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Examining the effect of gender, education and religion on attitudes toward gender equality in Nigeria

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ABSTRACT

Using novel survey data collected from the states of Kaduna and Edo in Nigeria's Northern and Southern Regions respectively, this study examined the correlates of gender egalitarian attitudes with a particular focus on gender, educational attainment, religious affiliation, and the region where the respondents resided. The regression results showed that educational attainment and being female positively correlated with support for gender equality in the two states. Muslim affiliation negatively correlated with support for gender equality in Kaduna; however, in the case of Edo, it was statistically insignificant. Moreover, residing in Northern Nigeria negatively correlated with support for gender equality. When I broke down the data based on gender (males and females) and religious affiliation (Muslims and Christians) and compared the subgroups across the two states, the descriptive results showed that Muslims in Edo were more supportive of gender equality than both Christians and Muslims in Kaduna. Males in Edo were also more supportive of gender equality than both females and males in Kaduna. This suggests that it would be misleading to lump respondents from both states into the same category based on gender or religious affiliation because they differ considerably.

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1. Introduction

Nigeria performs poorly in the area of gender equality. It ranked 168 out of 191 countries in the 2021 Gender Inequality Index (GII). Moreover, it had a score of 0.68, which is worse than the average scores for Sub-Saharan Africa and the world, which were 0.569 and 0.465 respectively. The Gender Inequality Index ranges from 0.000 to 0.900, with 0.900 denoting the highest level of gender inequality and 0.000 denoting equality between men and women (United Nations Development Program 2022). Data from the World Values Survey (WVS) (Haerpfer et al. 2022; Inglehart et al. 2014) shows that Nigerians generally do not have positive attitudes toward gender equality. The Wave 6 survey, which was conducted in 2012 shows

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that 46.2 percent of Nigerians either “strongly agree” or “agree” that “a university education is more important for a boy than a girl.” The Wave 7 survey conducted in 2018 shows that 41.7 percent of Nigerians still hold this view. The low support for gender equality in Nigeria becomes more apparent when it is compared with other countries like Germany and Australia where the estimates for 2018 were 4.2 and 2.3 percent respectively. Interestingly, data from the Round 7 Afrobarometer survey (BenYishay et al. 2017) conducted in 2017 shows that 84 percent of Nigerians either “strongly agree” or “agree” that “girls and boys have equal opportunities to get an education”

Country-level data is insightful because it provides a holistic view, but it also masks the variations within the country. Attitudes toward gender equality may not be evenly spread across Nigeria—some places may have more positive attitudes toward gender equality than others. Nigeria is a multicultural society comprising of over 250 ethnic groups that have different customs. Moreover, Nigeria has a dyadic structure with a predominantly Muslim Northern Region and a predominantly Christian Southern Region. Both regions also differ in socioeconomic terms, with the Southern Region outperforming the Northern Region when development indicators like the incidence of poverty and infant mortality are considered. A report by the Nigerian National Bureau of Statistics [NBS] (2020) shows that 59 percent of the population in Northern Nigeria live below the poverty line of 137,430 naira (approximately US\$ 361) per annum. The estimate for the Southern Region is 17 percent. The mortality rate for children under five years old is 126 per 1,000 in the Northern region, while that for the Southern Region is 64 per 1,000 (NBS and UNICEF 2017, 27). The cultural and socioeconomic disparities between the two regions have historical roots (Tuki 2023). These differences may lead to variations in the attitudes toward gender equality among the populations in the respective regions.

This study relies on the Transnational Perspectives on Migration and Integration (TRANSMIT) survey dataset collected from the states of Kaduna and Edo, which are in Nigeria’s Northern and Southern Regions respectively. The cultural and socioeconomic conditions in both states reflect the contrasts between the larger regions in which they are situated. This allows for the findings from the respective states to be applied to the regional level. Kaduna has a poverty rate of 43 percent while the estimate for Edo is 12 percent (NBS 2020). The TRANSMIT dataset shows that 34 and 13 percent of the households in Kaduna and Edo respectively do not have enough money to buy food. It also shows that the population in Kaduna is almost evenly split between Muslims and Christians, with both religious groups accounting for 56 and 44 percent of the population respectively. In Edo, 87 percent of the population is Christian, 11 percent is Muslim, one percent practice other religions besides Islam and Christianity, while the remaining one percent have no religion.

Exploiting the variation between Kaduna and Edo, this study examines how gender, educational attainment, religious affiliation, and the region where respondents reside influence attitudes toward gender equality. The survey instrument that was administered in both states incorporated the question from the WVS probing the degree to which respondents think a university education is more important for boys than girls. I used this item as my measure for attitudes toward gender equality. The responses are measured on an ordinal scale with five categories ranging from “strongly agree” to “strongly disagree.” I focused specifically on gender equality in terms of educational access because of the multiplier effect that female education has on socioeconomic

conditions both at the micro and macro levels. Education is akin to an equalizer between men and women because “Schooling always distinguishes individuals from the general mass of society, making possible the advancement of one person over others, not on the basis of inherited status but on the basis of personal achievement.” (Ryan 2006, 201). Depriving women of education constrains their productivity and robs the society of their potential contribution, which impedes economic growth and development (Hassan and Cooray 2015; Roudi-Fahimi and Moghadam 2003). Moreover, some studies have shown that mothers’ education negatively correlates with growth stunting and poor health outcomes in children (Abuya, Ciera, and Kimani-Murage 2012; Emamian et al. 2014; Gokhale et al. 2004; Wamani et al. 2004), increases the use of ante-natal care and skilled birth attendance, which in turn reduces infant and maternal mortality (Alvarez et al. 2009; Bhowmik, Biswas, and Woldegiorgis 2019; Das Gupta 1990; Masuda and Yamauchi 2020; Mustafa and Mukhtar 2015), reduces teenage fertility (Drewry and Garcés-Palacio 2020; Guijarro et al. 1999; Güneş 2016), increases adolescents’ school enrollment, math test scores, and college aspirations (Cui, Liu, and Zhao 2019), and fosters democratic development (Bougharriou, Benayed, and Gabsi 2019; Lutz, Cuaresma, and Abbasi-Shavazi 2010; Wyndow, Li, and Mattes 2013).

Some studies have examined the determinants of egalitarian attitudes, and the mechanisms through which people cultivate these attitudes (e.g., Baudelot et al. 2004; Chatard and Selimbegovic 2007; Newcomb 1943). Some studies have specifically focused on the determinants of gender egalitarian attitudes in Nigeria, most of which are qualitative studies (e.g., Abidogun 2007; Adisa et al. 2021; Para-Mallam 2010). The few studies that employ quantitative data often use it descriptively (e.g., Olarenwaju and Awogbayila 2021). With the exception of the studies conducted by Okonkwo (2013) and Ifegbesan and Azeez (2022), none, to the best of my knowledge, has examined the correlates of attitudes toward gender equality using inferential statistical methods. The study by Okonkwo (2013), which was conducted in the state of Enugu, examined the effect of education on gender egalitarian attitudes using survey data collected from students in a secondary school, undergraduate students in a university, and working professionals ($n = 210$). He analyzed the data using analysis of variance (ANOVA). His results showed that education had no statistically significant effect on attitudes toward gender equality. The study by Ifegbesan and Azeez (2022), which relied on the Wave 6 WVS survey dataset that is representative for Nigeria’s population, found that education reduced the likelihood of holding traditional views regarding gender roles. They also found that females were less supportive of traditional gender roles than males.

This study differs from the ones conducted by Okonkwo (2013) and Ifegbesan and Azeez (2022) in the following ways: First, it is comparative in nature. Using novel large-N survey data collected from the states of Kaduna and Edo, I show how the disparities between Nigeria’s Northern and Southern Regions influence attitudes toward gender equality. Second, disaggregating the data and estimating identical models using the subsample of respondents from the respective states of Kaduna and Edo, I am able to make systematic comparisons between the results obtained from both states (regions), which allows me to identify the determinants of gender egalitarian attitudes that overlap between the two states (regions) and those that are peculiar to a particular state (region). Lastly, unlike the former two studies which ignore religion, this study examines how religious affiliation influences attitudes toward gender equality.

This study contributes to the broader literature on the determinants of gender egalitarian attitudes, especially those that emphasize the role played by education (e.g., Chatard and Selimbegovic 2007; Ifegbesan and Azeez 2022; Kane 1995; Kyoore and Sulemana 2019; Shu 2004; Zhang, Kao, and Hannum 2007) and religion (e.g., Eidhamar 2018; Glas and Alexander 2020; Lussier and Fish 2016; Öztürk 2023; Seguíno 2010) in the cultivation of these attitudes. This study proceeds as follows: Section 2 discusses the literature on the determinants of gender egalitarian attitudes and highlights the historical origins of the cultural and socioeconomic disparities between Northern and Southern Nigeria. Section 3 operationalizes the variables that will be used to estimate the regression models. Section 4 presents the results and discusses them, while Section 5 summarizes the study and concludes.

2. Theoretical considerations

McDaniel (2008, 59) defined gender egalitarianism as “a belief that men and women should attain a certain degree of equality within both public and private realms of society, and that women’s status should not depend on their reproductive behavior.” Relying on data from the WVS, she developed an index for attitudes toward gender equality for several countries around the world, which enabled her to make systematic comparisons between different regions and genders. She found that the difference in gender egalitarian attitudes between males and females was negligible in the United States and the countries of Western Europe. Conversely, the difference was pronounced in African and Middle Eastern countries, with females typically having more positive attitudes toward gender equality than their male counterparts. Her finding that females have more favorable attitudes toward gender equality than males have been corroborated by studies conducted in Nigeria (Ifegbesan and Azeez 2022), China (Zhang, Kao, and Hannum 2007), Afghanistan (Manganaro and Alozie 2011), Lebanon (Abouchédid 2007), the United Kingdom (Crouter et al. 2007), and the United States (Anderson and Johnson 2003; Larsen and Long 1988; Phinney and Flores 2002). Cross-country studies have also found support for the positive correlation between being female and gender egalitarian attitudes (e.g., Alexander and Parhizkari 2018; Charles 2020; Dotti Sani and Quaranta 2017; Kyoore and Sulemana 2019; Yu and Lee 2013). Because women in Nigeria stand to benefit more from a gender egalitarian society, e.g., in terms of having the same educational and employment opportunities as their male counterparts, I expect them to be more supportive of gender equality than men. This leads to the first hypothesis that this study seeks to test:

H1: *Being female positively correlates with support for gender equality*

Some studies have specifically examined the relationship between education and attitudes toward gender equality. Ifegbesan and Azeez (2022) conducted a study in Nigeria where they found that education increased the likelihood of having liberal attitudes toward gender roles. In their study of Hispanics in the United States, Phinney and Flores (2002) found that education was positively correlated with gender egalitarian attitudes. Their measure for gender egalitarian attitudes was derived from the responses to four sets of questions probing the extent to which respondents supported traditional gender roles. Greater support for traditional gender roles implied lower gender egalitarian attitudes and vice versa. Relying on the Wave 6 WVS data covering five African

countries (Ghana, Nigeria, South Africa, Zimbabwe, and Rwanda), Kyoore and Sulemana (2019) also found a positive correlation between education and support for gender equality. This finding has been replicated by Charles (2020), who relied on the Round 5 Afro-barometer survey data covering 34 African countries; by Alexander and Parhizkari (2018), who relied on the Wave 5 WVS dataset covering Egypt, Iran, and Turkey; by Boehnke (2011), who relied on survey data covering 24 OECD countries; by Levto et al. (2014), who used survey data collected from men in eight low- and middle-income countries (Brazil, Chile, Mexico, India, Bosnia and Herzegovina, Croatia, Democratic Republic of Congo, and Rwanda); by Gerling, Ash-Houchen, and Lo (2019), who relied on WVS global data covering 50 countries; by Manganaro and Alozie (2011), who used representative survey data for Afghanistan, and by Shu (2004), who relied on representative survey data for China. An interesting element of Shu's finding is that the effect of education on gender egalitarian attitudes is larger among women than men.

A mechanism through which education could influence attitudes toward gender equality is socialization. In his seminal study involving women enrolled in Bennington College, Newcomb (1943) found that education leads to a change in attitudes. He observed that women newly enrolled in the college often had conservative attitudes that were imposed on them by their families. However, as they spent more years at the college, their attitudes became less conservative and more progressive. Education "provides exposure to egalitarian ideas and, as a consequence, gender stereotypes tend to be questioned." (Boehnke 2011, 60). Similarly, Balk (1997, 160) observed that "Conformity to traditional norms results partly from a narrow mind set. As education broadens the mind, it reduces conformity." Education correlates positively with labor force participation among women because it fosters the adoption of gender egalitarian attitudes and enables them to acquire relevant skills that improve their employability. This increases the capacity of women to contribute to household income, which in turn increases their bargaining power within the household and the larger community where they reside (Diwan and Vartanova 2017).

Besides socialization, Chatard and Selimbegovic (2007) identified self-selection as another mechanism through which education influenced egalitarian attitudes. They observed that from a young age, people expressed interest in disciplines and careers that were congruent with their attitudes toward egalitarianism. For instance, people with egalitarian attitudes tended to self-select into academic disciplines within the social sciences where their preexisting attitudes were further strengthened. They also preferred to pursue "hierarchy-attenuating" careers like working in charity organizations or working as civil rights lawyers. Conversely, people with less egalitarian attitudes preferred to study academic disciplines like business that matched their individualistic disposition. They also preferred "hierarchy-enhancing" careers like policing and working in the business sector. Chatard and Selimbegovic (2007) also highlighted the concepts of "differential attrition" and "differential success" which made the distinction between people with egalitarian and individualistic attitudes even more salient. For instance, people with individualistic attitudes who found themselves in *egalitarian-inclined* academic disciplines might drop out due to the incongruence between their attitudes and the academic discipline—differential attrition. Moreover, they were less likely to succeed in the discipline compared to their counterparts who had stronger egalitarian attitudes—differential success.

Conversely, some studies have contended that education has no effect on attitudes toward gender equality. In their study of adolescents in Egypt, Mensch et al. (2003) found no statistical association between education and gender egalitarian attitudes. They concluded that education “does not always challenge the expression of traditional attitudes for either sex or necessarily encourage wider horizons for girls.” (17). Dinçer, Kaushal, and Grossman (2014) had a similar finding in their study that was conducted in Turkey. To account for the mixed findings in the literature regarding the relationship between education and gender egalitarian attitudes, I will test the following hypotheses:

H2a: *Educational attainment positively correlates with support for gender equality*

H2b: *Educational attainment has no effect on support for gender equality*

The socioeconomic disparities between Nigeria’s Northern and Southern Regions, especially in terms of educational attainment, are quite stark. It is difficult to disentangle Modern education in Nigeria from religion because the two are inseparably entangled. Modern education was introduced into Nigeria in the mid-sixteenth century by Portuguese Christian missionaries, but it did not gain traction until the mid-nineteenth century. Education was propagated by Christian missionary organizations like the Church Missionary Society, Wesleyan Methodist Society, and the Roman Catholic Mission among others (Ogunsola 1974, 3–4). Until its capture by the British in 1903, most of Nigeria’s Northern Region was part of an Islamic caliphate (i.e., the Sokoto Caliphate), which comprised several emirates (Abubakar 1974). Upon the defeat of emirate forces and the eventual surrender of the emirs to British authority, the emirs had requested that the British should not tamper with their religious way of life (Kirk-Greene 1965, 43–44; Ogunsola 1974, 5). The British did not change much in the Muslim emirates (i.e., Northern Protectorate—after its conquest) when they took over. They appropriated the existing institutions and even employed the local Hausa language for administrative purposes (Diamond 1988, 26).

The Northerners were hostile to Christian missionaries and were not open to Western education because they saw these as vehicles for propagating Christianity. “For many Muslims, schools and churches were synonymous.” (Siollun 2021, 270). The concern of the Northerners was warranted because school teachers often functioned both as “tutors” and “Christian evangelists.” Education paved the way to Christianity “because it taught pupils to read and write in English, which in turn made it easier for them to understand the proselytizing of Christian evangelizers and to read the Bible.” (Siollun 2021, 267). Unlike the Northerners, the people in the Southern Region were open to Christian missionary evangelization. Since education and Christian missionary evangelization often went together, this implied that the population in the Southern Region were more exposed to Western education than that in the Northern Region.

In 1956, four years before Nigeria gained independence from British colonial rule, 1.9 million pupils were enrolled in primary schools across the country. Only 10 percent of these pupils were from the Northern Region; the remaining 90 percent were from the Southern Region. In 1963, three years after Nigeria’s independence from British colonial rule, primary school enrollment across the country rose to 2.9 million. Although the number of pupils from the Northern Region had more than doubled—when compared to the 1956 estimate—Northern Nigeria accounted for only 14 percent of the total

enrollments. The educational gap between the two regions was also present in secondary school enrollments (Helleiner 1966, 433–444). The Northern Region’s lagging position could be better appreciated when one considers the fact that it accounted for over half of Nigeria’s population at that time (Helleiner 1966, 430).

The legacies of the past often persist and continue to shape the present (Cirone and Pepinsky 2022; Dell 2021; Giuliano and Nunn 2021). 12 out of the 19 states in Northern Nigeria adopted Shariah law in the early 2000s, of which Kaduna was one of them (Nmehielle 2004). In 2010, 43 percent of the population in Northern Nigeria were literate in English. The estimate for Southern Nigeria was 72 percent (NBS 2010). Literacy in English is very important in Nigeria because English is the official language and the language of instruction in educational institutions. A poor knowledge of English thus impairs one’s ability to advance educationally. Mirroring the disparities between the two regions, the TRANSMIT dataset, upon which this study relies, shows that the mean educational attainment for the subsample of respondents in Kaduna (Northern Region) and Edo (Southern Region) were 3.7 and 4.6 respectively.¹ The lower educational attainment among the population in Kaduna implies that its population has fewer opportunities for socialization, which in turn constrains the adoption of gender egalitarian attitudes. I thus expect that the population in Kaduna would be less supportive of gender equality than their counterparts in Edo. This leads to the third hypothesis that this study seeks to test:

H3: *The population in Northern Nigeria (Kaduna) is less supportive of gender equality than that in Southern Nigeria (Edo)*

Some studies have specifically examined the relationship between religious affiliation and gender egalitarian attitudes, especially in relation to Islam. Kyoore and Sulemana (2019) found that Muslim affiliation reduced the likelihood of supporting gender equality in Africa. Relying on global data obtained from the WVS, Alexander and Welzel (2011) found stronger support for patriarchal values among Muslims than non-Muslims. Lussier and Fish (2016), who also relied on the WVS global data, found that Muslim affiliation and the proportion of a country’s Muslim population were both negatively correlated with support for gender equality. In a study conducted among college students in Lebanon, Abouchdid (2007) found that Muslims (especially males) were more supportive of traditional gender roles than their Christian counterparts. Some cross-country studies based on the European Social Survey (ESS) dataset have found that Muslim immigrants are more supportive of traditional gender roles than non-Muslim immigrants (Ng 2022; Röder and Mühlau 2014). Glas and Alexander (2020) have criticized the preceding findings on the grounds that they put all Muslims into a single category while ignoring the differences between members of the group. Moreover, they contended that many Muslims in the Arab world do not view Islam and feminism as being mutually exclusive, as it is possible to hold feminist beliefs and at the same time be very religious. In a similar vein, Öztürk (2023), relying on the WVS dataset covering 76 countries, conducted a study where he found that the main driver of patriarchal values was fundamentalism and not Islam. This was because “Muslims and non-Muslims adapt to the conformity pressures of their societies, resulting in egalitarian as well as patriarchal values, depending on the prevalence of fundamentalism.” (173). This leads to the fourth set of hypotheses that this study seeks to test:

H4a: Muslim affiliation negatively correlates with gender egalitarian attitudes

H4b: Muslim affiliation has no effect on gender egalitarian attitudes

3. Data and methods

This study relies on novel survey data collected as part of the TRANSMIT research project in Nigeria in 2021.² Data were collected from the states of Kaduna and Edo, which are in Nigeria's Northern and Southern Regions respectively (See Figure 1). The data is representative for the population in both states. 1,638 and 1,353 respondents were interviewed in Edo and Kaduna respectively. Section B in the appendix discusses the sampling strategy in detail. Tables A4–A6 in the appendix reports the summary statistics of the variables used to estimate the regression models.

3.1. Operationalization of the variables

3.1.1. Dependent variable

The dependent variable—*Support gender equality*—measures the respondents' attitudes toward gender equality. It was derived from the question, “A university education is more important for a boy than for a girl,” with responses on a scale with five ordinal categories ranging from “0 = strongly agree” to “4 = strongly disagree.”

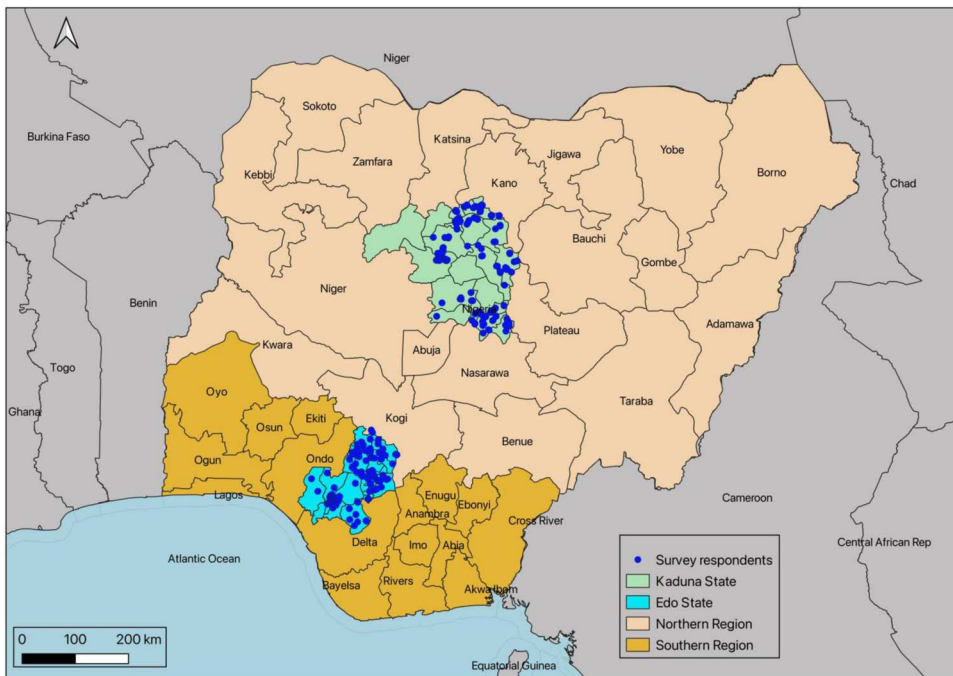


Figure 1. Case studies and Nigeria's two major regions. Note: The figure shows Nigeria's Northern and Southern Regions, the states of Edo and Kaduna—the case studies, and the geolocations of the survey respondents. The shapefiles containing Nigeria's administrative boundaries were developed by the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA).

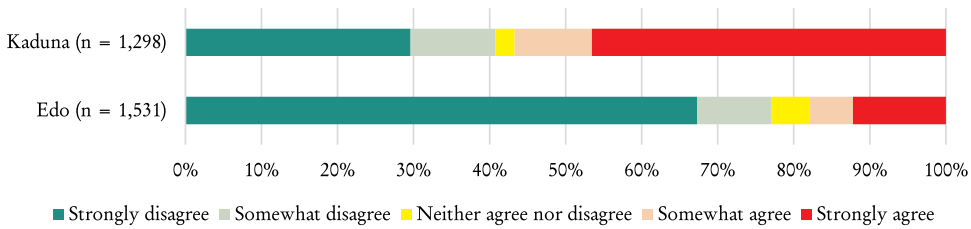


Figure 2. University education more important for boys than girls (Kaduna vs. Edo). Note: The figure shows the respondents' responses to the question probing the relative importance of a university education for boys compared to girls in the states of Edo and Kaduna. The y-axis shows the total number of respondents from the respective states, while the x-axis shows the percentage of respondents associated with each of the response categories.

Figure 2 shows that the population in Edo have stronger gender egalitarian attitudes than that in Kaduna. While 77 percent of them either “strongly disagree” or “somewhat disagree” that a university education is more important for a boy than a girl, the estimate for Kaduna is 41 percent. I developed a binary version of the dependent variable where I coded the “strongly disagree” and “somewhat disagree” response categories as 1, and the “neither agree nor disagree,” “somewhat agree,” and “strongly agree” response categories as 0. I used the binary dependent variable to conduct a robustness check.

3.1.2. Explanatory variables

I considered four explanatory variables which measure educational attainment, gender, Muslim affiliation, and the region where the respondents reside. Educational attainment measures the highest level of education that the respondents have accomplished. It is measured on a scale with 10 ordinal categories ranging from “0 = no formal schooling” to “9 = master’s degree or higher.” Gender is a dummy variable that takes the value of 1 if the respondent is female and 0 if male. Muslim affiliation takes a value of 1 if the respondent is Muslim and 0 if Christian. All the respondents in Kaduna were either Muslim or Christian. However, 25 of the 1,638 respondents in Edo either practiced other religions besides Christianity and Islam or had no religion. Since I am particularly interested in the relationship between Muslims and Christians—the two dominant religious groups—I coded the respondents who were neither Christian nor Muslim as missing observations. This led to a marginal decrease in the number of observations in Edo. The variable “Northern Region,” which is also measured binarily, takes a value of 1 if the respondent resides in Northern Nigeria (i.e., Kaduna) and 0 if he/she resides in Southern Nigeria (i.e., Edo).

3.1.3. Control variables

I considered some control variables for the demographic attributes of the respondents, their income level, and the poverty rate in the local government area (LGA) (i.e., municipality) where they reside. I discuss these variables below:

Household income: This measures the monthly income of the household within which the respondents reside on a scale with four ordinal categories ranging from 1 to 4. This variable proxies socioeconomic condition at the individual level. It was derived from the question, “Regarding the income situation of your household in the last 12 months: was

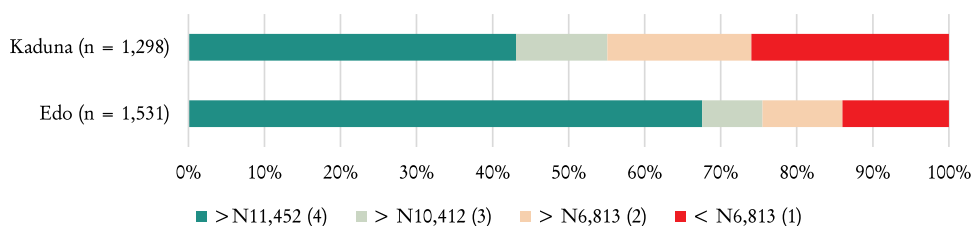


Figure 3. Household income categories in Kaduna and Edo. Note: The figure shows the income of the households within which the respondents reside measured on a four-point ordinal scale. The ordinal values assigned to the respective income categories is specified in parenthesis. The y-axis shows the total number of respondents in the states of Kaduna and Edo, while the x-axis shows the percentage of households associated with the various income categories.

the monthly household income less than (11,452/10,412/6,813) naira per month? By income we mean the incomes of all household members and all sources, including work, remittances, and other aid.” Based on the responses to this question, I developed an ordinal variable with the following categories: 4 = Household’s monthly income above ₦11,452; 3 = Household’s monthly income above ₦10,412; 2 = Household’s monthly income above ₦6,813; 1 = Household’s monthly income below ₦6,813. The monthly income thresholds were derived from a survey conducted by the Nigerian National Bureau of Statistics (NBS) between 2018–2019. Households whose annual consumption expenditure was less than ₦137,430 were considered as poor. The monthly income threshold of ₦11,452 was derived by dividing the annual consumption expenditure estimate by 12. The second and third categories were derived by dividing the annual lower poverty line (₦124,948) and annual food line (₦81,767) estimates by 12 (NBS 2020). As shown in Figure 3, the population in Edo is socioeconomically better off than that in Kaduna.

The rationale for including household income as a control variable is driven by its capacity to influence gender egalitarian attitudes. Low income might imply that a household does not have sufficient resources to send all of its members to school; this in turn limits opportunities for socialization and the adoption of gender egalitarian attitudes. High incomes could also lead to the entrenchment of traditional gender roles. This is because women’s contribution to household income might be less appreciated if the household is already in a good socioeconomic position. This is especially relevant in the case of Nigeria where men are typically viewed as *providers* and women as *home-makers*. The Wave 7 WVS survey dataset (Haerpfer et al. 2022; Inglehart et al. 2014) shows that 41 percent of Nigerians either “strongly agree” or “agree” that “when a mother works for pay, the children suffer.” Breaking down the data based on gender shows that 42 percent of men hold this view. The estimate for women is 40 percent, which is also high.

Poverty rate: This variable, which proxies socioeconomic condition at the communal level, measures the proportion of the population in the LGA where the respondents reside, who were living on less than US\$ 1.25 per day in 2010 (Tatem et al. 2013). This dataset is part of Worldpop’s Development and Health Indicators.³ Since the raw poverty data is gridded, I computed the relevant statistics for the respective LGAs using QGIS software. The mechanisms through which poverty

influences gender egalitarian attitudes are akin to those enumerated for household income because the two variables are similar. What distinguishes them is the level of aggregation.⁴

Demographic attributes: This includes the age and marital status of the respondents. Marital status takes a value of 1 if the respondent is married or has ever been married and takes a value of 0 otherwise. I classified divorcees and widows/widowers as married because divorce or the demise of a spouse does not necessarily do away with familial responsibility, especially if the union produced offspring.

3.2. Analytical technique

The data were analyzed using a two-step process: First, I conducted a descriptive analysis, and then subsequently estimated regression models. In the descriptive analysis, I disaggregated the data based on gender (male and female) and religious affiliation (Muslim and Christian) and made systematic comparisons between the various subgroups both within the respective states and across them. This allowed me to identify heterogeneous patterns both within and across the respective states. I estimated two sets of regression models. The first set of models were based on the pooled data from the states of Kaduna and Edo. This allowed me to investigate whether the broader regional patterns between Northern and Southern Nigeria were mirrored in the respective states. Subsequently, I disaggregated the data and estimated models using the subsample of respondents from the two states. Because I estimated identical regression models using the data from Edo and Kaduna, this allowed me to make systematic comparisons between the results obtained from the two states.

The general form of the regression model could be expressed thus:

$$y_t = \beta_0 + \beta_1 D'_t + \beta_2 X'_t + e_t \quad (1)$$

Where y_t is the dependent variable which measures the respondents' support for gender equality at time t , D'_t is a vector of explanatory variables that have been discussed earlier, X'_t is a vector of control variables that have also been discussed earlier, β_0 is the intercept, β_1 and β_2 denote the coefficients of the explanatory and control variables respectively and e_t is the error term. For easy interpretation of the regression results, I estimated the models using ordinary least squares (OLS) regression. I conducted robustness checks where I used the binary version of the dependent variable to estimate linear probability models (LPM). To allow for the possibility of correlation between observations within the same local government area (LGA) (i.e., municipality), I clustered the standard errors at the LGA level.

4. Results and discussion

4.1. Descriptive analysis

To better understand the contrast in attitudes toward gender equality and educational attainment among the populations in the states of Kaduna and Edo, I disaggregated the data based on gender (males and females) and religious affiliation (Christians and Muslims), and made systematic comparisons between the subgroups within the

respective states and across them. Figure 4 shows the attitudes toward gender equality among the subgroups in a stacked bar chart.

Females have stronger gender egalitarian attitudes than their male counterparts in the respective states of Kaduna and Edo. However, comparing the genders across the two states shows that males in Edo have stronger gender egalitarian attitudes than both females and males in Kaduna. 72 percent of males in Edo either “strongly disagree” or “somewhat disagree” that a university education is more important for a boy than a girl. In Kaduna, 43 and 37 percent of females and males respectively hold this view. Comparing the religious subgroups in the respective states shows that Christians are more supportive of gender equality than Muslims. However, comparing the religious subgroups across the two states shows that Muslims in Edo are more supportive of gender equality than both Christians and Muslims in Kaduna. 70 percent of Muslims in Edo either “strongly disagree” or “somewhat disagree” with the statement that a university education is more important for a boy than a girl. In Kaduna, 64 and 23 percent of Christians and Muslims respectively, hold this view.

Next, I focus on educational attainment. As shown in Table 1, the population in Edo has a higher level of educational attainment than that in Kaduna. Moreover, males have a higher level of educational attainment than females in the respective states of Kaduna and Edo. A point worth highlighting is that the educational gap between the genders in Kaduna is twice the size of that in Edo. The mean educational attainment scores for males and females in Kaduna are 4.2 and 3.2 respectively, which gives an educational attainment gap of 1. The estimates for Edo are 4.9 and 4.4 respectively, which gives an educational attainment gap of 0.5. Furthermore, comparing the genders across the two states shows that females in Edo are more educated than both males and females in Kaduna.

Comparing the mean level of educational attainment among the religious subsamples shows that Christians have a higher level of education than Muslims in the respective states of Edo and Kaduna. The educational attainment gap between Christians and Muslims is larger in Kaduna than in Edo: The mean educational attainment scores for Christians and Muslims in Edo are 4.7 and 4 respectively, which gives an educational

Table 1. Mean levels of educational attainment in Kaduna and Edo.

State	Obs.	Mean
Kaduna	1297	3.7
Males	572	4.2
Females	725	3.2
Christians	570	4.6
Muslims	727	2.9
Edo	1529	4.6
Males	679	4.9
Females	850	4.4
Christians	1338	4.7
Muslims	167	4.0

Note: The table shows the mean level of educational attainment for the respondents from the states of Kaduna and Edo, and the mean level of educational attainment for the subsample of respondents based on gender (Males and females) and religious affiliation (Muslims and Christians). Educational attainment is measured on a scale with ten ordinal categories ranging from “0 = no formal schooling” to “9 = master’s degree or higher.”

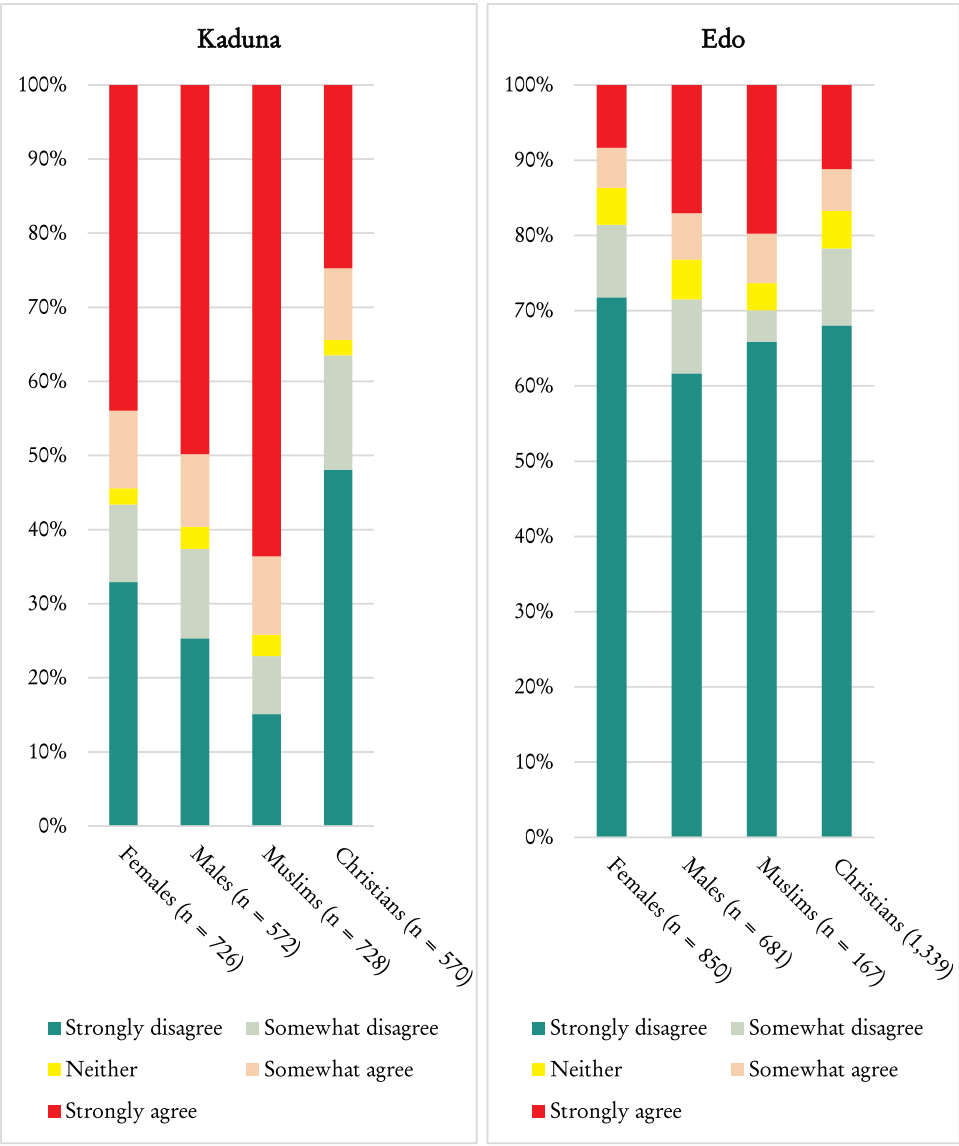


Figure 4. University education more important for boys than girls (subsamples). Note: The figure shows the respondents’ responses to the question probing the relative importance of a university education for boys compared to girls among various subsamples of respondents based on gender (male and female) and religious affiliation (Muslim and Christian) in the states of Kaduna and Edo. The y-axis shows the percentage of respondents associated with each response category, while the x-axis shows the number of respondents belonging to each subsample.

attainment gap of 0.7. In Kaduna, the estimates are 4.6 and 2.9 respectively, with an educational attainment gap of 1.7. Comparing the religious subgroups across the two states show that Muslims in Edo are more educated than both Christians and Muslims in Kaduna. These descriptive results suggest that it would be misleading to lump respondents from the two states into the same category based on gender or religious affiliation

because they differ considerably. In the subsequent section, I move beyond a simple descriptive analysis and draw inference from regression models.

4.2. Regression analysis

4.2.1. Models based on pooled data

To empirically test the hypotheses stated in section 2, I estimated a series of regression models where I pooled the data from the states of Kaduna and Edo. Table 2 reports the results. I added the explanatory and control variables into the model in a stepwise manner to attenuate the problem of multicollinearity. Moreover, this prevents a scenario whereby the results are dependent on the inclusion of a certain combination of variables into the model. Model 1 is a baseline model where I considered only the binary variable indicating whether the respondents reside in the Northern or Southern Region. Northern Region carried the expected negative sign and was significant at the one percent level. This supports Hypothesis 3 which states that the population in Northern Nigeria (Kaduna) is less supportive of gender equality than that in Southern Nigeria (Edo). This is also consistent with results from the descriptive analysis. The populations in the two regions differ considerably in both cultural and socioeconomic terms. This is because they had different levels of exposure to Christian missionary evangelization and Western education during the period when Nigeria was under British colonial rule. These disparities appear to have persisted over time. Chatard and Selimbegovic (2007, 547) argued that “cultural factors may moderate the influence of socialization and self-selection” in the cultivation of egalitarian attitudes. They also pointed that in countries with strong collectivist cultures (e.g., Nigeria), socialization rather than self-

Table 2. OLS models regressing support for gender equality on region, gender, educational attainment, and religious affiliation using the full sample covering Edo and Kaduna.

Support gender equality	(1)	(2)	(3)	(4)	(5)	(6)
Northern Region	-1.471*** (0.219)				-0.892*** (0.191)	-0.67*** (0.198)
Gender		0.314*** (0.064)			0.505*** (0.064)	0.558*** (0.073)
Educational attainment			0.301*** (0.038)		0.203*** (0.022)	0.205*** (0.02)
Muslim affiliation				-1.63*** (0.222)	-0.879*** (0.196)	-0.823*** (0.197)
Age						0.01*** (0.003)
Marital status						0.034 (0.097)
Household income						0.063** (0.025)
Poverty rate						-0.01** (0.004)
Constant	3.142*** (0.054)	2.292*** (0.162)	1.215*** (0.26)	2.987*** (0.09)	2.029*** (0.128)	1.849*** (0.266)
Observations	2829	2829	2826	2804	2802	2801
R-squared	0.174	0.008	0.116	0.187	0.299	0.312
AIC statistic	10673.82	11193.29	10856.71	10544.24	10127.92	10080.41
BIC statistic	10685.71	11205.19	10868.6	10556.12	10157.61	10133.85

Note: Clustered robust standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All models are estimated using ordinary least squares (OLS) regression and are based on the pooled data covering respondents from Kaduna and Edo. The dependent variable is measured on a scale with five ordinal categories.

selection, was the main mechanism through which people altered their attitudes. The lower level of education in Northern Nigeria implies fewer avenues for socialization, which in turn inhibits the adoption of gender egalitarian attitudes.

In model 2, I considered only gender. It was significant at the one percent level and carried the expected positive sign. This is consistent with Hypothesis 1 which states that females are more supportive of gender equality than males. A plausible reason for the higher support for gender equality among women is that they stand to benefit more from a gender egalitarian society, e.g., in terms of having equal opportunities to access education and jobs. In model 3 where I considered only educational attainment, it carried a positive sign and was significant at the one percent level. This supports Hypothesis 2a which states that educational attainment positively correlates with support for gender equality. A plausible mechanism underlying this process is socialization. Education exposes people to different ideas that challenge cultural norms that may be antithetical to gender equality. In model 4 where I considered only Muslim affiliation, it took a negative sign and was significant at the one percent level. This supports Hypothesis 4a that Muslims are less supportive of gender equality than Christians.

In model 5, I considered the four explanatory variables simultaneously. The results were consistent with those reported in the baseline models. As shown in model 6, these results are robust to the inclusion of control variables for the demographic attributes of the respondents, household income, and the rate of poverty in the municipality where the respondents reside. Suffice it to add that the results reported in [Table 2](#) are robust to a binary operationalization of the dependent variable and the use of linear probability regression model (LPM) as an alternative estimation method (See [Table A1](#) in the appendix).

4.2.2. Models based on disaggregated data

Kaduna. Because the results reported in [Table 2](#) are based on the pooled data covering the states of Edo and Kaduna, this could conceal some heterogeneities within the respective regions (states) regarding the relationship between the dependent and explanatory variables. To address this problem, I disaggregated the data and estimated models using the subsample of respondents from the respective states. [Table 3](#) reports the results of regression models based on the data from Kaduna. As shown in model 1 where I considered only gender, it carried a positive sign, which provides further support for Hypothesis 1 that women have stronger gender egalitarian attitudes than men. In model 2 where I considered only educational attainment, it carried a positive sign, which provides further support for Hypothesis 2a that education positively correlates with support for gender equality. Muslim affiliation carried a negative sign in model 3, which is consistent with Hypothesis 4a that Muslims are less supportive of gender equality than Christians. In model 4 where I added the three explanatory variables in the same model, the results were consistent with those in the baseline models. As shown in model 5, these results are robust to the inclusion of the control variables. The results from Kaduna are consistent with that reported in [Table 2](#) where I pooled the data from the two states together. Suffice it to add that the results reported in [Table 3](#) are robust to a binary operationalization of the dependent variable and the use of linear probability regression model (LPM) as an alternative estimation method (See [Table A2](#) in the appendix).

Table 3. OLS models regressing support for gender equality on gender, educational attainment, and religious affiliation in Kaduna.

Support gender equality	(1)	(2)	(3)	(4)	(5)
Gender	0.246** (0.099)			0.651*** (0.061)	0.716*** (0.067)
Educational attainment		0.348*** (0.026)		0.287*** (0.021)	0.265*** (0.022)
Muslim affiliation			−1.522*** (0.239)	−1.102*** (0.209)	−1.056*** (0.191)
Age					0.013*** (0.004)
Marital status					−0.113 (0.183)
Household income					0.087** (0.037)
Poverty rate					−0.015*** (0.004)
Constant	1.533*** (0.204)	0.397** (0.141)	2.525*** (0.194)	0.875*** (0.228)	1.231** (0.466)
Observations	1298	1297	1298	1297	1297
R-squared	0.005	0.182	0.181	0.294	0.317
AIC statistic	5170.658	4912.85	4917.528	4726.446	4692.08
BIC statistic	5180.995	4923.185	4927.865	4747.118	4733.422

Note: Clustered robust standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All models are estimated using ordinary least squares (OLS) regression and are based on the subsample of respondents from Kaduna. The dependent variable is measured on a scale with five ordinal categories.

Edo. Table 4 reports the results of regression models based on the data from the state of Edo. In model 1 where I considered only gender, it carried the expected negative sign and was significant at the one percent level. This supports Hypothesis 1 that women have stronger gender egalitarian attitudes than men. A point worth highlighting is that the effect size, as evidenced by the regression coefficient, is larger in Edo than in Kaduna. In model 2 where I considered only educational attainment, it was significant at the five percent level and carried a positive sign. This supports Hypothesis 2a that education increases support for gender equality. However, the effect size was smaller in Edo than Kaduna. This might be due to a ceiling effect, as the population in Edo is generally more educated than that in Kaduna and hence has stronger gender egalitarian attitudes.

As shown in model 3, Muslim affiliation was statistically insignificant. This provides support for Hypothesis 4b that Muslim affiliation has no effect on gender egalitarian attitudes. Put differently, Muslims do not differ statistically from Christians in terms of their support for gender equality. This contrasts with the case of Kaduna and the pooled model where Muslim affiliation was negatively correlated with support for gender equality. This finding provides support for my earlier argument that it would be misleading to lump respondents from the two states based on religious affiliation or gender because they differ considerably. But why are Muslims in Edo more supportive of gender equality than their co-religionists in Kaduna? A plausible reason could be the limited grip of religion on society in Edo. Unlike Kaduna where religion is a contentious issue and the fault line demarcating Muslims and Christians is quite stark, the religious boundary between the two groups in Edo is less salient. Suffice it to add that Kaduna was one of the nineteen states in Northern Nigeria that adopted shariah law in the early 2000s, a move that infuriated the Christian population residing there and led to violent clashes between members of the two religious groups (Angerbrandt 2011; Human Rights Watch 2003).

Table 4. OLS models regressing support for gender equality on gender, educational attainment, and religious affiliation in Edo.

Support gender equality	(1)	(2)	(3)	(4)	(5)
Gender	0.382*** (0.079)			0.407*** (0.081)	0.427*** (0.092)
Educational attainment		0.06** (0.021)		0.078*** (0.019)	0.091*** (0.019)
Muslim affiliation			-0.286 (0.173)	-0.221 (0.144)	-0.21 (0.166)
Age					0.003 (0.003)
Marital status					0.225* (0.114)
Household income					0.077** (0.036)
Poverty rate					0.002 (0.005)
Constant	2.93*** (0.082)	2.864*** (0.113)	3.184*** (0.053)	2.59*** (0.109)	1.928*** (0.269)
Observations	1531	1529	1506	1505	1504
R-squared	0.018	0.005	0.004	0.028	0.042
AIC statistic	5405.491	5418.844	5332.72	5296.958	5280.581
BIC statistic	5416.158	5429.509	5343.354	5318.225	5323.108

Note Clustered robust standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All models are estimated using ordinary least squares (OLS) regression and are based on the subsample of respondents from Edo. The dependent variable is measured on a scale with five ordinal categories.

It is possible that the more secular culture in Edo, coupled with the higher level of educational attainment among its population, has contributed to socializing Muslims residing there toward holding more positive attitudes toward gender equality.

In model 4 where I included all the explanatory variables in the same regression model, the results were consistent with those in the baseline models. As shown in model 5, these results were robust to the inclusion of the control variables. Suffice it to add that the results reported in Table 4 are robust to a binary operationalization of the dependent variable and the use of linear probability regression model (LPM) as an alternative estimation technique (See Table A3 in the appendix).

5. Conclusion

This study examined the correlates of attitudes toward gender equality in Nigeria with particular emphasis on the role played by gender, educational attainment, religious affiliation, and the region where the respondents reside. The pooled regression model where I combined the data obtained from the states of Edo and Kaduna showed that the population in Northern Nigeria (Kaduna) is less supportive of gender equality than that in Southern Nigeria (Edo). The regression results also showed that educational attainment and being female were positively correlated with support for gender equality, while Muslim affiliation was negatively correlated with support for gender equality. In the disaggregated models where I estimated regressions using the data from the respective states, I found that educational attainment and being female were positively correlated with support for gender equality in both Edo and Kaduna. However, the effect of religious affiliation on gender egalitarian attitudes varied between the states: while Muslim affiliation was negatively correlated with support for gender equality in

Kaduna, it was statistically insignificant in Edo. This indicates that Muslims in Edo differ from their co-religionists in Kaduna.

The descriptive analysis showed that the population in Edo is more supportive of gender equality than that in Kaduna. When I disaggregated the data based on gender (males and females) and religious affiliation (Christians and Muslims) and compared the subgroups within the respective states of Kaduna and Edo, some patterns emerged: Christians were more supportive of gender equality than Muslims. Females were also more supportive of gender equality than males. However, when I compared the subgroups across the two states, I found that Muslims in Edo were more supportive of gender equality than both Christians and Muslims in Kaduna. Moreover, males in Edo were more supportive of gender equality than both females and males in Kaduna. This suggests that it would be misleading to lump respondents from the two states (regions) into the same category based on gender or religious affiliation because they differ considerably. This lends support to those studies which contend that Muslims should not be treated as a homogenous group (e.g., Glas et al. 2019; Glas and Alexander 2020; Öztürk 2023).

Women constitute half of Nigeria's population. Depriving them of educational opportunities is a big loss for the country because it curtails their productivity and invariably their capacity to contribute to economic growth and development. Moreover, mothers' education has been found to reduce teenage fertility and positively correlate with improved health outcomes for children. The problem of teenage fertility is especially relevant in the case of Northern Nigeria where child marriage is prevalent (Amzat 2020; Kaduna State Bureau of Statistics 2015, 6; Mobolaji, Fatusi, and Adedini 2020; The Guardian 2021). Educated women are more likely to delay marriage than their uneducated counterparts (Bates, Maselko, and Schuler 2007; Marphatia et al. 2020).

This study highlights the need for researchers studying gender egalitarian attitudes to move beyond the country level picture and also consider heterogeneities at the subnational level in their analysis. A limitation of this study is the cross-sectional nature of the dataset, which makes it impossible to examine changes in gender egalitarian attitudes over time. Future research could focus on replicating these findings using panel data.

Notes

1. Educational attainment was measured on a scale with 10 ordinal categories ranging from "0 = no formal schooling" to "9 = master's degree or higher."
2. For more information on the TRANSMIT project visit: <https://www.projekte.hu-berlin.de/en/transmit>
3. To access the poverty dataset visit: <https://www.worldpop.org/>
4. Including household income and communal poverty rate in the same model did not lead to multicollinearity. The correlation between both variables was 0.19.

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Data availability statement

The data and do-files underlying this study are available in the Harvard Dataverse: <https://doi.org/10.7910/DVN/5AEATJ>.

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Appendix

Section A:

Table A1. LPM models replicating the results in Table 2 (Edo and Kaduna).

Support gender equality	(1)	(2)	(3)	(4)	(5)	(6)
Northern Region	−0.363*** (0.058)				−0.209*** (0.053)	−0.153** (0.057)
Gender		0.08*** (0.018)			0.128*** (0.019)	0.145*** (0.021)
Educational attainment			0.077*** (0.01)		0.052*** (0.006)	0.052*** (0.006)
Muslim affiliation				−0.421*** (0.056)	−0.239*** (0.053)	−0.228*** (0.053)
Age						0.003*** (0.001)
Marital status						0.001 (0.024)
Household income						0.026*** (0.008)
Poverty rate						−0.002 (0.001)
Constant	0.77*** (0.015)	0.559*** (0.041)	0.284*** (0.066)	0.739*** (0.023)	0.489*** (0.038)	0.392*** (0.074)
Observations	2829	2829	2826	2804	2802	2801
R-squared	0.136	0.007	0.098	0.161	0.248	0.261
AIC statistic	3571.126	3967.527	3689.749	3456.763	3153.825	3113.129
BIC statistic	3583.021	3979.422	3701.642	3468.64	3183.516	3166.568

Note: Clustered robust standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All regressions are estimated using linear probability model (LPM) and are based on the pooled data covering respondents from Kaduna and Edo. The dependent variable is measured binarily.

Table A2. LPM models replicating the results in Table 3 (Kaduna only).

Support gender equality	(1)	(2)	(3)	(4)	(5)
Gender	0.06** (0.026)			0.166*** (0.018)	0.185*** (0.018)
Educational attainment		0.092*** (0.008)		0.075*** (0.006)	0.068*** (0.007)
Muslim affiliation			-0.406*** (0.064)	-0.295*** (0.057)	-0.286*** (0.052)
Age					0.003*** (0.001)
Marital status					-0.039 (0.043)
Household income					0.028*** (0.009)
Poverty rate					-0.004*** (0.001)
Constant	0.374*** (0.053)	0.072* (0.034)	0.635*** (0.055)	0.206*** (0.064)	0.305** (0.128)
Observations	1298	1297	1298	1297	1297
R-squared	0.004	0.165	0.168	0.267	0.29
AIC statistic	1838.262	1607.438	1604.446	1442.246	1409.798
BIC statistic	1848.599	1617.774	1614.784	1462.918	1451.14

Note: Clustered robust standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All regressions are estimated using linear probability model (LPM) and are based on the subsample of respondents from Kaduna. The dependent variable is measured binarily.

Table A3. LPM models replicating the results in Table 4 (Edo only).

Support gender equality	(1)	(2)	(3)	(4)	(5)
Gender	0.099*** (0.025)			0.103*** (0.025)	0.113*** (0.029)
Educational attainment		0.014** (0.006)		0.017*** (0.006)	0.02*** (0.006)
Muslim affiliation			-0.082 (0.051)	-0.067 (0.044)	-0.07 (0.049)
Age					0.001 (0.001)
Marital status					0.054* (0.03)
Household income					0.034*** (0.012)
Poverty rate					0.002 (0.001)
Constant	0.715*** (0.024)	0.707*** (0.035)	0.783*** (0.014)	0.643*** (0.032)	0.35*** (0.081)
Observations	1531	1529	1506	1505	1504
R-squared	0.014	0.003	0.004	0.021	0.038
AIC statistic	1677.099	1689.578	1648.57	1626.464	1606.658
BIC statistic	1687.767	1700.243	1659.205	1647.73	1649.185

Note: Clustered robust standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All regressions are estimated using linear probability model (LPM) and are based on the subsample of respondents from Edo. The dependent variable is measured binarily.

Table A4. Summary Statistics (Edo and Kaduna).

Variable	Obs.	Mean	Std. Dev.	Min	Max
Support gender equality	2829	2.467	1.756	0	4
Support gender equality (binary)	2829	0.604	0.489	0	1
Northern Region	2991	0.452	0.498	0	1
Gender	2891	0.555	0.497	0	1
Educational attainment	2826	4.165	1.991	0	9
Muslim affiliation	2804	0.319	0.466	0	1
Age	2890	35.29	15.024	15	97
Marital status	2829	0.685	0.464	0	1
Household income	2829	3.03	1.219	1	4
Poverty	2991	52.363	14.597	26.034	81.122

Note: The statistics are based on the pooled data consisting of respondents from the states of Edo and Kaduna.

Table A5. Summary Statistics (Kaduna only).

Variable	Obs.	Mean	Std. Dev.	Min	Max
Support gender equality	1298	1.671	1.775	0	4
Support gender equality (binary)	1298	0.408	0.492	0	1
Educational attainment	1297	3.665	2.181	0	9
Gender	1321	0.557	0.497	0	1
Muslim affiliation	1298	0.561	0.496	0	1
Marital status	1298	0.74	0.439	0	1
Age	1321	34.391	14.004	15	85
Household income	1298	2.722	1.258	1	4
Poverty rate	1353	63.317	12.55	34.866	81.122

Note: The statistics are based on the subsample of respondents from Kaduna.

Table A6. Summary Statistics (Edo only).

Variable	Obs.	Mean	Std. Dev.	Min	Max
Support gender equality	1531	3.142	1.425	0	4
Support gender equality (binary)	1531	0.77	0.421	0	1
Educational attainment	1529	4.589	1.703	0	9
Gender	1570	0.553	0.497	0	1
Muslim affiliation	1506	0.111	0.314	0	1
Marital status	1531	0.639	0.481	0	1
Age	1569	36.047	15.797	15	97
Household income	1531	3.291	1.121	1	4
Poverty rate	1638	43.315	8.831	26.034	54.685

Note: The statistics are based on the subsample of respondents from Edo.

Section B

Sampling strategy

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

Grid cells of 5×5 km, which were called precincts, were developed using QGIS software. These precincts were laid on a shapefile showing the administrative boundaries of both states. Each precinct was comprised of smaller 0.5×0.5 km grid cells. Precincts were randomly drawn with

replacement, with probabilities corresponding to the population sizes within each of them. From each of the selected precincts, smaller 0.5×0.5 km grid cells were randomly selected with probabilities corresponding to the size of the population within them. The smaller grid cells were drawn without replacement. Within each of the smaller grid cells, an average of 12 households were interviewed. The households were selected using a random walk approach, and the interviewee within the household was chosen using a simple random draw. Respondents were at least 15 years old. Before minors were interviewed, consent was sought from the household head. The minor was interviewed only if he or she also granted consent. Respondents were informed that participation in the survey was voluntary, and they could opt out of the interview at any time.

The slight difference between the sampling strategy employed in Kaduna compared to the one used in Edo is that the sample in Kaduna was stratified according to the population size in the senatorial district (Each state in Nigeria comprises of 3 senatorial districts; each senatorial district comprises of LGAs). This was done to ensure that the exclusion of the four LGAs did not skew the sample. Samples were drawn within each of the senatorial districts in relation to their respective population shares. It is difficult to obtain recent population estimates for Nigeria from official government sources because the last population census was conducted in 2006. Due to this constraint, the population for both states were obtained from the 2020 Worldpop gridded dataset (Bondarenko et al. 2020).