HiCN Households in Conflict Network
hicn.org

Let the poor breathe! Poverty and anti-government protests in Nigeria

Daniel Tuki[1] and Hussaini Kwari[2]

HiCN Working Paper 426

March 2025

Abstract
Despite the rising incidence of poverty in Nigeria and the increasing frequency of anti-government protests driven by citizens' inability to meet their basic food needs, there remains a notable gap in research exploring the link between poverty and protest participation in Nigeria. Drawing on the human needs theory and survey data from Afrobarometer, this study investigates how poverty—both at the individual and communal levels—relates to Nigerians' willingness to participate in anti-government protests. Individual-level poverty is assessed using an index capturing the frequency with which respondents and their household members lacked access to necessities such as food, water, cooking fuel, medicine, and income over the past year. Communal wealth is measured by the mean annual nighttime light intensity within a 30 km radius of respondents' dwellings. Regression analysis reveals that higher scores on the lived poverty index increase the likelihood of Nigerians having protested in the previous year. They also increase their willingness to participate in future protests, and reduce their likelihood of choosing not to protest. Likewise, greater nighttime light intensity decreases individuals' likelihood of having been involved in past protests, reduces their willingness to participate in future protests, and increases their likelihood of opting not to protest. These results are robust across different operationalizations of protest and to the use of individual survey data covering 36 African countries.

Keywords
Nigeria, Africa, Poverty, Deprivation, Protests, Political participation

JEL Classifications
D19, D74, I31, I32, O12

[1] WZB Berlin Social Science Center, Germany (Correspondence: d.tuki@outlook.com)

[2] Independent Researcher, Lagos, Nigeria.

1. Introduction

The poor cannot sleep because they are hungry, and the rich cannot sleep because the poor are awake.

– Sam Aluko (2008)

"Subsidy is gone." With these three words, President Bola Ahmed Tinubu sparked a wave of uncertainty across Nigeria (Angbulu 2024; Orjinmo 2023). Announced during his inaugural speech on May 29, 2023, the removal of the fuel subsidy became a flashpoint for widespread unrest, reflecting years of mounting frustration over economic inequality, government corruption, and systemic neglect (Ehigiator 2024; Al Jazeera 2023). As prices soared and poverty deepened, Nigerians from all walks of life rallied around a poignant new slogan: "Let the Poor Breathe" (Sunday 2024). This powerful cry, echoing through protests from Lagos to Kano, encapsulates the desperation of those struggling to survive in an increasingly harsh economic reality.

Before the recent "End Bad Governance" protests in August 2024, which caused several deaths and led to the arrest of over 100 people (Human Rights Watch 2024), Nigeria's economic stability had already been severely undermined by the government's policy of floating the naira. This caused the currency's value to plummet by over 100% within a few months. The resulting devaluation, combined with other economic pressures, drove inflation to a staggering 34.19% by mid-2024 (Okafor 2024). According to the Nigerian National Bureau of Statistics (2024), food inflation reached an unprecedented 40.87% in June 2024, making basic necessities increasingly unaffordable. The removal of the fuel subsidy further worsened these challenges, with petrol prices surging from an average of ₦238.11 to ₦770 per liter, sharply increasing transportation and food costs across the country (Okafor 2024). Expressing the widespread frustration among Nigerians, a protester in Lagos lamented, "Everything is costly. Nothing is cheap. People are suffering, people are dying, this hardship is too much" (Jolaoso 2024).

Amid worsening economic hardships, glaring examples of government extravagance have further fueled public outrage. The Tinubu administration's purchase of a new presidential jet for $100 million, along with the government's approval of ₦21 billion for the renovation of the vice

president's residence, has sparked widespread condemnation (Angbulu 2024a; Bambgboye 2024). This perception of governmental profligacy has been compounded by the National Assembly, where members rank among the highest-paid legislators globally—a glaring contrast to the national minimum wage of ₦30,000 per month (approximately $40) (Tribune News 2024).

Given this context, it is not surprising that Nigerians have taken to the streets in protest against bad governance. In his book, *The Trouble with Nigeria*, Achebe (1983) contends that a history of governance marred by corruption and inefficiency has stifled the nation's development. However, Nigerians have often voiced their dissatisfaction with the political elite. Historical precedents highlight the enduring power of public protest in shaping Nigeria's political landscape. Some major protests include the Aba Women's Riots of 1929, during which Igbo women protested colonial taxation (Iweze 2022); the "Ali Must Go" protests of 1978 against education policies; and the June 12 demonstrations in 1993 advocating for democracy (Akintola 2010). More recent movements, such as the Occupy Nigeria protests of 2012 following the government's removal of the fuel subsidy (Houeland 2020; Uwalaka & Watkins 2018) and the End SARS protests of 2020 (Abimbade et al. 2022; Iwuoha & Aniche 2022; Akpan & Targema 2022), further exemplify this culture of civil resistance in response to economic and political challenges.

Despite the prominence of protests in Nigerian society, there is a notable lack of large-N quantitative studies examining the relationship between poverty and Nigerians' willingness to participate in anti-government protests. Our study seeks to fill this gap. Specifically, relying on human needs theory and data from Rounds 7, 8, and 9 of the Afrobarometer surveys, conducted in 2017, 2020, and 2022, we examine whether poverty (measured at the individual and communal levels) increases Nigerians' likelihood of engaging in anti-government protest. Next, we investigate the role of ethnicity in protest participation. Finally, we use individual-level survey data covering 36 African countries to test our main hypothesis (i.e., concerning the relationship between poverty and protests) in the larger African context.

We consider two distinct measures of poverty, each offering a unique perspective. The first measure is an index that captures the frequency with which individuals and their household members lacked income, food, potable water, cooking fuel, and medicine over the past year. This index allows us to evaluate the direct relationship between people's individual-level deprivation and their willingness to engage in protest activity. The second measure is computed at the communal level using the mean annual nighttime light within a 30 km radius of respondents' dwellings. Nighttime light data, derived from satellite imagery, serves as an objective proxy for economic development and infrastructure at the community level (Weidmann & Theunissen 2021; Weidmann & Schutte 2017; Mellander et al. 2015). Higher levels of nighttime light typically indicate greater economic activity and better infrastructure. This measure provides insights into the broader economic environment in which individuals and communities operate and the influence of this environment on collective action. By comparing the lived poverty index with nighttime light intensity, we can assess whether deprivation at the individual and community levels influences protest behavior differently. Additionally, these two measures may be interrelated; even if an individual is wealthy, residing in a poor community can limit opportunities and negatively impact well-being. Conversely, a strong community network can help mitigate personal poverty through social support and shared resources.

Regression analysis reveals that both individual- and communal-level poverty increase Nigerians' likelihood of having participated in protests the previous year. They also increase their likelihood of protesting in the future, and reduce their likelihood of choosing not to protest. These findings are robust to different operationalizations of protest, alternative estimation methods, and the use of individual-level survey data covering 36 African countries. The analysis further reveals that among Nigerians, Igbo ethnicity increases the likelihood of protesting, while the opposite association is true among the Hausa/Fulani and Yoruba.

This study contributes to the broader literature on human needs theory, especially to the literature highlighting how the unfulfillment of basic human needs leads to social conflict (e.g., Kali

2023; Auyero 2003; Galtung 1990; Roy 1990; Burton 1979). The remainder of this study is organized as follows: Section 2 discusses the relevant literature and states the hypotheses. Section 3 introduces the data and operationalizes the variables used to estimate the regression models. Section 4 presents and discusses the regression results, while Section 5 summarizes the study and concludes.

2. Theoretical considerations

In his theory of motivation, Maslow (1954) classified human needs into five categories arranged in the following hierarchical order: physiological needs, safety needs, the need for belongingness and love, esteem needs, and the need for self-actualization. Physiological needs, being the most basic, must be satisfied before addressing safety needs. Once safety needs are fulfilled, the individual will seek to satisfy higher needs, starting with belongingness and love, followed by esteem needs, and ultimately self-actualization. According to Maslow, once a specific need is satisfied, it no longer drives behavior, as attention shifts to the next need in the hierarchy. In essence, only unmet needs influence behavior. Maslow referred to this hierarchical organization as the "hierarchy of relative prepotency."

Emphasizing the primacy of physiological needs over other human needs, Maslow (1954, p. 37) observes, "A person who is lacking food, safety, love, and esteem would most probably hunger for food more strongly than for anything else… For the man who is extremely and dangerously hungry, no other interests exist but food." Building on Maslow's observation, McGregor (1957, p. 167) remarked: "Man lives for bread alone, when there is no bread. Unless the circumstances are unusual, his needs for love, for status, for recognition are inoperative when his stomach has been empty for a while. But when he eats regularly and adequately, hunger ceases to be an important motivation."

Galtung (1980) criticized the hierarchical ordering of human needs, particularly the idea that lower-order needs must be satisfied before higher-order ones. He argued that this hierarchy often served to justify the neglect of non-material, higher-order needs (as cited in Fisher, 1990, p.

92). Similarly, Burton (1997) challenged this hierarchical approach, highlighting cases where non-negotiable needs, such as identity and recognition, were prioritized over physiological and safety needs. In such instances, individuals were even willing to kill or sacrifice their lives to fulfill these higher-order needs.

Sites (1990) identified four fundamental human needs: security, meaning, self-esteem, and latency. He closely associated each of these needs with four primary emotions: fear, anger, depression, and satisfaction (encompassing joy and happiness). Unlike Maslow, Sites did not arrange these human needs in a hierarchical order. Instead, he emphasized the strong connection between human needs and emotions, arguing that emotions serve as indicators of the existence of specific needs. He further explained that while human needs are difficult to observe directly, emotions are easier to identify. This perspective led him to conclude: "Because needs cannot be directly observed, all we can do is conceptualize a need as existing when certain emotions are observed or reported since, as indicated, needs are tied to emotions" (Sites 1990, p. 10).

Despite the disagreements surrounding the hierarchical ordering of human needs, it is clear that humans have certain essential needs, and when these are unmet, they can negatively affect physical well-being and contribute to social disintegration. Stewart (1989) notes that while there is debate over what constitutes basic human needs, there seems to be a broad consensus on essentials such as food, water, shelter, health, and education. Roy (1990) argues that human needs are the "biologically transmitted framework" upon which personality develops. He further emphasizes that the ways in which these needs are satisfied are not universal but culturally determined. This suggests that the means of fulfilling a particular need, such as self-esteem, in one culture may be ineffective in another. Roy (1990) also contends that the degree to which these needs are fulfilled or unmet significantly influences individual development. When large sections of the society find these needs unmet, it can lead to social conflict.

According to Burton (1979, p. 59), human needs are "those conditions or opportunities that are essential to the individual if he is to be a functioning and cooperative member of society,

conditions that are essential to his development and which, through him, are essential to the organization and survival of society." An examination of Burton's definition reveals that the individual is a subset of the larger society, and the harmonious functioning of the society is dependent upon the level of development and functioning at the individual level. Burton (1979, p. 60) supports Roy's earlier argument when he observes:

> …without the satisfaction of these needs the individual will find the norms of the society in which he behaves – primitive, traditional or industrial – to be inappropriate because these norms cannot be used by him to secure his needs. He will invent his own norms and be labelled deviant, or disrupt himself as a person, rather than forego these needs.

Galtung (1990) categorized human needs into four classes: security, welfare, identity, and freedom needs. He observed that individuals often grapple with these needs at various points in their lives and asserted that when a person's basic needs are unmet, it can lead to disintegration at both the individual and social levels. Individual disintegration encompasses mortality and morbidity, with the latter including both somatic and mental health issues. Social disintegration, on the other hand, occurs within the broader societal context in which the individual operates. Galtung identified two forms of social disintegration: first, people may become passive and withdrawn, leading to reduced participation in society, and second, society may experience overactivity as people become unruly and revolt. Social disintegration typically precedes individual disintegration. Moreover, Galtung argued that disintegration is not necessarily bad. As he succinctly put it, "Just as with individual biological death, social disintegration may not necessarily be bad; it may put an end to something that is no longer viable" (Galtung, 1990, p. 305).

The socioeconomic conditions of Nigerians have steadily worsened over the years. Data from the Round 7 Afrobarometer survey in 2017 reveal that 27% of Nigerians had gone without food at least "several times" in the previous year. By the Round 8 survey in 2020, this number had risen to 47%, and by the Round 9 survey in 2022, it had surged to 62%. The current estimate may be higher than 62%, given the recent protests in August 2024 triggered by high food prices (Abubakar 2024; Gbadamosi 2024). Nigerians' inability to meet their food needs could lead to

frustration, which should increase their likelihood of protesting (Kali 2023; Kilavuz 2020). The discussion so far leads to the first hypothesis:

H1: *Among Nigerians, poverty positively correlates with participation in anti-government protests.*

Conversely, poverty may decrease the likelihood of protest participation, as improvements in socioeconomic conditions could foster a greater ability to engage in protests. The resource theory of mobilization posits that protests entail costs, and individuals are faced with a resource constraint. In this framework, individuals' decisions to participate in protests depend on factors such as their available time, financial status—which affects their ability to contribute to campaigns, and skillset—which determines how effectively they can utilize their time and resources (Verba et al. 2000; Brady et al. 1995). In the context of rising poverty, the barriers to protest participation are likely higher for the poor than the rich. As a result, wealthier individuals may be more inclined to engage in protests, while the cost burden may discourage participation among the poor.

Drawing on the relative power theory and global survey data, Solt (2012) found that when economic inequality becomes deeply entrenched and normalized within a society, the likelihood of the population challenging the government decreases. This is because rising inequality grants the wealthy greater relative power over the poor, incentivizing them to preserve a status quo that benefits them. At the same time, the poor are less likely to challenge the system, as they come to perceive hierarchical social relations as natural and unchangeable. As he succinctly put it, "When inequality is greater, poorer individuals are more often in positions of subservience…For richer individuals, on the other hand, greater inequality means that it is easier to find someone who will promptly and unquestioningly fill their orders." (Solt 2012, p. 704). In another cross-country study using survey data from affluent and upper-middle-income democracies, Solt (2008) found that lower-income individuals exhibited less political interest, discussed political matters less frequently, and participated in elections at lower rates. He argued that income inequality allowed the wealthy to dominate society, using their financial resources to amplify their own interests in political discourse. As a result, issues affecting the poor were often overlooked, diminishing their

engagement in civic life, as they no longer saw political participation as a viable means of having their concerns heard.

If poverty indeed disempowers the poor and raises the cost of protest participation, then as Nigerians become poorer, their engagement in anti-government protests should decrease. This forms the basis of the second hypothesis examined in this study:

H2: *Among Nigerians, Poverty negatively correlates with participation in anti-government protests.*

3. Data and methodology

This study uses data from Rounds 7, 8, and 9 of the Afrobarometer surveys, conducted in Nigeria in 2017, 2020, and 2022.[3] Each survey round consists of 1,600 observations, for a total of 4,800 observations. Data were collected from all 36 of Nigeria's states and the Federal Capital Territory, Abuja. The data are representative of Nigeria's population, as they were collected using probabilistic sampling. Respondents were at least 18 years old, with men and women equally represented in the sample. Section 3.1 outlines the variables used to estimate the regression model.

3.1. Operationalization of the variables

3.1.1. Dependent variable.

Protest. This variable measures respondents' protest status. It was derived from the following question:

> "Here is a list of actions that people sometimes take as citizens when they are dissatisfied with government performance. For each of these, please tell me whether you, personally, have done any of these things during the past year. If not, would you do this if you had the chance? Participated in a demonstration or protest march."

Responses were measured on an ordinal scale with five categories: **yes** (4 = often, 3 = several times, 2 = once or twice) and **no** (1 = would if I had the chance, 0 = would never do this). We recalibrated this variable by collapsing all "yes" responses into a single category, as they all indicate previous protest participation. This created a new variable with three categories: 2 = have protested, 1 = will

[3] To access the Afrobarometer survey data and questionnaire visit: https://www.afrobarometer.org/

protest, and 0 = won't protest. We used this new, three-category variable as the main dependent variable. We combined the three categories of past protest participation into a single category because our focus is on whether an individual has previously protested rather than the frequency of protest. "Don't know" and "refused to answer" responses were treated as missing observations. This rule was applied to all variables derived from the Afrobarometer survey data.

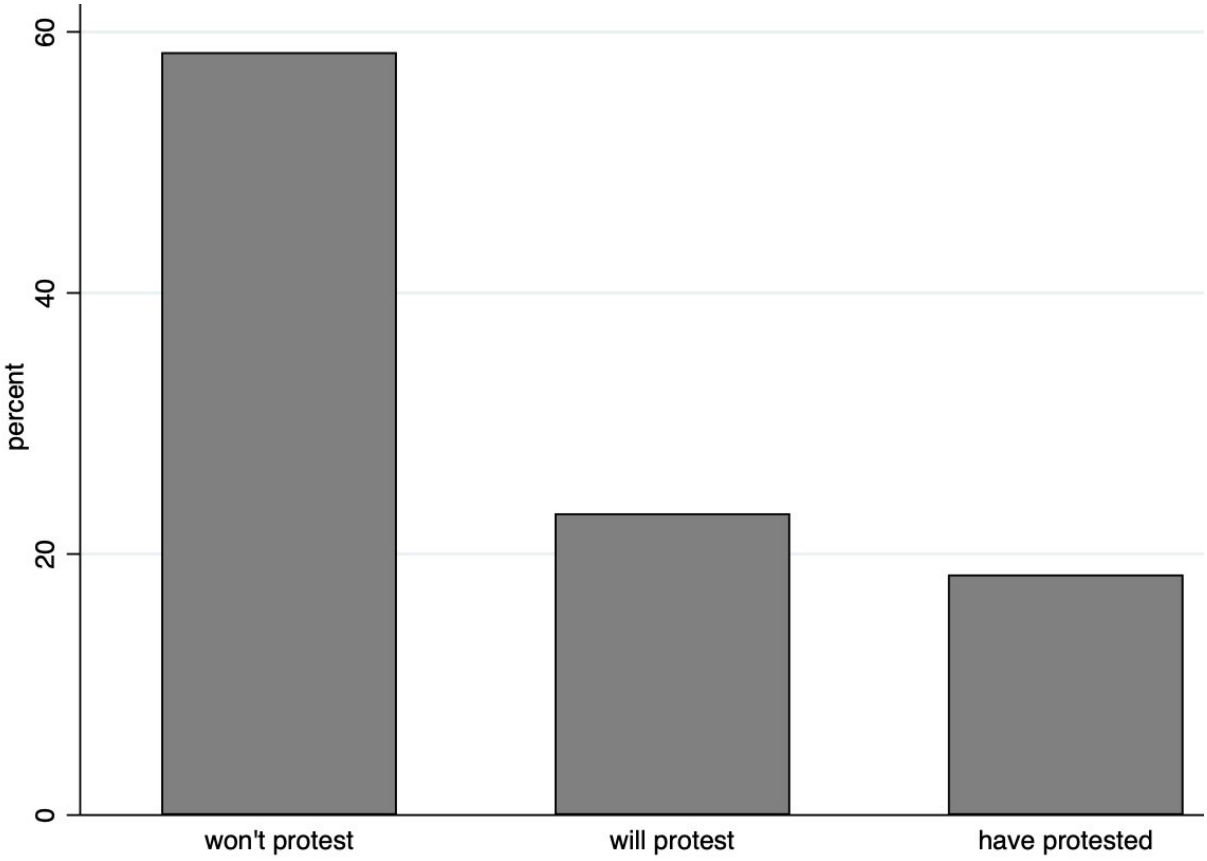

Figure 1: Nigerians' protest status

Note: The horizontal axis shows respondents' protest status, while the vertical axis indicates the percentage of respondents associated with each status. The figure is based on pooled data from Rounds 7, 8, and 9 of the Afrobarometer surveys (n = 4,584), conducted in 2017, 2020, and 2022, respectively.

A limitation of this variable is that it broadly refers to poor government performance, without specifying the exact areas where the government has underperformed. For instance, were the protests driven by concerns about government corruption? Insecurity? The lack of public goods such as roads and hospitals? Rising food prices? Unfortunately, we cannot address this limitation due to the secondary nature of the Afrobarometer dataset, which requires us to adapt our research to the preexisting questions. Nonetheless, within the context of our study, we interpret

these protests broadly as expressions of dissatisfaction with the government, regardless of the specific motivations.

Figure 1 illustrates Nigerians' protest status using a bar chart. 58% of Nigerians did not participate in a protest in the past year and will not do so in the future. 23% have not protested, but expressed a desire to. Only 19% of the Nigerians protested in the previous year. We developed binary measures for the dependent variable to perform a robustness check. The first variable, *Protest 1*, is coded as 1 if a respondent participated in a protest in the previous year or expressed willingness to participate in the future, and 0 otherwise. The second variable, *Protest 2*, uses a stricter operationalization by coding only respondents who participated in a protest in the previous year as 1, and all others as 0.

3.1.2. Explanatory variables

Lived poverty index. Following Mattes et al. (2002), we measured respondents' socioeconomic wellbeing using an additive index that accounts for the frequency with which respondents and members of their households have gone without basic necessities. Specifically, it was derived from the following questions: "Over the past year, how often, if ever, have you or anyone in your family: (a) Gone without enough food to eat? (b) Gone without enough clean water for home use? (c) Gone without medicines or medical treatment? (d) Gone without enough fuel to cook your food? (e) Gone without a cash income?" The responses were measured on a scale with four ordinal categories ranging from, "0 = never" to "4 = always." We summed the ordinal values assigned to the responses across the five items to create an index ranging from 0 to 20, with higher values indicating greater levels of poverty. The five items yielded a Cronbach's alpha statistic of 0.85, demonstrating high internal consistency.

Communal development. This variable measures the mean annual nighttime light intensity (Ghosh et al., 2021) within a 30 km radius around the respondents' geolocations.[4] It ranges from

[4] To access the nighttime light dataset visit: https://eogdata.mines.edu/products/dmsp/

0 to 63, with higher values indicating greater levels of economic development. The nighttime light estimates are lagged by one year for the Rounds 7 and 8 survey data and by two years for the Round 9 data. Specifically, for observations in the Afrobarometer Round 7 survey data collected in 2017, nighttime light is measured using 2016 estimates. For the Round 8 survey data collected in 2020, the estimates correspond to 2019, and for the Round 9 survey data collected in 2022, the estimates correspond to 2020. The 2020 estimates were used for the Round 9 data as they represent the most recent year for which nighttime light data are available. Studies have demonstrated that nighttime light serves as a reliable proxy for economic development (Weidmann & Theunissen 2021; Weidmann & Schutte 2017; Mellander et al. 2015). We developed this variable using QGIS software because the raw nighttime light dataset is in raster format.

3.1.3. Control variables

Economy worsened. This binary variable, which proxies relative deprivation at the macro level, is coded as 1 if respondents believe the economy has worsened compared to 12 months ago, and 0 if they believe it has either stagnated or improved. It was derived from the question, "Looking back, how do you rate economic conditions in this country compared to twelve months ago?" The responses were measured on a five-point ordinal scale ranging from, "1 = much worse" to "5 = much better." To develop the binary variable, we coded "much worse" and "worse" responses as 1, and the remaining three responses (i.e., much better, better, and the same) as 0. Poor macroeconomic performance has been found to positively correlate with protest participation (Yagci 2017; Grasso & Giugni 2016; Brancati 2014).

Voted. This is a dummy variable indicating whether or not a respondent voted in the last elections. It was derived from the question, "People are not always able to vote in elections, for example, because they weren't registered, they were unable to go, or someone prevented them from voting. How about you? In the last national election held in 2019, did you vote, or not, or were you too young to vote? Or can't you remember whether you voted?" We coded respondents who voted as

1, and those who did not (regardless of the reason) as 0. Some studies have found a positive correlation between political participation and protests (Harris & Hern 2019).

Corruption index. This is an additive indicator measuring perceived corruption in the three branches of government (i.e., executive, legislature, and judiciary). It was derived from the following questions, "How many of the following people do you think are involved in corruption, or haven't you heard enough about them to say? (a) The president and officials in his office? (b) Members of the national assembly? (c) Judges and magistrates?" The responses were measured on a scale with four ordinal categories ranging from, "0 = none" to "3 = all of them." We summed the ordinal values assigned to each response category to create a corruption index ranging from 0 to 9, with higher values indicating greater levels of corruption. The three items had a Cronbach's Alpha statistic of 0.78. Research has found a positive correlation between perceived corruption in government and protests (Školník 2022; Lewis 2021; Auyero 2003).

Urban area. This variable is coded as 1 if a respondent lives in an urban area and 0 if they live in a rural area. Some studies have found a positive correlation between residence in urban areas and protest participation (Harris & Hern 2019).

Northern Region. This variable is coded as 1 if a respondent resides in a state in the Northern region and 0 if they reside in a Southern Nigerian state.[5] We included this variable as a control because it could confound the relationship between the dependent and explanatory variables. The population in Northern Nigeria experiences higher levels of poverty compared to the Southern region, largely due to geographical factors and a high incidence of conflicts. The Northern region's proximity to the Sahara Desert makes it particularly vulnerable to droughts and desert encroachment, which negatively impacts agricultural production and overall socioeconomic

[5] I use the term "Northern Region" loosely. Although there are other ethnic groups in the region who are not Hausa/Fulani, and who are Christians, Muslims and members of the Hausa/Fulani ethnic group are dominant. The North-South division of Nigeria is rooted in the country's precolonial history (see Tuki 2024c).

conditions (Yahaya et al., 2024). Furthermore, the region accounts for 68% of violent conflicts in Nigeria (Tuki 2024c, pp. 3–4). On the other hand, Northerners may be hesitant to participate in anti-government protests because they primarily belong to the Hausa/Fulani ethnic group, which has dominated central political power in post-independence Nigeria. This is especially plausible given the centrality of ethnicity and religion in Nigerian politics (Tuki, 2024; Sahara TV, 2023; Ostien, 2014; Agbiboa, 2013).

Exposure to Terrorism. This variable measures the extent to which respondents are exposed to terrorist attacks. It is based on data from the Global Terrorism Database (GTD) (National Consortium for the Study of Terrorism and Responses to Terrorism, 2022).[6] The GTD Codebook (2021, p. 11) defines a terrorist attack as any incident involving "the threatened or actual use of illegal force and violence by a nonstate actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation." Specifically, this variable measures the total number of terrorist incidents that occurred within a 30 km radius of respondents' dwellings from 1970 until one or two years prior to the respective survey rounds.[7] For instance, in the Round 7 survey (2017), the variable captures incidents from 1970 to 2016, while in the Round 8 survey (2020), it covers incidents from 1970 to 2019. For the Round 9 survey (2022), only incidents up to 2020 were included because the GTD data is available only until that year. A two-year lag was applied to account for this limitation.

We considered the cumulative number of terrorist attacks within the 30 km radius of respondents' dwellings, as research indicates that the effects of violence can endure over time (Tuki 2025, 2024a; Hong & Kang 2017). This variable was developed using QGIS software, leveraging the geocoded Afrobarometer and GTD datasets. We controlled for exposure to terrorist attacks because it could confound the relationship between the dependent and explanatory variables. For instance, exposure to terrorist attacks might lead to protests among the population, likely due to

[6] To access the GTD dataset visit: https://www.start.umd.edu/gtd/

[7] 88% of respondents had at least one terrorist attack within the 30 km radius around their dwellings, while 49% had at least 10 incidents within the radius.

material losses and the government's inability to protect the citizenry (Vüllers & Krtsch 2020; Santoro & Azab 2015; Fominaya 2011). Violence could also exacerbate people's socioeconomic conditions (Tuki 2022; Mercier et al. 2020) and cause psychological distress, making people less optimistic about the future (Tuki 2024b).

Educational level. This variable measures the highest level of education respondents have attained on a scale with 10 ordinal categories, ranging from "0 = no formal education" to "9 = post-graduate and above." Some studies have found a positive correlation between educational level and protest participation (Chenoweth et al. 2022; Dalton et al. 2010; Petrie 2004). Conversely, other studies have found the opposite relationship (Ong & Han 2019).

Age. This is measured in years. Research has found that people tend to be less likely to participate in protests as they get older (Kelmendi & Skendaj 2023; Harris & Hern 2019; Petrie 2004).

Gender. This variable is coded as 1 for males and 0 for females. Research has shown that men are more likely to engage in protests than women (Kelmendi & Skendaj 2023; Dodson 2015; Barakat & Fakih 2021).

Table 1: Descriptive Statistics

Variable	Total observations	Mean	Standard deviation	Minimum	Maximum
Protest$^{\sigma}$	4736	0.605	0.782	0	2
Protest 1$^{\sigma}$	4736	0.418	0.493	0	1
Protest 2$^{\sigma}$	4736	0.186	0.39	0	1
Lived poverty index	4769	7.06	4.952	0	20
Lived poverty index†	4769	0	1	-1.426	2.613
Communal development	4791	3.146	5.281	0	22.264
Communal development†	4791	0	1	-.596	3.62
Economy worsened	4781	0.568	0.495	0	1
Voted	4799	0.71	0.454	0	1
Educational level	4787	4.282	2.229	0	9
Age	4797	33.912	12.795	18	97
Male	4799	0.5	0.5	0	1
Corruption index	4436	4.934	2.064	0	9
Exposure to terrorism†	4789	35.38	87.416	0	700
Urban area	4799	0.435	0.496	0	1
Northern Region	4799	0.52	0.5	0	1
Igbo	4799	0.153	0.36	0	1
Hausa/Fulani	4799	0.309	0.462	0	1
Yoruba	4799	0.193	0.395	0	1
Ethnic minorities	4799	0.345	0.475	0	1

Note: σ are the dependent variables. † indicate variables that have been standardized. The corruption index includes fewer observations due to a high number of "don't know" and "refused to answer" responses to the questions used in

its development. This issue exacerbated the problem of listwise deletion in the regression models where the index was included as a control variable.

Table 1 presents the summary statistics of the variables used to estimate the regression models.

3.2. Analytical technique

To determine how socioeconomic deprivation relates to Nigerians' protest status, we consider a model of the following general form:

$$\gamma_i = \beta_0 + \beta_1 \Lambda'_i + \beta_2 \varphi'_i + \mu_i \quad (1)$$

where γ_i is the dependent variable which measures Respondent i's protest status, Λ'_i denotes the explanatory variables measuring poverty at the individual and communal levels. For the sake of comparability, we used the standardized versions of the explanatory variables in our analysis.[8] φ'_i is a vector of control variables discussed in Section 3.1.3, β_0 is the intercept, β_1 and β_2 are the coefficients of the explanatory and control variables, respectively, while μ_i is the error term.

An ordered logit model was used to estimate the model because it accounts for the ordinal nature of the dependent variable, allowing us to assess the strength of the relationship between the explanatory variables and each category of the dependent variable. Standard errors were clustered at the state level to account for the possibility of correlation between observations within the same state. This results in 37 clusters—36 for each Nigerian state and one for the Federal Capital Territory, Abuja. We included fixed effects for the survey year in the models to capture annual trends that could influence people's willingness to protest, such as changes in the federal government's security policies or the implementation of nationwide poverty alleviation programs that may be peculiar to certain years. Additionally, we included fixed effects for respondents' ethnic groups to account for the potential influence of ethnicity on willingness to protest. For instance, individuals belonging to politically marginalized ethnic groups (e.g., Igbo) (Tuki 2024a) may be more likely to participate in anti-government protests.

[8] We obtained similar regression results when estimating the models with the unstandardized explanatory variables. We do not report these regressions in the paper.

Notably, we deliberately excluded state fixed effects from our models to avoid over-controlling, which could obscure important regional dynamics (Northern vs. Southern regions) and lead to misleading conclusions. We conducted a series of robustness checks where we re-estimated the regression models using a binary operationalization of the dependent variable and linear probability model (LPM) as an alternative estimation method.

4. Results and discussions

4.1. Poverty and protests in Nigeria

Table 2: Ordered logit models regressing protest status on poverty and communal development in Nigeria

Dependent variables:						
	Protest				**Protest 1**	**Protest 2**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	Ologit	**Ologit**	**Ologit**	**Ologit**	**LPM**	**LPM**
Lived poverty index†	0.229***		0.222***	0.211***	0.044***	0.036***
	(0.052)		(0.049)	(0.057)	(0.013)	(0.01)
Communal development†		-0.132***	-0.125***	-0.127***	-0.027***	-0.017**
		(0.033)	(0.029)	(.035)	(0.007)	(0.007)
Economy worsened				-0.087	-0.029*	-0.003
				(0.066)	(0.017)	(0.014)
Voted				0.04	0.01	0.006
				(0.098)	(0.022)	(0.018)
Educational level				0.041**	0.009**	0.004
				(0.017)	(0.004)	(0.003)
Age				-0.011***	-0.003***	-0.001**
				(0.004)	(0.001)	(0.001)
Male				0.52***	0.127***	0.051***
				(0.106)	(0.025)	(0.013)
Corruption index				-0.021	-0.005	-0.002
				(0.025)	(0.006)	(0.003)
Exposure to terrorism†				0.00	0.00	0.00
				(0.00)	(0.00)	(0.00)
Urban area				-0.161***	-0.035**	-0.022*
				(0.06)	(0.014)	(0.011)
Northern Region				-0.394***	-0.072**	-0.088***
				(0.147)	(0.033)	(0.027)
Constant					0.434***	0.223***
					(0.042)	(0.043)
Intercept 1	0.747***	0.553***	0.724***	0.228		
	(0.09)	(0.08)	(0.09)	(0.19)		
Intercept 2	1.956***	1.747***	1.933***	1.49***		
	0(.089)	(0.081)	(0.09)	(0.191)		
Ethnic group FE	Yes	Yes	Yes	Yes	Yes	Yes
Survey year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4705	4727	4697	4331	4331	4331
R-squared					0.086	0.095
Pseudo R^2	0.036	0.032	0.038	0.055		
Log pseudolikelihood	-4389.444	-4426.039	-4374.444	-4004.098		
AIC statistic	8844.888	8922.079	8816.888	8082.195	5883.908	3847.753
BIC statistic	9057.948	9148.215	9036.347	8318.017	6113.355	4077.201

Note: † indicate variables that have been standardized. Clustered robust standard errors are in parentheses, *** p<0.01, ** p<0.05, * p<0.10. Models 1, 2, 3, and 4 are estimated using ordered logit regression (Ologit), while Models 5 and 6 are

estimated using linear probability model (LPM). All models contain fixed effects for survey year and respondents' ethnic groups. "Protest" is measured on a scale with three ordinal categories, while "Protest 1" and "Protest 2" are measured on a binary scale. The regressions are based on Rounds 7, 8, and 9 of the Afrobarometer surveys conducted in Nigeria in 2017, 2020, and 2022, respectively. AIC = Akaike information criterion; BIC = Bayesian information criterion.

Table 2 presents the results of regression models examining how deprivation at the individual and communal levels relates to Nigerians' protest status. Models 1 to 4 were estimated using ordered logit regression. In Model 1, which included only the lived poverty index, the coefficient was positive and statistically significant at the 1% level. This supports Hypothesis 1, which posits that poverty increases the likelihood of engaging in anti-government protests. Poverty likely fuels discontent with the government, and protesting becomes a way for people to express their frustrations. In Model 2, which included only the objective measure of communal development (mean annual nighttime light), the coefficient was negative and significant at the 1% level. This finding, also supporting Hypothesis 1, suggests that higher levels of economic development at the communal level decrease the likelihood of individuals participating in anti-government protests. Put differently, low levels of development at the communal level increase the likelihood of individuals participating in anti-government protests. In Model 3, which included both explanatory variables simultaneously, the results remained consistent with those in the baseline models. Comparing the coefficients for the individual and communal measures of poverty reveals that the former is larger. This suggests that individual poverty may be a stronger motivator of protest participation than communal poverty.

Model 4 demonstrates that the main results remain robust after including control variables. However, the number of observations decreased from 4,697 to 4,331 due to the high number of missing observations in the corruption index, which exacerbated the issue of listwise deletion. This variable has fewer observations because many respondents declined to answer questions about perceived corruption in the three branches of government, which were used to construct the index. Nonetheless, our primary findings hold even when the model is re-estimated without the corruption index (see Table B3 in the appendix). Among the control variables, education, age, gender, urban residence, and Northern region were statistically significant.

The positive sign associated with educational level suggests that the more education individuals acquire, the more likely they are to participate in anti-government protests. This may be because education increases people's awareness of political, social, and economic issues. Additionally, education fosters critical thinking skills, which can make individuals more likely to question authority and challenge the status quo. The negative coefficient associated with age indicates that as people grow older, they become less likely to engage in protests. This may be because older individuals are more likely to have established careers and families, which makes them less inclined to participate in activities perceived as disruptive or risky. The positive coefficient for gender indicates that, compared to women, men are more likely to participate in anti-government protests. This might be due to traditional gender roles, which position men as being more active in the political and public spheres, while women are expected to focus on domestic issues related to the household. Moreover, caregiving and household responsibilities might also imply that women have less time than men to devote to protests.

Conversely, the negative coefficient for urban residence indicates that individuals living in urban centers are less likely than those in rural areas to participate in anti-government protests. Rural populations might be more likely to protest than urban populations because rural areas are often characterized by greater neglect in the provision of public goods and infrastructure, coupled with higher levels of poverty. However, the higher poverty in rural areas also makes it easier for the poor to be "incentivized" to participate in protests.[9] The negative sign associated with residence in Northern Nigeria implies that individuals living in this region are less likely to protest than their counterparts in the Southern region. This is somewhat paradoxical, as the population in Northern Nigeria is generally poorer than that in the Southern region (Tuki 2024e; Nigerian National Bureau of Statistics 2020). This might be because Nigeria's president during the period when Rounds 7, 8, and 9 of the Afrobarometer surveys were conducted was from the Northern region and belonged

[9] Respondents residing in rural areas had an average poverty index score of 7.39, while those residing in urban centers had a score of 6.63. Likewise, the average nighttime light among respondents living in rural areas was 1.43, while that for respondents in urban centers was 5.38. Suffice it to add that these estimates are based on the pooled data covering the Rounds 7, 8, and 9 Afrobarometer surveys.

to the Hausa/Fulani ethnic group. The Hausa/Fulani is the largest ethnic group in both Northern Nigeria and the entire country. It is possible that northerners are hesitant to protest against a government led by a member of their ethnic in-group. This is particularly plausible given the central role of ethnicity in Nigerian politics (Tuki 2024; Agbiboa 2013).[10] As Byun and Hollander (2015, p. 33) observe, "ethnic divisions have a tendency to map onto existing political and economic fissures." In Section 4.2, we investigate whether certain ethnic groups are more inclined than others to participate in anti-government protests.

Among the control variables included in Model 4, relative macroeconomic performance, political participation, perceived corruption in government, and exposure to terrorist attacks were insignificant. The statistical insignificance of the indicator for macroeconomic performance suggests that individuals who believe the economy has deteriorated do not significantly differ from those who believe it has either stagnated or improved in terms of their likelihood of protesting. This might initially seem puzzling, especially given the positive correlation between the lived poverty index and the willingness to protest. However, the two variables do not measure the same thing. While the indicator for relative macroeconomic performance focuses on the entire Nigerian economy, the lived poverty index is measured at the individual level. Moreover, people's belief that the economy has worsened does not necessarily imply that socioeconomic conditions have deteriorated to the extent that they can no longer afford to meet their basic needs like food and potable water.

The statistical insignificance of the variable indicating whether a respondent voted in the last election suggests that voters do not differ from non-voters in their likelihood of protesting. This result may be explained by the pervasive role of patronage in Nigerian politics. When

[10] When we disaggregated the data based on region of residence, we found that the main regression results—specifically, the positive correlation between the poverty index and protest, as well as the negative correlation between communal development and protest—persisted among the population in Southern Nigeria. However, among the population in the Northern region, only the poverty index was statistically significant. It had a positive coefficient consistent with the main results, while the coefficient for communal development, though maintaining the negative sign, was insignificant. Table A1 in the appendix reports these results.

individuals vote for a party after receiving gifts from political aspirants, they may be less inclined to hold those politicians accountable for poor performance. Supporting this, data from Round 8 of the Afrobarometer survey, conducted in 2020, reveal that 44% of Nigerians received gifts from political candidates or their party representatives in exchange for votes. Patronage may also foster resignation and low expectations among voters, leading to the normalization of poor governance. Data from Round 9 of the Afrobarometer survey, conducted in 2022, reveals that 74% of Nigerians believe elections are ineffective in allowing voters to remove leaders who fail to act in the public's interest. Additionally, ethnicity and religion significantly shape voting patterns, further complicating the relationship between electoral participation and protest behavior.

The preceding argument is reinforced by the statistical insignificance of the corruption index. The expectation of corruption among government officials appears to be normalized within Nigerian society. During a visit to the country in 2020, one of the authors had a conversation with some Nigerians in Kaduna State, who expressed that they did not mind the government stealing some money as long as it also provided basic infrastructure, such as roads and healthcare facilities, to improve people's lives. Their main grievance arose when government officials greedily "ate" all the money, leaving nothing to show for it. The statistical insignificance of exposure to terrorism suggests that terrorist attacks are uncorrelated with people's willingness to participate in anti-government protests. This might be due to the normalization of violence, which has left people apathetic because of its frequent occurrence (Tuki 2024d).

In Models 5 and 6, we conducted robustness checks in which we operationalized the dependent variable binarily and used a linear probability model (LPM) as an alternative estimation method. Using LPM allows us to easily interpret the coefficients as probabilities. In Model 5, the dependent variable (Protest 1) codes respondents who either protested in the previous year or would protest if the opportunity arises as 1, and those who would not protest as 0. The coefficients for the lived poverty index and communal development remained significant at the 1% level and maintained their signs. Specifically, the positive coefficient of the lived poverty index indicates that

a 1-standard deviation increase in the index raises the probability of respondents either having protested in the previous year or being willing to protest in the future by 4.4 percentage points. Likewise, the negative coefficient for communal development suggests that a 1-standard deviation increase in the mean annual nighttime light within a 30 km radius of the respondents' dwellings reduces their probability of either having protested in the previous year or being willing to protest in the future by 2.7 percentage points.

In Model 6, we operationalized the dependent variable (Protest 2) such that only respondents who protested in the previous year were coded as 1, while those who have not protested (irrespective of whether they intend to do so in the future) were coded as 0. The main results were consistent with those reported earlier. The positive coefficient of the lived poverty index indicates that a 1-standard deviation increase in the index raises the probability of an individual having protested in the previous year by 3.6 percentage points. The negative coefficient of the measure for communal development suggests that a 1-standard deviation increase in the mean annual nighttime light within a 30 km radius of the respondents' dwellings lowers their probability of having protested in the previous year by 1.7 percentage points.

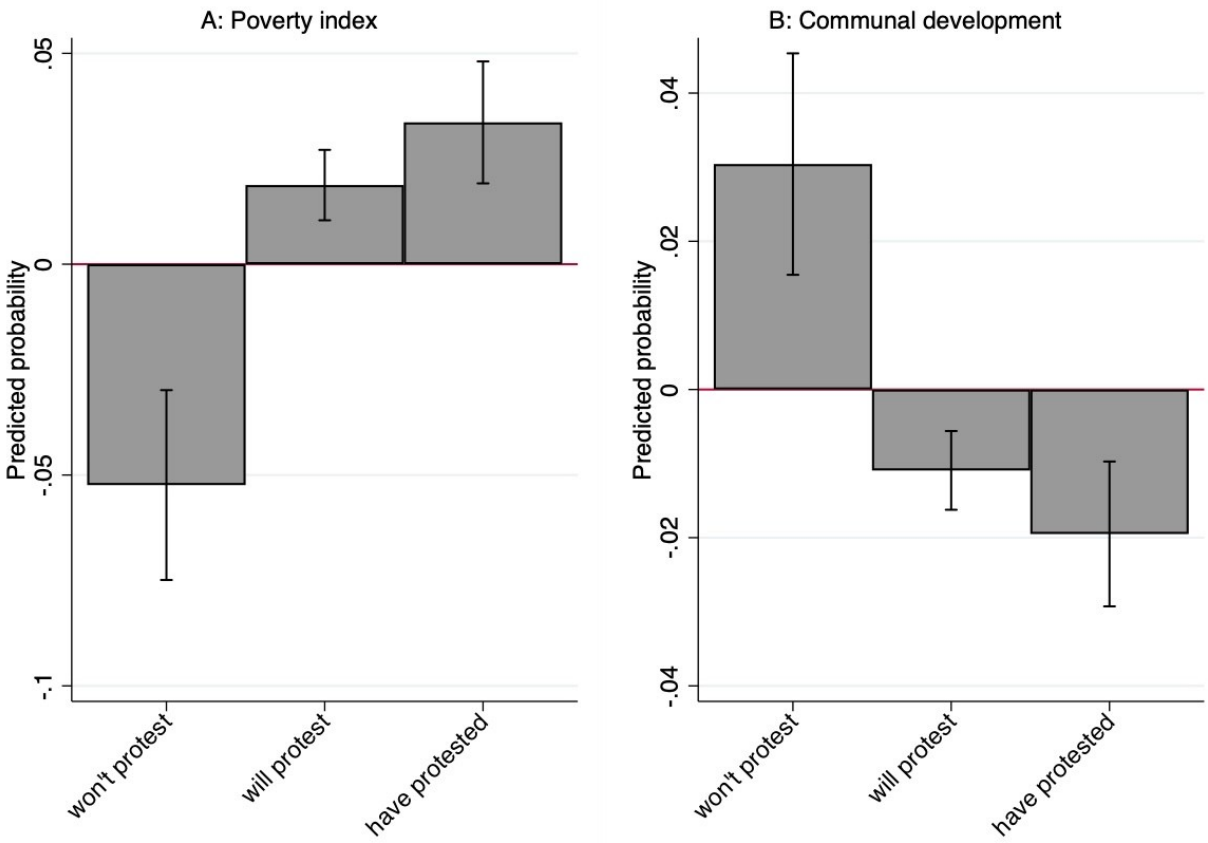

Figure 2: Predicted probabilities showing the magnitude of the associations between the lived poverty index, communal development, and Nigerians' protest status.

Note: Panel A, based on Model 1 in Table 2, visualizes the association between the lived poverty index and the three categories of the dependent variable, which indicate whether respondents protested during the previous year, are willing to protest in the future, or would not participate in a protest. Panel B, based on Model 2 in Table 2, visualizes the association between communal development and the dependent variable. Confidence intervals are set at the 95% level.

To illustrate the magnitude of the associations in the ordered logit regression results reported in Table 2, we plotted the predicted probabilities for the baseline models (Models 1 and 2 in Table 2) in Figure 2. A quick look at Panels A and B reveals that the association between the explanatory variables and the dependent variable is largest for the "won't protest" response category and smallest for the "will protest" response category. Panel A shows that a 1-standard deviation increase in the lived poverty index reduces the probability of respondents being in the "won't protest" category by 5.2 percentage points, increases their probability of being in the "will protest" category by 1.9 percentage points, and increases their probability of being in the "have protested" response category by 3.4 percentage points. Panel B shows that a 1-standard deviation increase in communal development (measured by nighttime light) increases the probability of respondents being in the "won't protest" category by 3 percentage points, reduces their probability

of being in the "will protest" category by 1.1 percentage points, and reduces their probability of being in the "have protested" category by 1.9 percentage points.

4.2. Ethnicity and protests in Nigeria

In the preceding section, where we found a negative correlation between residence in Northern Nigeria and people's willingness to protest, we argued that this was likely because the Hausa/Fulani are the dominant ethnic group in Northern Nigeria and may be reluctant to protest against a government led by an ethnic ingroup member.[11] Research has shown that people generally treat members of their cultural ingroup more favorably than outgroup members (Everett et al. 2015; Verkuyten & De Wolf 2007; Beaupré & Hess 2003). If this is indeed true, then we should find a negative correlation between Hausa/Fulani ethnicity and protest. This is because the Hausa/Fulani would be less critical of the Nigerian government than members of other major ethnic groups.

Although Nigeria has over 250 ethnic groups, it has three major ones: Hausa/Fulani, Igbo, and Yoruba. The dominance of these three groups is reflected in the Afrobarometer dataset, where the Hausa/Fulani (30%), Yoruba (19%), and Igbo (15%) account for 64% of the sample. The Hausa/Fulani, who mainly reside in Northern Nigeria, are predominantly Muslims. The Igbo, who mainly reside in Eastern Nigeria, are predominantly Christians, while the Yoruba, who mainly reside in the Western region, are equally split between Muslims and Christians (Tuki 2024).

We developed dummy variables for the three main ethnic groups, as well as another for minority ethnic groups (i.e., respondents belonging to ethnic groups other than the major three). Each dummy variable takes a value of 1 if a respondent belongs to the ethnic group of interest and 0 otherwise. For example, the variable Hausa/Fulani is coded as 1 if a respondent belongs to the Hausa/Fulani ethnic group and 0 if they belong to any other ethnic group (i.e., Igbo, Yoruba, or a minority group). To examine the correlation between ethnicity and Nigerians' protest status, we estimated a series of bivariate regression models. Table 3 reports the results.

[11] Muhammadu Buhari, who belongs to the Hausa/Fulani ethnic group, was Nigeria's president from May 2015 to May 2023. The Rounds 7, 8, and 9 Afrobarometer surveys were conducted when he was president.

Table 3: Ordered logit models regressing protest status on ethnicity in Nigeria

Protest$^{\sigma}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Hausa/Fulani	-0.467***				-0.548***
	(0.093)				(0.092)
Yoruba		-0.188*			-0.368***
		(0.104)			(0.1)
Igbo			0.361***		0.09
			(0.124)		(0.128)
Ethnic minorities				0.335***	
				(0.093)	
Intercept 1	0.131	0.21**	0.313***	0.37***	0.048
	(0.086)	(0.082)	(0.064)	(0.101)	(0.064)
Intercept 2	1.31***	1.381***	1.487***	1.546***	1.233***
	(0.098)	(0.083)	(0.069)	(0.109)	(0.076)
Observations	4736	4736	4736	4736	4736
Pseudo R^2	0.022	0.017	0.018	0.019	0.025
Log pseudolikelihood	-4480.705	-4504.112	-4496.885	-4491.769	-4466.778
AIC statistic	8971.41	9018.225	9003.771	8993.537	8947.555
BIC statistic	9003.725	9050.54	9036.086	9025.852	8992.796

Note: σ is the dependent variable and is measured on a scale with three ordinal categories. Clustered robust standard errors are in parenthesis, *** p<0.01, ** p<0.05, * p<0.10. All models are estimated using ordered logit regression (Ologit). The regressions are based on Rounds 7, 8, and 9 of the Afrobarometer surveys conducted in Nigeria in 2017, 2020, and 2022, respectively. AIC = Akaike information criterion; BIC = Bayesian information criterion.

In Model 1, where we considered only Hausa/Fulani ethnicity, the coefficient was negative and statistically significant at the 1% level. This indicates that, compared to non-Hausa/Fulani, the Hausa/Fulani are less likely to participate in anti-government protests. This supports our earlier argument that the Hausa/Fulani may be reluctant to protest against a government led by an ethnic ingroup member. Moreover, given the centrality of ethnicity in Nigerian politics, with people voting based on the ethnicity of political aspirants rather than their competence, the Hausa/Fulani might be hesitant to jeopardize a government led by an ethnic ingroup member. Notably, from Nigeria's transition to democracy in 1999 through to 2023, there has not been a single period when a member of the Hausa/Fulani ethnic group did not hold either the office of president or vice president. Their representation at the center of political power might make them feel politically represented, which in turn lowers their likelihood of protesting.

In Model 2, where we considered only Yoruba ethnicity, the coefficient was also negative. This indicates that, compared to non-Yoruba, the Yoruba are less likely to protest. This may be because, like the Hausa/Fulani, the Yoruba have also been represented at the center of political power. Although a Yoruba individual was not president between 2017 and 2022 when the Afrobarometer surveys were conducted, a member of the group occupied the office of vice

president during this period. Furthermore, unlike the Igbo, who have never held either the office of president or vice president since Nigeria's transition to democracy in 1999, a Yoruba individual, Olusegun Obasanjo, served as president from May 1999 to May 2007.[12] The Yoruba's representation at the center of political power may also make them less likely to engage in anti-government protests.

In Model 3, where we considered only Igbo ethnicity, the coefficient was positive and significant at the 1% level. This suggests that, compared to non-Igbo individuals, the Igbo are more likely to participate in anti-government protests. This may be tied to the Igbo people's grievances due to their political marginalization in post-Civil War Nigeria (Tuki 2024a; Okaisabor 2023). Since the Nigerian Civil War ended in 1970, an Igbo individual has not occupied the office of president.[13] Moreover, research has found a positive correlation between perceived ethnic marginalization and protest participation (Kelmendi & Skendaj 2023). In Model 4, where we considered only minority ethnic groups, the coefficient was also positive and significant at the 1% level. This indicates that, compared to individuals belonging to the three major ethnic groups, those from minority ethnic groups are more likely to participate in anti-government protests.

In Model 5, we modified the model by focusing on the three major ethnic groups and using ethnic minorities as the reference category. Consistent with the previous findings, Hausa/Fulani and Yoruba ethnicities maintained their negative coefficients and were significant at the 1% level. This suggests that, compared to ethnic minorities, the Hausa/Fulani and Yoruba are less likely to engage in anti-government protests. However, Igbo ethnicity, while retaining its positive coefficient, was statistically insignificant. This indicates that the Igbo do not differ statistically from ethnic minorities in terms of their likelihood of participating in anti-government protests.

[12] The vice-president during this period, Atiku Abubakar, belonged to the Hausa/Fulani ethnic group.
[13] The Round 9 Afrobarometer survey, conducted in 2022, shows that 79% of Igbos believe that members of their ethnic group have been treated unfairly by the government. 52% of ethnic minorities hold this belief, while the estimates for the Yoruba and Hausa/Fulani are 41% and 17%, respectively.

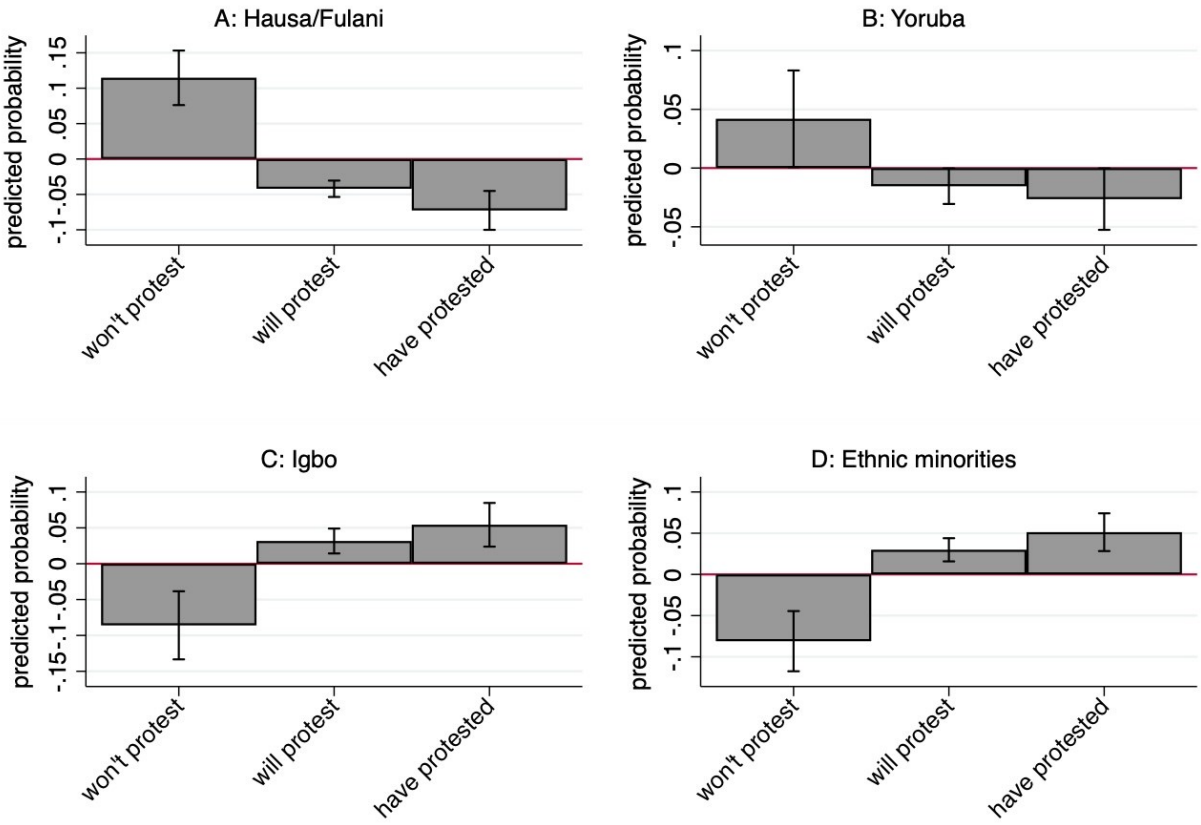

Figure 3: Predicted probabilities showing the magnitude of the associations between ethnicity and Nigerians' protest status

Note: Panels A, B, C, and D visualize the associations between belonging to the four main ethnic categories (i.e., Igbo, Yoruba, Hausa/Fulani, and ethnic minority) and Nigerians' protest status. The four panels are based on Models 1, 2, 3, and 4. Confidence intervals are set at the 90% level.

To illustrate the magnitude of the associations in the ordered logit regression results reported in Table 3, we plotted the predicted probabilities for Models 1, 2, 3, and 4 (see Figure 3). A quick look at the four panels shows that the association between ethnicity and protest status is largest for the "won't protest" response category and smallest for the "will protest" response category. Panel A shows that, compared to non-Hausa/Fulani, the Hausa/Fulani are 11 percentage points more likely to belong to the category of respondents who would not protest, 4 percentage points less likely to belong to the category of respondents who would protest, and 7 percentage points less likely to belong to the category of respondents who have protested. Panel B shows that, compared to non-Yoruba, the Yoruba are 4.5 percentage points more likely to belong to the category of respondents who would not protest, 1.6 percentage points less likely to belong to the

category of respondents who would protest, and 2.8 percentage points less likely to belong to the category of respondents who have protested.

Panel C shows that, compared to non-Igbo, the Igbo are 8.5 percentage points less likely to belong to the category of respondents who would not protest, 3.1 percentage points more likely to belong to the category of respondents who would protest, and 5.4 percentage points more likely to belong to the category of respondents who have protested. Panel D shows that, compared to members of the three major ethnic groups, individuals belonging to a minority ethnic group are 7.9 percentage points less likely to belong to the "won't protest" category, 2.9 percentage points more likely to belong to the "will protest" category, and 5 percentage points more likely to belong to the "have protested" category.

4.3. External generalizability

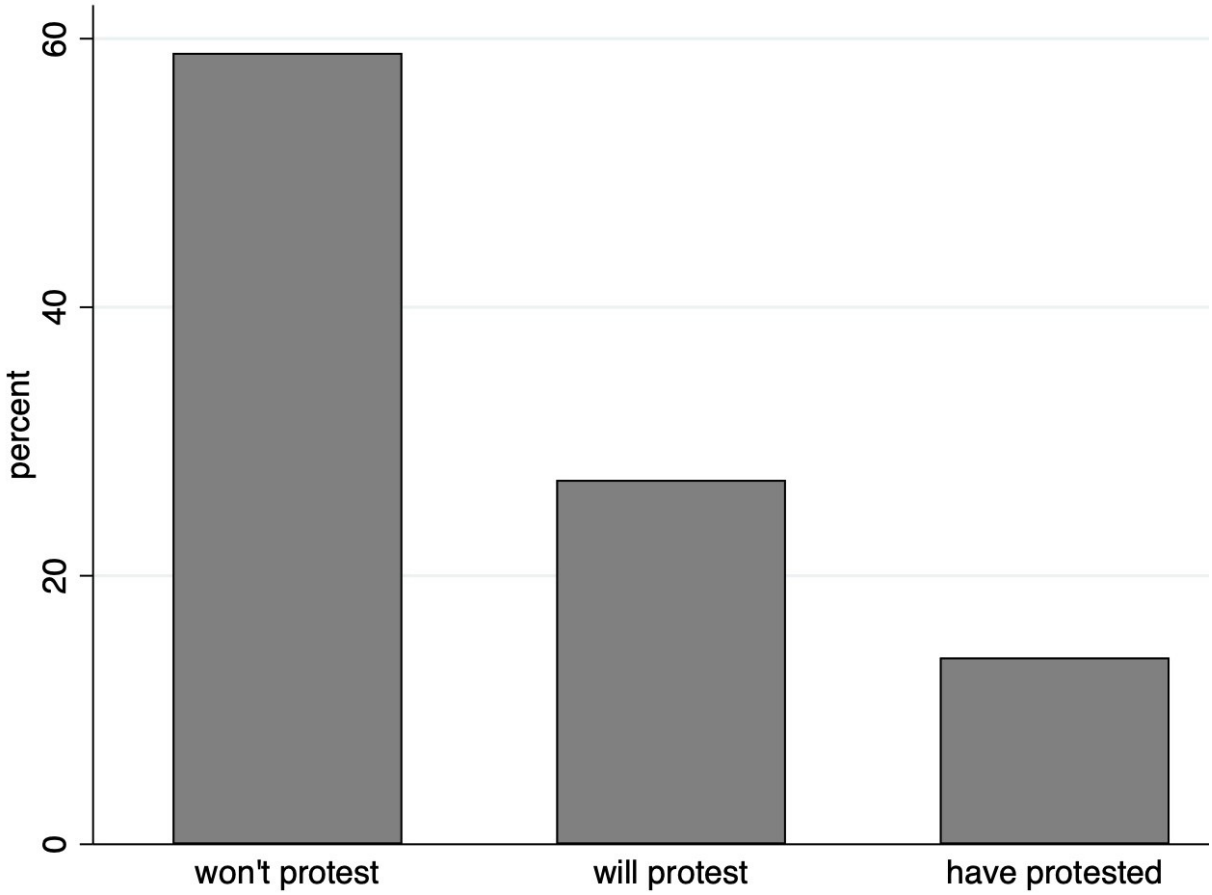

Figure 4: Africans' protest status

Note: The horizontal axis shows the respondents' protest status, while the vertical axis shows the percentage of respondents associated with each status. The figure is based on pooled data (n = 92,192) derived from Rounds 7 and 8 of the Afrobarometer surveys, conducted across 36 African countries from 2016 to 2021.

A pertinent question one might ask is: *To what extent do the findings from Nigeria apply to the larger African context?* This prompted us to pool Rounds 7 and 8 of the Afrobarometer survey data across 36 African countries, which we then used to replicate the main results reported in Table 2. Table C2 in the appendix lists the 36 African countries and the sample drawn from each of them. The pooled data contains a total of 93,907 observations. Figure 4 plots the protest status of African adults on a bar chart. 58% of them would not protest, which is the same as the estimate for Nigeria; 27% will protest if the opportunity arises, which is 4 percentage points higher than the Nigerian estimate; while 14% protested in the previous year, which is 5 percentage points lower than the Nigerian estimate.

Table 4 reports the regression results. Models 1 to 4 were estimated using ordered logit regression and an operationalization of the dependent variable such that it has three ordinal categories. In Model 1, where we considered only the lived poverty index, it carried a positive sign and was significant at the 1% level. This result, which is congruent with that found in Nigeria, provides further support for Hypothesis 1, which posits that poverty increases the likelihood of engaging in anti-government protests. In Model 2, where we considered only the measure for communal development, it was significant at the 10% level and carried a negative sign. This finding, which is also consistent with that in Nigeria, provides further support for Hypothesis 1.

Although the measure for communal development became insignificant in Model 3, where we included the two explanatory variables in the same model, it had a p-value of 0.12 and maintained its negative sign. In Model 4, where control variables were included, the measure for communal development became significant at the 1% level. However, the number of observations dropped from 90,849 to 71,511. This is mainly due to the inclusion of the corruption index in the model, which exacerbated the problem of listwise deletion. Like the Nigerian case, many respondents across Africa refused to answer the question on corruption in the three branches of government, which prompted us to treat them as missing observations while developing the

corruption index. However, even when we re-estimate the model while excluding the corruption index, the regression results remain the same (see Table B4 in the appendix).

Table 4: Ordered logit models regressing protest status on poverty and communal development in 36 African countries

Dependent variables:	**Protest**				**Protest 1**	**Protest 2**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	Ologit	**Ologit**	**Ologit**	**Ologit**	**LPM**	**LPM**
Lived poverty index	0.099***		0.096***	0.125***	0.027***	0.016***
	(0.017)		(0.017)	(0.016)	(0.003)	(0.003)
Communal development†		-0.054*	-0.049	-0.134***	-0.028***	-0.019***
		(0.031)	(0.031)	(0.025)	(0.005)	(0.005)
Economy worsened				0.026	0.008*	-0.002
				(0.021)	(0.005)	(0.003)
Voted				0.126***	0.026***	0.017***
				(0.028)	(0.007)	(0.004)
Educational level				0.042***	0.008***	0.008***
				(0.011)	(0.002)	(0.002)
Age				-0.012***	-0.003***	-0.001***
				(0.001)	(0.00)	(0.00)
Male				0.257***	0.054***	0.037***
				(0.025)	(0.006)	(0.004)
Corruption index				0.042***	0.009***	0.005***
				(0.007)	(0.002)	(0.001)
Exposure to terrorism†				0.001***	0.00***	0.00***
				(0.00)	(0.00)	(0.00)
Urban area				0.002***	0.00***	0.00***
				(0.00)	(0.00)	(0.00)
Constant					0.534***	0.018
					(0.03)	(0.021)
Intercept 1	-0.117	-0.297	-0.153	0.122		
	(0.299)	(0.307)	(0.301)	(0.13)		
Intercept 2	1.45***	1.269***	1.416***	1.717***		
	(0.281)	(0.287)	(0.281)	(0.131)		
Ethnic group FE	Yes	Yes	Yes	Yes	Yes	Yes
Survey year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	91360	91669	90849	71511	71511	71511
R-squared					0.105	0.071
Pseudo R^2	0.05	0.05	0.051	0.058		
Log pseudolikelihood	-81557.312	-81870.386	-81046.162	-64384.014		
AIC statistic	163184.6	163796.8	162160.3	128848	94310.03	48915.2
BIC statistic	163514.4	164060.7	162480.5	129215.1	94475.23	49080.39

Note: † indicate variables that have been standardized. Clustered robust standard errors are in parentheses, ***p<0.01, *p<0.05, p<0.10. Models 1, 2, 3, and 4 are estimated using ordered logit regression (Ologit), while Models 5 and 6 are estimated using linear probability model (LPM). All models contain fixed effects for survey year, respondents' ethnic groups, and the countries where they reside. "Protest" is measured on a scale with three ordinal categories, while "Protest 1" and "Protest 2" are measured on a binary scale. The regressions are based on the Rounds 7 and 8 Afrobarometer surveys conducted across 36 African countries between 2016 and 2021. AIC = Akaike information criterion; BIC = Bayesian information criterion.

In Model 4, all the control variables were significant, except for the indicator of relative macroeconomic performance. Unlike the Nigerian case, where perceived corruption in government, political participation, and exposure to terrorist attacks were insignificant, these three variables were positively correlated with Africans' willingness to protest. The positive sign

accompanying perceived corruption indicates that the more Africans believe the government is corrupt, the more likely they are to protest. The positive sign accompanying the indicator for whether an individual voted in the last election suggests that political participation increases Africans' likelihood of protesting. Likewise, the positive coefficient of the variable measuring exposure to terrorism indicates that the more Africans are exposed to terrorist attacks, the more likely they are to protest. Similar to the Nigerian case, education and being male increased the likelihood of protesting, while the negative sign accompanying age indicated that Africans become less likely to protest as they get older. The positive sign accompanying residence in an urban area suggests that people living in urban areas are more likely than their counterparts in rural areas to participate in anti-government protests. In contrast, the Nigerian case exhibited the opposite. The measure for relative macroeconomic performance was statistically insignificant, as was the case in Nigeria.

In Model 5, we considered a binary operationalization of the dependent variable (Protest 1) such that respondents who have either protested or intend to do so were coded as 1, and those who would not protest were coded as 0. Both the lived poverty index and the indicator for communal development were statistically significant. The positive sign accompanying the coefficient for the lived poverty index indicates that a 1-standard deviation increase in the index raises the probability of Africans either having protested or being willing to protest in the future by 2.7 percentage points. The negative sign accompanying the coefficient for the indicator of communal development (measured using mean annual nighttime light) suggests that a 1-standard deviation increase in communal development lowers the probability of Africans having protested in the previous year or being willing to protest by 2.8 percentage points.

In Model 6, we considered another binary dependent variable (Protest 2) that codes respondents who protested in the previous year as 1, and those who did not protest (irrespective of whether they intend to do so) as 0. Both the lived poverty index and the indicator for communal development maintained their signs and were statistically significant. The positive coefficient of the

lived poverty index indicates that a 1-standard deviation increase in the index raises the probability of Africans having protested in the previous year by 1.6 percentage points. The negative coefficient of the indicator for communal development suggests that a 1-standard deviation increase in the mean annual nighttime light within the 30 km radius around Africans' dwellings reduces their probability of having protested in the previous year by 1.9 percentage points.

5. Conclusion

Using data from Rounds 7, 8, and 9 of the Afrobarometer surveys, conducted in 2017, 2020, and 2022, we examined how socioeconomic deprivation, measured at the individual and communal levels, relates to Nigerians' willingness to participate in anti-government protests. To measure poverty at the individual level, we created a lived poverty index that assesses the frequency with which respondents and members of their households have gone without basic necessities like food, water, cooking fuel, medicine, and income over the past year. We proxied socioeconomic conditions at the communal level using the mean annual nighttime light within a 30 km radius of the respondents' geolocations. Regression analysis revealed that higher scores on the lived poverty index increased Nigerians' likelihood of having protested in the previous year, increased their willingness to protest in the future, and lowered the likelihood of them choosing not to protest. Likewise, higher nighttime light scores lowered Nigerians' likelihood of having protested in the previous year, lowered their willingness to participate in protests in the future, and increased their likelihood of choosing not to protest. Beyond the Nigerian case, these results are applicable to the larger African context.

The Nigerian government has failed in its responsibility to improve the socioeconomic conditions of the population. This is reflected in Nigerians' poor assessment of the government's efforts. Data from Round 9 of the Afrobarometer survey, conducted in 2022, show that 85% of Nigerians believe the government has performed either "very badly" or "fairly badly" in improving the living standards of the poor. When asked to assess the government's effort at keeping prices stable, 93% believe it has performed either "very badly" or "fairly badly." In terms of reducing the

gap between the rich and poor, 86% believe the government has performed either "very badly" or "fairly badly."

The unrest in Nigeria is part of a broader pattern of dissatisfaction spreading across Africa, where socioeconomic inequality and political exclusion have sparked widespread protests. In Kenya, for example, punitive tax proposals and worsening economic conditions have fueled massive demonstrations, with protesters storming the country's parliament. These protests led to over 50 deaths, amid allegations of police brutality (Wambua-Soi 2024). Similarly, in Uganda, high youth unemployment has sparked anti-corruption protests, challenging President Yoweri Museveni's long-standing rule. These demonstrations resulted in over 100 arrests (Cooney 2024). The similarities between the unrest in Nigeria, Kenya, and Uganda underscore the shared challenges facing many African nations, highlighting the growing demand for better governance and meaningful economic reforms.

Conflict of interest:
None.

Funding:
None.

Acknowledgements:
An earlier version of this paper was presented at the Migration, Integration, and Transnationalization Department's colloquium at the WZB Berlin Social Science Center, Germany, where we received valuable feedback from the participants. Section 2 of this article draws from Daniel Tuki's unpublished M.A. dissertation, completed in 2018 at the University of Freiburg, Germany. He thanks his supervisors, Prof. Jürgen Rüland and Dr. Esteban Maioli, for their guidance. We thank Jeff Conroy-Krutz for his helpful comments, and Roisin Cronin for editorial assistance.

References

Abimbade, O., Olayoku, P., & Herro, D. (2022). Millennial activism within Nigerian Twitterscape: From mobilization to social action of #ENDSARS protest. *Social Sciences & Humanities Open*, 6(1): 1–9. https://doi.org/10.1016/j.ssaho.2021.100222

Abubakar, M. (2024, August 1). Curfew imposed in Nigerian state after 'hunger' protest. *BBC*. https://www.bbc.com/news/articles/crg4y7wzzdlo. (Accessed November 2, 2024).

Achebe C (1983) *The trouble with Nigeria.* Essex: Heinemann Educational Books

Agbiboa, D.E. (2013). Ethno-religious conflicts and the elusive quest for national identity in Nigeria. *Journal of Black Studies*, 44(1): 3–30. https://doi.org/10.1177/0021934712463147

Akpan, E.O.B., & Targema, T.S. (2022). Social media, mass mobilization and national development in Nigeria: Lessons from the #EndSARS protest. *ASEAN Journal of Community Engagement*, *6*(2): 228–243. https://doi.org/10.7454/ajce.v6i2.1166

Akintola, B. (2010). The perils of protest: State repression and student mobilization in Nigeria. In Adebanwi, W., & Obadare, E. (Eds.). *Encountering the Nigerian state* (pp. 99–121). New York: Palgrave Macmillan.

Al Jazeera (2023, September 5). Nigerian unions strike again to protest soaring costs after subsidy removal. *Al Jazeera*. https://www.aljazeera.com/news/2023/9/5/nigerian-unions-strike-again-to-protest-soaring-costs-after-subsidy-removal. (Accessed December 6, 2024).

Aluko, S. (2008). *Corruption and national development*. 2nd Dr. Yusuf Bala Usman Memorial Lecture, Ahmadu Bello University, Nigeria.

Angbulu, S. (2024, May 29). *Flashback: 'Subsidy is gone,' Tinubu declares. Punch.* https://punchng.com/subsidy-is-gone-tinubu-declares/. (Accessed December 4, 2024).

Angbulu, S. (2024a). New presidential jet sparks debate over cost, transparency. *Punch.* https://punchng.com/new-presidential-jet-sparks-debate-over-cost-transparency/. (Accessed December 4, 2024).

Auyero, J. (2003). Relational riot: austerity and corruption protest in the neoliberal era. *Social Movement Studies*, 2(2): 117–145. https://doi.org/10.1080/1474283032000139742

Bamgboye, A. (2024, June 9). SERAP, others flay VP's N21bn home. *Daily Trust.* https://dailytrust.com/serap-others-flay-vps-n21bn-home/. (Accessed December 4, 2024).

Barakat, Z., & Fakih, A. (2021). Determinants of the Arab Spring protests in Tunisia, Egypt, and Libya: What have we learned? *Social Sciences*, 10(8): 1–15. https://doi.org/10.3390/socsci10080282

Beaupré, M.G., & Hess, U. (2003). In my mind, we all smile: A case of in-group favoritism. *Journal of Experimental Social Psychology,* 39(4): 371–377. https://doi.org/10.1016/S0022-1031(03)00012-X

Brady, H.E., Verba, S., & Schlozman, K.L. (1995). Beyond SES: A resource model of political participation. *American Political Science Review*, 89(2): 271–294. https://doi.org/10.2307/2082425

Brancati, D. (2014). Pocketbook protests: Explaining the emergence of pro-democracy protests worldwide. *Comparative Political Studies*, 47(11): 1503–1530. https://doi.org/10.1177/0010414013512603

Burton, J. (1997). Conflict resolution: Towards problem solving. *Peace and Conflict Studies*, 4(2). https://doi.org/10.46743/1082-7307/1997.1183

Burton, J. (1979). *Deviance, terrorism & war: The process of solving unsolved social and political problems.* Canberra: Australian National University Press.

Byun, C.C., & Hollander, E.J. (2015). Explaining the intensity of the Arab Spring. *Digest of Middle East Studies*, 24(1): 26–46. https://doi.org/10.1111/dome.12057

Chenoweth, E., Hamilton, B.H., Lee, H., Papageorge, N.W., Roll, S.P., & Zahn, M.V. (2022). *Who protests, what do they protest, and why?* (Working Paper No. w29987). National Bureau of Economic Research. https://www.nber.org/papers/w29987

Cooney, C. (2024, July 24). Dozens arrested in Uganda anti-government protests. *BBC*. https://www.bbc.com/news/articles/ceqde3dqd05o. (Accessed November 5, 2024).

Dalton, R., Van Sickle, A., & Weldon, S. (2010). The individual–institutional nexus of protest behaviour. *British Journal of Political Science*, 40(1): 51–73. doi:10.1017/S000712340999038X

Dodson, K. (2015). Globalization and protest expansion. *Social Problems*, 62(1): 15–39. https://doi.org/10.1093/socpro/spu004

Ehigiator, S. (2024, August 6). Chronicling the #EndBadGovernance protest as Nigerians cry for change. *This Day*. https://www.thisdaylive.com/index.php/2024/08/06/chronicling-the-endbadgovernance-protest-as-nigerians-cry-for-change/. (Accessed December 4, 2024).

Everett, J.A., Faber, N.S., & Crockett, M. (2015). Preferences and beliefs in ingroup favoritism. *Frontiers in Behavioral Neuroscience*, 9(56): 1–21. https://doi.org/10.3389/fnbeh.2015.00015

Fominaya, C.F. (2011). The Madrid bombings and popular protest: Misinformation, counter-information, mobilisation and elections after '11-M.' *Contemporary Social Science*, 6(3): 289–307. https://doi.org/10.1080/21582041.2011.603910

Galtung, J. (1990). International development in human perspective. In Burton, J. (Ed.). *Conflict: Human needs theory* (pp. 301–335). London: Macmillan Press Ltd.

Gbadamosi, N. (2024, August 7). Nationwide protests rattle Nigeria. *Foreign Policy*. https://foreignpolicy.com/2024/08/07/nigeria-bola-tinubu-reforms-protests-naira-governance/. (Accessed November 2, 2024).

Ghosh, T., Baugh, K.E., Elvidge, C.D., Zhizhin, M., Poyda, A., & Hsu, F.C. (2021). Extending the DMSP Nighttime Lights Time Series beyond 2013. *Remote Sensing*, 13(24), 1–19. https://doi.org/10.3390/rs13245004

Grasso, M.T., & Giugni, M. (2016). Protest participation and economic crisis: The conditioning role of political opportunities. *European Journal of Political Research*, 55(4): 663–680. https://doi.org/10.1111/1475-6765.12153

GTD Codebook (2021). Codebook Methodology, inclusion criteria, and variables. University of Maryland. https://www.start.umd.edu/gtd/downloads/Codebook.pdf

Harris, A.S., & Hern, E. (2019). Taking to the streets: Protest as an expression of political preference in Africa. *Comparative Political Studies*, 52(8): 1169–1199. https://doi.org/10.1177/0010414018806540

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

Houeland, C. (2020). Contentious and institutional politics in a petro-state: Nigeria's 2012 fuel subsidy protests. *The Extractive Industries and Society*, *7*(4): 1230–1237. https://doi.org/10.1016/j.exis.2020.05.010

Human Rights Watch (2024, September 6). Nigeria: Protesters charged with treason. *Human Rights Watch*. https://www.hrw.org/news/2024/09/06/nigeria-protesters-charged-treason. (Accessed November 2, 2024).

Iweze, D.O. (2022). Women's protests against colonial taxation in the Eastern Provinces of Nigeria. In Schönhärl, K., Hürlimann, G., & Rohde, D. (Eds.). *Histories of Tax Evasion, Avoidance and Resistance* (pp. 115–134). New York: Routledge.

Iwuoha, V.C., & Aniche, E.T. (2022). Protests and blood on the streets: repressive state, police brutality and #EndSARS protest in Nigeria. *Security Journal*, 35(4): 1102–1124. https://doi.org/10.1057/s41284-021-00316-z

Jolaoso, S. (2024, July 31). Frustrated Nigerians vow 'days of rage' as hardships mount. *BBC*. https://www.bbc.co.uk/news/articles/cl7yrnwly4ro. (Accessed December 4, 2024).

Kali, M. (2023). A comparative analysis of the causes of the protests in Southern Africa. *SN Social Sciences*, 3(2): 1–22. https://doi.org/10.1007/s43545-023-00613-x

Kelmendi, P., & Skendaj, E. (2023). Protests in postwar societies: Grievances and contentious aollective Action in Kosovo. *Nationalities Papers* 51: 1143–1163, https://doi.org/10.1017/nps.2022.7

Kilavuz, M.T. (2020). Determinants of participation in protests in the Arab uprisings: Grievances and opportunities in Egypt and Tunisia. *Uluslararasi Iliskiler*, 17(67): 81–96. https://dx.doi.org/10.33458/uidergisi.777327

Vüllers, J., & Krtsch, R. (2020). Raise your voices! Civilian protest in civil wars. *Political Geography*, 80: 1–12. https://doi.org/10.1016/j.polgeo.2020.102183

Lewis, J.S. (2021). Corruption perceptions and contentious politics in Africa: How different types of corruption have shaped Africa's third wave of protest. *Political Studies Review*, 19(2): 227–244. https://doi.org/10.1177/1478929920903657

Maslow, A.H. (1954). *Motivation and personality*. New York: Harper & Row Publishers Inc.

Mattes, R., Bratton, M., & Davids, Y.D. (2002). *Poverty, survival and democracy in Southern Africa* (Working Paper No. 27). Centre for Social Science Research, University of Cape Town, South Africa.

McGregor, D.M. (1957). The human side of enterprise. In Gibson, J.W., & Hodgetts, R.M. (1985). *Readings and exercises in organizational behaviour*. Florida: Academic Press Inc.

Mellander, C., Lobo, J., Stolarick, K., & Matheson, Z. (2015). Night-time light data: A good proxy measure for economic activity? *PloS One*, 10(10): 1–18. https://doi.org/10.1371/journal.pone.0139779

Mercier, M., Ngenzebuke, R.L., & Verwimp, P. (2020). Violence exposure and poverty: Evidence from the Burundi civil war. *Journal of Comparative Economics*, 48(4): 822–840. https://doi.org/10.1016/j.jce.2020.04.005

Nigerian National Bureau of Statistics (2024). Consumer Price Index June 2024. Abuja: National Bureau of Statistics. https://www.nigerianstat.gov.ng/pdfuploads/CPI_June_2024.pdf (Accessed December 13, 2024).

Nigerian National Bureau of Statistics (2020). 2019 Poverty and inequality in Nigeria: Executive summary. Abuja: National Bureau of Statistics. https://nigerianstat.gov.ng/download/1092. (Accessed December 11, 2024).

National Consortium for the Study of Terrorism and Responses to Terrorism. (2022). Global Terrorism Database 1970–2020 [data file]. https://www.start.umd.edu/gtd

Okafor, C. (2024, June 20). Nigeria's petrol prices surge by 223% under President Tinubu's administration. *Business Insider Africa*. https://africa.businessinsider.com/local/markets/impact-of-fuel-subsidy-removal/kxfy6t5. (Accessed December 4, 2024).

Okaisabor, J.O. (2023). An identity in quests for self-determination: The case of Indigenous People of Biafra separatist movement in Nigeria. *Nationalism and Ethnic Politics*, 29(2): 242–265. https://doi.org/10.1080/13537113.2023.2189200

Ong, L.H., & Han, D. (2019). What drives people to protest in an authoritarian country? Resources and rewards vs risks of protests in urban and rural China. *Political Studies*, 67(1): 224–248. https://doi.org/10.1177/0032321718763558

Orjinmo, N. (2023, June 1). Nigeria's fuel subsidy: How the new president has shocked the nation. *BBC*. https://www.bbc.com/news/world-africa-65765585. (Accessed December 6, 2024).

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

Petrie, M. (2004). A research note on the determinants of protest participation: Examining socialization and biographical availability. *Sociological Spectrum*: 24(5): 553–574. https://doi.org/10.1080/02732170490483523

Roy, R. (1990). Social conflicts and needs theories: Some observations. In Burton, J. (Ed.). *Conflict: Human needs theory* (pp. 125–147). London: The Macmillan Press Ltd.

Sahara TV. (2023, June 7). *Former Kaduna state governor, Mallam Nasir El-Rufai admits to religious bigotry in viral video* [Video]. https://www.youtube.com/watch?v=K4sxcHX0EFo. (Accessed December 10, 2024).

Santoro, W.A., & Azab, M. (2015). Arab American protest in the terror decade: Macro- and micro-level response to post-9/11 repression. *Social Problems*, 62(2): 219–240. https://doi.org/10.1093/socpro/spv004

Sites, P. (1990). Needs as analogues of emotions. In Burton, J. (Ed.). *Conflict: Human needs theory* (pp. 7–33). London: Macmillan Press Ltd.

Školník, M. (2022). Corruption and its impact on protest activities in post-communist Europe. *European Review*, 30(3): 393–407. https://doi.org/10.1017/S1062798721000041

Solt, F. (2012). The social origins of authoritarianism. *Political Research Quarterly*, 65(4): 703–713. https://doi.org/10.1177/1065912911424287

Solt, F. (2008). Economic inequality and democratic political engagement. *American Journal of Political Science*, 52(1): 48–60. https://doi.org/10.1111/j.1540-5907.2007.00298.x

Stewart, F. (1989). Basic needs strategies, human rights, and the right to development. *Human Rights Quarterly*, 11(3), 347–374.

Sunday, O. (2024, July 15). Hardship: Govt officials panic, police on red alert over planned nationwide protest. *Daily Post*. https://dailypost.ng/2024/07/15/hardship-govt-officials-panic-police-on-red-alert-over-planned-nationwide-protest/. (Accessed December 4, 2024).

Swart, L.A., Day, S., Govender, R., & Seedat, M. (2020). Participation in (non) violent protests and associated psychosocial factors: Sociodemographic status, civic engagement, and perceptions of government's performance. *South African Journal of Psychology*, 50(4): 480–492. https://doi.org/10.1177/0081246320912669

Tribune News. (2024). Legislators' pay: The shame of a nation. *Tribune News*. Retrieved from https://tribuneonlineng.com/legislators-pay-the-shame-of-a-nation/. (Accessed December 4, 2024).

Tuki, D. (2025). Regional differences in support for secession among members of the Igbo ethnic group in Nigeria. *Nationalism and Ethnic Politics*, 1–15. https://doi.org/10.1080/13537113.2025.2461356

Tuki, D. (2024). *You're not like us! Ethnic discrimination and national belonging in Nigeria*. Households in Conflict Network (HiCN), Working paper No. 415. https://hicn.org/working-paper/415/

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,* 1–4. 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*, 1–23. https://doi.org/10.1080/09546553.2023.2285939

Tuki, D. (2024d). Conflict exposure and expected victimization in Nigeria. *Behavioral Sciences of Terrorism and Political Aggression*, 1–22. https://doi.org/10.1080/19434472.2024.2421839

Tuki, D. (2024e). Examining the effect of gender, education and religion on attitudes toward gender equality in Nigeria. *Politics, Groups and Identities,* 1–27. https://doi.org/10.1080/21565503.2024.2304311

Tuki, D. (2022). *The effect of violent conflict on the socioeconomic condition of households in Nigeria: The case of Kaduna State*. Households in Conflict Network (HiCN), Working paper No. 373. https://hicn.org/working-paper/373/

Uwalaka, T., & Watkins, J. (2018). Social media as the fifth estate in Nigeria: An Analysis of the 2012 Occupy Nigeria protest. *African Journalism Studies*, 39(4), 22–41. https://doi.org/10.1080/23743670.2018.1473274

Verba, S., Schlozman, K.L., & Brady, H.E. (2000). Rational action and political activity. *Journal of Theoretical Politics*, 12(3): 243–268. https://doi.org/10.1177/0951692800012003001

Verkuyten, M., & De Wolf, A. (2007). The development of in-group favoritism: Between social reality and group identity. *Developmental Psychology*, 43(4): 886 –500. https://doi.org/10.1111/j.1559-1816.2007.00170.x

Wambua-Soi, C. (2024). 'Kenya is not asleep anymore': Why young protesters are not backing down. *Al Jazeera*. Retrieved from https://www.aljazeera.com/features/2024/7/24/kenya-is-not-asleep-anymore-why-young-protesters-are-not-backing-down. (Accessed November 5, 2024).

Weidmann, N.B., & Theunissen, G. (2021). Estimating local inequality from nighttime lights. *Remote Sensing*, 13(22): 1–17. https://doi.org/10.3390/rs13224624

Weidmann, N.B., & Schutte, S. (2017). Using night light emissions for the prediction of local wealth. *Journal of Peace Research*, 54(2): 125–140. https://doi.org/10.1177/0022343316630359

Yagci, A.H. (2017). The great recession, inequality and occupy protests around the world. *Government and Opposition*, 52(4): 640–670. https://doi.org/10.1017/gov.2016.3

Yahaya, I.I., Wang, Y., Zhang, Z., Inuwa, A.Y., Zhao, Y., You, Y., ... & Shoukat, W. (2024). Assessing desertification vulnerability and mitigation strategies in northern Nigeria: A comprehensive approach. *Heliyon*, 10(11): 1 – 21. https://doi.org/10.1016/j.heliyon.2024.e31167

Appendix

Section A: Regional analysis

Table A1 reports the results of regression models where the data from Nigeria was disaggregated based on respondents' region of residence, and each subsample used to replicate the main results reported in Table 2 of the Article.

Table A1: Replicating the results in Table 2 using the subsample of respondents in the Northern and Southern regions

Protest$^{\sigma}$	**(1)**	**(2)**
	North	**South**
Lived poverty index†	0.172***	0.229**
	(0.056)	(0.094)
Communal development†	-0.081	-0.194***
	(0.17)	(0.048)
Economy's worsened	0.046	-0.201**
	(0.094)	(0.094)
Voted	-0.148	0.172
	(0.17)	(0.127)
Educational level	0.033	0.05*
	(0.024)	(0.026)
Age	-0.012***	-0.012**
	(0.005)	(0.005)
Male	0.909***	0.188***
	(0.159)	(0.068)
Corruption index	-0.096***	0.022
	(0.03)	(0.034)
Exposure to terrorism†	0.00	0.003**
	(0.00)	(0.001)
Urban area	-0.13	-0.18**
	(0.093)	(0.085)
Intercept 1	0.288	0.549
	(0.282)	(0.805)
Intercept 2	1.576***	1.818**
	(.267)	(0.816)
Ethnic group FE	Yes	Yes
Survey year FE	Yes	Yes
Observations	2231	2100
Pseudo R^2	0.065	0.056
Log pseudolikelihood	-1947.494	-2018.907
AIC statistic	3934.988	4071.814
BIC statistic	4049.192	4167.859

Note: σ is the dependent variable and is measured on a scale with three ordinal categories. † indicates variables that have been standardized. Clustered robust standard errors are in parentheses, * p<0.01, *p<0.05, p<0.10. All models are estimated using ordered logit regression and contain fixed effects for the respondents' ethnic groups and the survey year. Model 1 is based on the subsample of respondents living in Northern Nigeria, while Model 2 is based on the subsample of respondents living in Southern Nigeria. The regressions are based on the Rounds 7, 8, and 9 Afrobarometer surveys conducted in Nigeria in 2017, 2020, and 2022, respectively. AIC = Akaike information criterion; BIC = Bayesian information criterion.

Section B: Robustness check using different dependent variable and method

The regression results reported in this section replicate the results in Table 3 of the article using a binary operationalization of the dependent variable and linear probability model (LPM) as an alternative estimation method. The dependent variable used to estimate the models in Table B1—*Protest 1*—is coded as 1 if a respondent participated in a protest in the previous year or would do so in the future if the opportunity arises, and 0 if they would not participate in a protest. The dependent variable used to estimate the models in Table B2—*Protest 2*—codes respondents who participated in a protest in the previous year as 1, and those who did not, whether or not they intend to do so in the future, as 0.

Table B1: Replicating the results in Table 3 using "Protest 1" and linear probability model (LPM)

Protest 1$^{\sigma}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Hausa/Fulani	-0.118***				-0.142***
	(0.023)				(0.023)
Yoruba		-0.038 **(p = 0.12)**			-0.09***
		(0.024)			(0.022)
Igbo			0.079**		0.007
			(0.032)		(0.032)
Ethnic minorities				0.092***	
				(0.023)	
Constant	0.478***	0.453***	0.432***	0.413***	0.502***
	(0.021)	(0.021)	(0.016)	(0.025)	(0.016)
Observations	4736	4736	4736	4736	4736
R-squared	0.03	0.019	0.021	0.026	0.035
AIC statistic	6608.83	6663.141	6651.374	6629.957	6588.595
BIC statistic	6634.682	6688.993	6677.226	6655.809	6627.373

Note: σ is the dependent variable and is measured on a binary scale. Clustered robust standard errors are in parenthesis, *** p<0.01, ** p<0.05, * p<0.10. All regressions are estimated using linear probability model (LPM). The regressions are based on the Rounds 7, 8, and 9 Afrobarometer surveys conducted in Nigeria in 2017, 2020, and 2022, respectively. AIC = Akaike information criterion; BIC = Bayesian information criterion.

Table B2: Replicating the results in Table 3 using "Protest 2" and linear probability model (LPM)

Protest 2$^{\sigma}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Hausa/Fulani	-0.046***				-0.051***
	(0.014)				(0.014)
Yoruba		-0.036*			-0.048**
		(0.019)			(0.021)
Igbo			0.068***		0.038
			(0.022)		(0.024)
Ethnic minorities				0.029*	
				(0.015)	
Constant	0.193***	0.188***	0.169***	0.17***	0.198***
	(0.019)	(0.016)	(0.014)	(0.018)	(0.016)
Observations	4736	4736	4736	4736	4736
R-squared	0.052	0.05	0.053	0.05	0.056
AIC statistic	4265.663	4273.672	4260.768	4274.014	4247.899
BIC statistic	4291.515	4299.524	4286.62	4299.866	4286.677

Note: σ is the dependent variable and is measured on a binary scale. Clustered robust standard errors are in parenthesis, *** p<0.01, ** p<0.05, * p<0.10. All regressions are estimated using linear probability model (LPM). The regressions are based on the Rounds 7, 8, and 9 Afrobarometer surveys conducted in Nigeria in 2017, 2020, and 2022, respectively. AIC = Akaike information criterion; BIC = Bayesian information criterion.

Table B3: Replicating models 4, 5, and 6 in Table 2 while excluding the corruption index

Dependent variables:	**Protest**	**Protest 1**	**Protest 2**
	(1)	**(2)**	**(3)**
	Ologit	**LPM**	**LPM**
Lived poverty index†	0.232***	0.049***	0.04***
	(0.053)	(0.012)	(0.009)
Communal development†	-0.135***	-0.029***	-0.016***
	(0.028)	(0.006)	(0.006)
Economy worsened	-0.117**	-0.034**	-0.008
	(0.06)	(0.015)	(0.013)
Voted	0.043	0.007	0.011
	(0.095)	(0.021)	(0.018)
Educational level	0.043**	0.01**	0.004
	(0.018)	(0.004)	(0.003)
Age	-0.012***	-0.003***	-0.001**
	(0.004)	(0.001)	(0.001)
Male	0.537***	0.131***	0.052***
	(0.108)	(0.026)	(0.013)
Exposure to terrorism†	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Urban area	-0.135***	-0.03**	-0.017*
	(0.052)	(0.012)	(0.01)
Northern Region	-0.327**	-0.059*	-0.073***
	(0.14)	(0.031)	(0.025)
Constant		0.4***	0.197***
		(0.043)	(0.036)
Intercept 1	0.395**		
	(0.185)		
Intercept 2	1.637***		
	(0.182)		
Ethnic group FE	Yes	Yes	Yes
Survey year FE	Yes	Yes	Yes
Observations	4665	4,665	4,665
R-squared		0.083	0.085
Pseudo R^2	0.052		
Log pseudolikelihood	-4281.46		
AIC statistic	8636.92	6316.136	4098.905
BIC statistic	8875.49	6548.259	4331.028

Note: † indicates variables that have been standardized. Clustered robust standard errors are in parenthesis, *** p<0.01, ** p<0.05, * p<0.10. Model 1 is estimated using ordered logit regression (Ologit), while Models 2 and 3 are estimated using linear probability model (LPM). All models contain fixed effects for survey year and respondents' ethnic groups. "Protest" is measured on a scale with three ordinal categories, while "Protest 1" and "Protest 2" are measured on a binary scale. The regressions are based on Rounds 7, 8, and 9 of the Afrobarometer surveys, conducted in Nigeria in 2017, 2020, and 2022, respectively. AIC = Akaike information criterion; BIC = Bayesian information criterion.

Table B4: Replicating models 4, 5, and 6 in Table 4 while excluding the corruption index (36 African countries)

Dependent variables:			
	Protest	**Protest 1**	**Protest 2**
	(1)	**(2)**	**(3)**
	Ologit	**LPM**	**LPM**
Lived poverty index†	0.133***	0.029***	0.016***
	(0.016)	(0.003)	(0.003)
Communal development†	-0.107***	-0.023***	-0.013**
	(0.031)	(0.006)	(0.006)
Economy worsened	0.045*	0.012**	0.00
	(0.024)	(0.005)	(0.004)
Voted	0.126***	0.026***	0.015***
	(0.028)	(0.006)	(0.004)
Educational level	0.052***	0.01***	0.009***
	(0.01)	(0.002)	(0.002)
Age	-0.014***	-0.003***	-0.001***
	(0.001)	(0.00)	(0.00)
Male	0.29***	0.06***	0.039***
	(0.025)	(0.006)	(0.004)
Exposure to terrorism†	0.001***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)
Urban area	0.001***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)
Constant		0.591***	0.095***
		(0.029)	(0.018)
Intercept 1	-0.242**		
	(0.117)		
Intercept 2	1.348***		
	(.131)		
Ethnic group FE	Yes	Yes	Yes
Survey year FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Observations	89335	89,335	89,335
R-squared		0.107	0.077
Pseudo R^2	0.060		
Log pseudolikelihood	-79001.191		
AIC statistic	158088.4	116814.1	57174.11
BIC statistic	158492.6	116973.9	57333.92

Note: † indicates variables that have been standardized. Clustered robust standard errors are in parenthesis, *** p<0.01, ** p<0.05, * p<0.10. Model 1 is estimated using ordered logit regression (Ologit), while Models 2 and 3 are estimated using linear probability model (LPM). All models contain fixed effects for survey year, respondents' ethnic groups, and the countries where they reside. "Protest" is measured on a scale with three ordinal categories, while "Protest 1" and "Protest 2" are measured on a binary scale. The regressions are based on Rounds 7 and 8 of the Afrobarometer surveys, conducted across 36 African countries between 2016 to 2021. AIC = Akaike information criterion; BIC = Bayesian information criterion.

Section C

Table C1 presents the summary statistics of the variables used to estimate the regression models reported in Table 4 of the article. The models are based on data derived from Rounds 7 and 8 of the Afrobarometer surveys conducted between 2016 and 2021, covering 36 African countries. Table C2 lists the African countries and the number of observations drawn from each of them.

Table C1: Descriptive Statistics (36 African countries)

Variable	Total observations	Mean	Standard deviation	Minimum	Maximum
Protest$^{\sigma}$	92192	0.55	0.725	0	2
Protest 1 (Binary)$^{\sigma}$	92192	0.411	0.492	0	1
Protest 2 (Binary)$^{\sigma}$	92192	0.139	0.346	0	1
Lived poverty index	92947	6.325	4.634	0	20
Lived poverty index†	92947	0	1	-1.365	2.951
Communal development	93358	3.165	6.15	0	53.658
Communal development†	93358	0	1	-.515	8.21
Economy worsened	92689	.505	0.5	0	1
Voted	93907	0.675	0.468	0	1
Educational level	93453	3.473	2.273	0	9
Age	93849	37.105	14.863	18	120
Male	93900	0.5	0.5	0	1
Corruption index	74257	4.215	2.264	0	9
Exposure to terrorism†	93782	11.534	46.995	0	679
Urban area	93907	0.675	9.5	0	460

Note: σ are the dependent variables. † indicates variables that have been standardized. The corruption index includes fewer observations due to a high number of "don't know" and "refused to answer" responses to the questions used in its development. This issue exacerbated the problem of listwise deletion in the models where the index was included as a control variable. The values are based on Rounds 7 and 8 of the Afrobarometer surveys, conducted across 36 African countries between 2016 to 2021. AIC = Akaike information criterion; BIC = Bayesian information criterion.

Table C2: List of 36 African countries in the sample

Country	Frequency	Percent
Angola	2400	2.56
Benin	2400	2.56
Botswana	2398	2.55
Burkina Faso	2400	2.56
Cabo Verde	2400	2.56
Cameroon	2402	2.56
Côte d'Ivoire	2400	2.56
eSwatini	2400	2.56
Ethiopia	2378	2.53
Gabon	2399	2.55
Gambia	2400	2.56
Ghana	4800	5.11
Guinea	2394	2.55
Kenya	3999	4.26
Lesotho	2400	2.56
Liberia	2400	2.56
Madagascar	1200	1.28
Malawi	2400	2.56
Mali	2400	2.56
Mauritius	2400	2.56
Morocco	2400	2.56
Mozambique	3502	3.73
Namibia	2400	2.56
Niger	2399	2.55
Nigeria	3199	3.41
São Tóme and Príncipe	1200	1.28
Senegal	2400	2.56
Sierra Leone	2400	2.56
South Africa	3440	3.66
Sudan	3000	3.19
Tanzania	4798	5.11
Togo	2400	2.56
Tunisia	2399	2.55
Uganda	2400	2.56
Zambia	2400	2.56
Zimbabwe	2400	2.56
Total	**93,907**	**100.00**

Note: The table lists the 36 African countries used in the cross-country analysis and the total number of observations collected from each of them. The number of observations is based on the pooled data from Rounds 7 and 8 of the Afrobarometer survey.