June 7. "Fulani Herdsmen Strike Benue Community Again, Kill 40 Residents." *Sahara Reporters*. https://saharareporters.com/2021/06/07/fulani-herdsmen-strike-benue-community-again-kill-40-residents

Sahara Reporters. 2021a, January 31. "Herdsmen Flee as IPOB's Eastern Security Network Invades Fulani camp in Abia, Kills Many Cows." *Sahara Reporters.* https://saharareporters.com/2021/01/31/herdsmen-flee-ipob%E2%80%99s-eastern-security-network-invades-fulani-camp-abia-kills-many-cows

Tauna, Amos. 2022, June 2. "Create Ministry of Nomadic Affairs for Herders – Sheikh Gumi to FG." *Daily Post*. https://dailypost.ng/2022/06/02/create-ministry-of-nomadic-affairs-for-herders-sheikh-gumi-to-fg/

Van Beek, W.E.A. 1988. "Purity and statecraft: The Fulani Jihad and its Empire." In The Quest for Purity: Dynamics of Puritan Movements (149-182), edited by Van Beek W.E.A. Amsterdam: Mouton de Gruyter.

Vanger, Emmanuel Terngu and Nwosu Bernard Ugochukwu. 2020. "Institutional Parameters That Condition Farmer–herder Conflicts in Tivland of Benue State, Nigeria." *African Security Review* 29(1): 20-40.

Vaughan, Olufemi. 2016. Religion and the making of Nigeria. Durham: Duke University Press.

Vicente-Serrano, Sergio M., Beguería Santiago, López-Moreno Juan I., Angulo Marco and El Kenawy Ahmed. 2010. "A New Global 0.5 Gridded Dataset (1901–2006) of a Multiscalar Drought Index: Comparison with Current Drought Index Datasets Based on the Palmer Drought Severity Index." *Journal of Hydrometeorology*, 11(4): 1033-1043.

Von Uexkull, Nina. 2014. "Sustained Drought, Vulnerability and Civil Conflict in Sub-Saharan Africa." *Political Geography* 43: 16-26.

Wuyo, Ibrahim. 2021, August 22. "Three Herders Killed in Reprisal Attacks in Kaduna Community, Houses Burnt." *Vanguard News*. https://www.vanguardngr.com/2021/08/three-herders-killed-in-reprisal-attacks-in-kaduna-community-houses-burnt/

Yaba, Mohammed I. 2022, June 23. "Insecurity: Gumi Cautions Against Indiscriminate Arrest of Fulani Youths." *Daily Trust*. https://dailytrust.com/insecurity-gumi-cautions-against-indiscriminate-arrest-of-fulani-youths

APPENDIX

Table 5: Marginal effect at the mean for model 3 in Table 1 (Kaduna)

Distrust Fulani$^{\phi}$	Trust completely (1)	Trust somewhat (2)	Neither trust nor distrust (3)	Do not trust very much (4)	Do not trust at all (5)
Pastoral conflict (10km)	-0.016***	0.00	0.001***	0.004***	0.011***
	(0.004)	(0.001)	(0.00)	(0.001)	(0.002)
Religious affiliation	-0.274***	0.003	0.02***	0.064***	0.187***
	(0.024)	(0.018)	(0.004)	(0.008)	(0.024)
Victimized by herders	-0.013	0.00	0.001	0.003	0.009
	(0.057)	(0.001)	(0.004)	(0.013)	(0.039)
Household income	0.014	-0.00	-0.001	-0.003	-0.009
	(0.013)	(0.001)	(0.001)	(0.003)	(0.009)
Gender	-0.014	0.00	0.001	0.003	0.009
	(0.024)	(0.001)	(0.002)	(0.006)	(0.016)
Marital status	0.068**	-0.001	-0.005**	-0.016**	-0.046**
	(0.032)	(0.004)	(0.002)	(0.008)	(0.023)
Age	0.002*	-0.00	-0.00*	-0.00*	-0.001*
	(0.001)	(0.00)	(0.00)	(0.00)	(0001)

Note: *Standard errors are in parentheses, ϕ is the dependent variable, and *** p<0.01, ** p<0.05, * p<0.10. The numbers below the response categories denote the numerical values assigned to each of them.*

Table 6: Summary Statistics for Edo State

Variable	Obs.	Mean	Std. Dev.	Min	Max	
Pastoral conflict (all)	1638	0.264	0.457	0	2	
Pastoral conflict (1 fatality)	1638	0.233	0.423	0	1	
Religious affiliation	1506	0.889	0.314	0	1	
Victimized by herders	1638	0.018	0.134	0	1	
Gender	1570	0.553	0.497	0	1	
Marital status	1531	0.639	0.481	0	1	
Age	1569	36.047	15.797	15	97	
SPEI drought index	1638	-0.171	0.05	-0.272	-0.102	
Distance to gov't house (km)	1638	65.246	47.105	1.215	150.71	
How much do you trust members of the Fulani ethnic group?		*Completely* (0)	*Somewhat* (1)	*Neither* (2)	*Not much* (3)	*Not at all* (4)
Distrust Fulani	1381	1.81%	6.88%	4.13%	10.28%	76.90%
How much do you trust Muslims?						
Distrust Muslims	1514	8.85	16.12	6.34	19.55	49.14
Household's current economic situation (Money)		*Not enough for food* (0)	*Enough for food, not other basics* (1)	*Enough for basics, but not durables* (2)	*Enough for some expensive durables* (3)	*Can afford almost anything* (4)
Household income	1532	13.13%	31.09%	43.76%	6.86%	5.16%

Note: *Numbers in parentheses are the values assigned to the response categories.*

Table 7: Marginal effect at the mean for model 7 in table 1 (Edo)

Distrust Fulani$^{\phi}$	Trust completely (1)	Trust somewhat (2)	Neither trust nor distrust (3)	Do not trust very much (4)	Do not trust at all (5)
Pastoral conflict (10km)	-0.019***	-0.087***	-0.057***	-0.138***	0.301***
	(0.005)	(0.011)	(0.012)	(0.04)	(0.053)
Religious affiliation	-0.002	-0.008	-0.005	-0.012	0.026
	(0.002)	(0.006)	(0.004)	(0.01)	(0.021)
Victimized by herders	-0.002	-0.008	-0.005	-0.013	0.028
	(0.003)	(0.015)	(0.009)	(0.022)	(0.049)
Household income	0.001	0.004	0.002	0.006*	-0.013
	(0.001)	(0.003)	(0.002)	(0.003)	(0.008)
Gender	-0.002	-0.008	-0.005*	-0.012*	0.026*
	(0.001)	(0.005)	(0.003)	(0.007)	(0.015)
Marital status	-0.004	-0.017*	-0.011**	-0.027***	0.058**
	(0.003)	(0.009)	(0.005)	(0.01)	(0.024)
Age	0.00	0.001**	0.00**	0.001***	-0.002***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.001)

Note: *Standard errors are in parentheses, ϕ is the dependent variable, *** p<0.01, ** p<0.05, * p<0.10. The numbers below the response categories denote the numerical values assigned to each of them.*

Table 8: Marginal effect at the mean for model 3 in Table 2 (Kaduna)

Distrust Muslims$^{\phi}$	Trust completely (1)	Trust somewhat (2)	Neither trust nor distrust (3)	Do not trust very much (4)	Do not trust at all (5)
Pastoral conflict (10km)	-0.017***	0.009***	0.001***	0.004***	0.002***
	(0.004)	(0.003)	(0.00)	(0.001)	(0.00)
Religious affiliation	-0.473***	0.243***	0.042***	0.119***	0.07***
	(0.031)	(0.022)	(0.007)	(0.015)	(0.013)
Victimized by herders	0.028	-0.015	-0.002	-0.007	-0.004
	(0.06)	(0.031)	(0.005)	(0.015)	(0.001)
Household income	-0.022	0.011	0.002	0.005	0.003
	(0.014)	(0.007)	(0.001)	(0.004)	(0.002)
Gender	-0.054**	0.028**	0.005*	0.013**	0.008*
	(0.026)	(0.014)	(0.002)	(0.007)	(0.004)
Marital status	0.03	-0.015	-0.003	-0.008	-0.004
	(0.035)	(0.018)	(0.003)	(0.009)	(0.005)
Age	-0.001	0.00	0.00	0.00	0.00
	(0.001)	(0.001)	(0.00)	(0.00)	(0.00)

Note: *Standard errors are in parentheses, ϕ is the dependent variable, *** p<0.01, ** p<0.05, * p<0.10. The numbers below the response categories denote the numerical values assigned to each of them.*

Table 9: Marginal effect at the mean for model 7 in table 3 (Edo)

Distrust Muslims$^{\phi}$	Trust completely (1)	Trust somewhat (2)	Neither trust nor distrust (3)	Do not trust very much (4)	Do not trust at all (5)
Pastoral conflict (10km)	0.056	0.058	0.012	0.009	-0.135
	(0.081)	(0.073)	(0.012)	(0.004)	(0.168)
Religious affiliation	-0.138***	-0.144***	-0.029***	-0.022	0.333***
	(0.027)	(0.019)	(0.008)	(0.024)	(0.039)
Victimized by herders	0.003	0.003	0.001	0.00	-0.007
	(0.033)	(0.035)	(0.007)	(0.005)	(0.08)
Household income	0.003	0.003	0.001	0.00	-0.007
	(0.005)	(0.005)	(0.001)	(0.001)	(0.012)
Gender	-0.027**	-0.028***	-0.006**	-0.004	0.066***
	(0.011)	(0.011)	(0.003)	(0.005)	(0.024)
Marital status	-0.038**	-0.039***	-0.008**	-0.006	0.091***
	(0.015)	(0.014)	(0.003)	(0.007)	(0.032)
Age	0.001***	0.002***	0.00***	0.00	-0.003***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.001)

Note: *Standard errors are in parentheses, ϕ is the dependent variable, *** p<0.01, ** p<0.05, * p<0.10. The numbers below the response categories denote the numerical values assigned to each of them.*

Table 10: Distribution of pastoral conflicts across Nigeria's states (1997–2021)

State	Frequency	Percent	Cumulative
Abia	6	0.27	0.27
Adamawa	93	4.23	4.51
Akwa Ibom	5	0.23	4.74
Anambra	20	0.91	5.65
Bauchi	8	0.36	6.01
Bayelsa	3	0.14	6.15
Benue	352	16.03	22.18
Borno	19	0.87	23.04
Cross River	4	0.18	23.22
Delta	87	3.96	27.19
Ebonyi	12	0.55	27.73
Edo	24	1.09	28.83
Ekiti	13	0.59	29.42
Enugu	36	1.64	31.06
Federal Capital Territory	21	0.96	32.01
Gombe	4	0.18	32.19
Imo	11	0.50	32.70
Jigawa	27	1.23	33.93
Kaduna	257	11.70	45.63
Kano	3	0.14	45.77
Katsina	55	2.50	48.27
Kebbi	10	0.46	48.72
Kogi	48	2.19	50.91
Kwara	23	1.05	51.96
Lagos	7	0.32	52.28
Nassarawa	133	6.06	58.33
Niger	46	2.09	60.43
Ogun	40	1.82	62.25
Ondo	38	1.73	63.98
Osun	12	0.55	64.53
Oyo	49	2.23	66.76
Plateau	365	16.62	83.38
Rivers	7	0.32	83.70
Sokoto	17	0.77	84.47
Taraba	146	6.65	91.12
Zamfara	195	8.88	100.00
Total	**2,196**	**100.00**	

Note: *Based on ACLED data (Raleigh et al. 2010).*

Figure 6: Distrust of Fulani in Edo and Kaduna States

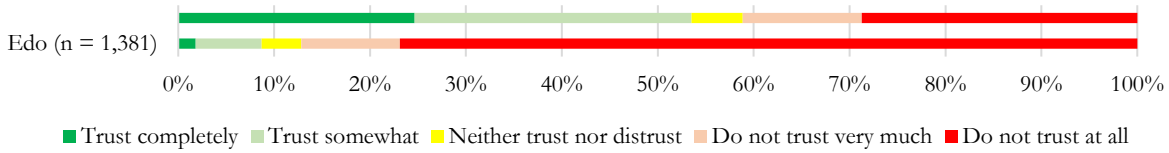
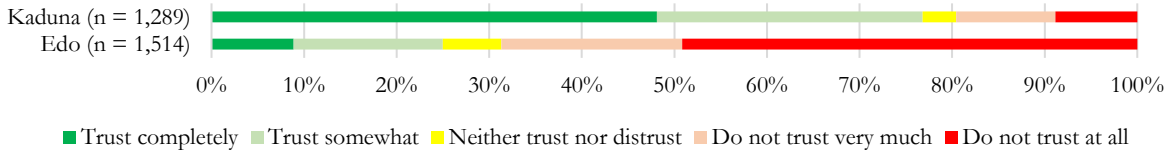



Figure 7: Distrust of Muslims in Edo and Kaduna States